# Appendix 37

# Whale Tail 2023 Fish Habitat Offsets Monitoring Report

MEADOWBANK COMPLEX

# 2023 FISH HABITAT OFFSETS MONITORING REPORT

In Accordance with

DFO Fisheries Act Authorization 16-HCAA-00370

and

DFO Fisheries Act Authorization 20-HCAA-00275

Prepared by:
Agnico Eagle Mines Limited – Meadowbank Complex

March, 2024

## EXECUTIVE SUMMARY

In accordance with Fisheries Act Authorizations 16-HCAA-00370 and 20-HCAA-00275, Agnico Eagle maintains a Fish Habitat Offsets Monitoring Plan (FHOMP; Version 2, July, 2021 – Agnico Eagle, 2021[1]) for the Whale Tail Mine. This Plan was developed to determine whether fish habitat offsetting described in the *Whale Tail Pit - Fish Habitat Offsetting Plan* (C. Portt and Associates, 2018a) and the *Whale Tail Pit Expansion Project Fish Habitat Offsetting Plan* (ERM, 2020) is ultimately constructed and functioning as intended.

According to this Plan, monitoring is conducted under the pre-offsetting ecological monitoring program from 2021 through 2023. Along with data collected between 2018 and 2020 through other existing research and compliance monitoring studies, this program is intended to demonstrate whether terrestrial flooding that was temporarily required for operational purposes will provide suitable habitat for fish long-term. Permanently raised water levels are accepted offsets under both the 2018 and 2020 offsetting plans for the Whale Tail Mine, and flood zone assessment prior to permanent sill construction is required under conditions of the associated Fisheries Act Authorization 20-HCAA-00275.

In 2023, FHOMP field assessments included: flood zone water level monitoring, water quality data collected through the Core Receiving Environment Monitoring Plan (CREMP) plus supplemental stations, analysis of periphyton growth using artificial substrate samplers, periphyton visual surveys, small-bodied fish population assessments by shoreline electrofishing, underwater camera surveys in high-potential lake trout spawning areas, and gillnet surveys for evaluation of large-bodied fish populations. A summary of FHOMP methods and results to date is presented here, with further analysis in the report *Impact Analysis of Fish Habitat from Flooding*, to be provided to DFO under separate cover in 2024 in fulfillment of Condition 5.3.1 of FAA 20-HCAA-00275.

Briefly, CREMP results through 2023 continue to indicate increased concentrations of some water quality parameters (especially nutrients) in the Whale Tail flood zone compared to baseline and reference conditions, as predicted in the 2018 FEIS Addendum (Agnico Eagle, 2018b). However, measured concentrations do not exceed effects-based thresholds for impacts to aquatic life. Though some periphyton sampler loss occurred in 2022, modifications eliminated this problem in 2023, and it is evident that seasonal periphyton growth on this artificial substrate is greater in flood zone lakes compared to reference lakes. These observations are in line with 2018 FEIS Addendum predictions for increased nutrient concentrations and primary productivity in flood zone lakes, as well as trends in phytoplankton biomass measured to date through the CREMP program. Periphyton visual surveys identified a wide range of periphyton cover conditions across both flood zone and reference lakes, from no coverage to >75% coverage, without a clear relationship to flood status. Where present,

[1] Version 2 of the FHOMP was developed to include requirements of both Whale Tail site FAAs (16-HCAA-00370 and 20-HCAA-00275) and was submitted to DFO in July, 2021. No comment from DFO has yet been received but Agnico has undertaken monitoring and reporting according to this version starting in 2021 since no monitoring is scheduled under Version 1 until 2026.

periphyton thickness, evenness, and texture was visually estimated to be similar to or approaching that of reference areas. Electrofishing studies have identified the presence of small-bodied fish populations in newly created shoreline habitat at catch rates and size ranges that appear similar to reference areas. Finally, underwater video and gillnet surveys confirmed continued use of deeper water habitat by large-bodied fish at rates no lower than reference areas.

In addition to flooding and other constructed habitat offsetting features, a portion of offsetting for Whale Tail Mine is provided through a suite of complementary measures (research projects). No physical monitoring is conducted in relation to research projects. However, progress monitoring is conducted to document annual activities, and results are summarized here to determine when criteria for success have been met.

Six research studies form the complementary measures for Whale Tail Mine offsetting. Due to delays that were largely as a result of the COVID-19 pandemic, some study periods have been extended, as indicated in Table 1 below. In 2021, Study 4: *Arctic Grayling Occupancy Modelling* was completed and criteria for success were met with publication of a peer-reviewed manuscript, as described in the 2021 Fish Habitat Offsets Monitoring Report.

**Table 1. Whale Tail Mine complementary measures (research projects). *Extended due to COVID or other delays (estimated termination dates as of Dec. 2023 shown).**

| Study | Lead Researcher | Study Period |
|---|---|---|
| Study 1: Assessment of changes in aquatic productivity and fish populations due to flooding of Whale Tail South and downstream lakes during operations | H. Swanson | 2018 – 2024* |
| Study 2: Assessment of impacts of the Baker Lake wastewater outflow on aquatic systems including fish and fish habitat | H. Swanson | 2019 – 2025/2026* |
| Study 3: Literature review and field validation of northern lake fish habitat preferences | S. Doka | 2018 – 2024* |
| Study 4: Arctic Grayling occupancy modelling (COMPLETE) | H. Swanson | 2018 – 2021 |
| Study 5: End pit lake habitat use | TBD | 2027 – 2035 (est.) |
| Study 6: eDNA methods development | J. Stetefeld | 2018 – 2023/2024 |

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# SECTION 1 • INTRODUCTION

## 1.1 BACKGROUND

In accordance with Fisheries Act Authorizations (FAAs) 16-HCAA-00370 and 20-HCAA-00275, Agnico Eagle maintains a Fish Habitat Offsets Monitoring Plan (FHOMP; Version 2, July, 2021 – Agnico Eagle, 2021[2]) for the Whale Tail Mine. This Plan was developed to determine whether fish habitat offsetting described in the Whale Tail Pit - Fish Habitat Offsetting Plan (C. Portt and Associates, 2018a) and the Whale Tail Pit Expansion Project Fish Habitat Offsetting Plan (ERM, 2020) is ultimately constructed and functioning as intended.

This monitoring program is organized to meet the requirements of the FAAs listed above, specifically:

*Fisheries Act Authorization 16-HCAA-00370 (July, 2018):*

- Condition 4.3 – Offsetting criteria to assess the implementation and effectiveness of the offsetting measures: All fish habitat offsetting measures shall be completed and functioning according to the following criteria:
    - 4.3.1 – Offsetting measures shall be carried out in accordance with the measures set out in the Proponent's Whale Tail Pit Fish Habitat Offsetting Plan (including the updated Appendix C, dated May 2018), or the most recent version approved by DFO;
    - 4.3.2 – All offsetting features are to be constructed prior to re-flooding of the north basin of Whale Tail Lake in accordance to the schedule outlined in the Whale Tail Pit Fish Habitat Offsetting Plan dated March, 2018 (or most recent approved version);
    - 4.3.3 – The offsetting features (e.g. shoals) have established aquatic biota and are being utilized by fish for one or more of their life history functions.
- Condition 5.1 – the proponent shall conduct monitoring of the implementation of offsetting measures according to the approved timeline and criteria;
    - 5.1.1 – List of timeline(s) and monitoring and reporting criteria:,
        - 5.1.1.4 – the Proponent shall provide an annual Whale Tail Pit Fish Habitat Offset Monitoring Report to DFO (and interested parties)

[2] Version 2 of the FHOMP was developed to include requirements of both Whale Tail site FAAs (16-HCAA-00370 and 20-HCAA-00275) and was submitted to DFO in July, 2021. No comment from DFO has yet been received but Agnico has undertaken monitoring and reporting according to this version staring in 2021 since under Version 1 of the FHOMP (Agnico Eagle, 2018a), no field monitoring was scheduled until 2026.

following the construction of the offsetting habitat by March 31. The proponent is required to provide the report until DFO indicates this requirement has been met.

- 5.1.1.5 – As part of the annual report, the Proponent shall include, but not limited to:
    - A digital photographic record with GPS coordinates of pre-construction, during construction, and post-construction conditions shall be compiled using the same vantage points and direction to show that the approved works have been completed in accordance with the offsetting plan;
    - A summary of field observations for each respective year as well as the as-built survey;
    - A detailed analysis report summarizing the effectiveness of the offsetting measures.

*Fisheries Act Authorization 20-HCAA-00275 (July, 2020):*

- Condition 4.3 – Offsetting criteria to assess the implementation and effectiveness of the offsetting measures: All fish habitat offsetting measures shall be completed and functioning according to the criteria below;
    - 4.3.1 - Offsetting measures shall be carried out in accordance with the measures set out in the Proponent's offsetting plan dated June 5, 2020 in the Whale Tail Pit Expansion Project - Information Requirements in Support of the Application for Authorization Under Paragraph 35(2)(b) of the Fisheries Act prepared by ERM Consultants Canada Ltd and Appendix H – Offsetting Design;
    - 4.3.2 - Where Proponent did not provide the detailed engineering plans, offsetting measures shall also be carried out in accordance with the measures as agreed upon after consultation with DFO and other interested parties as per section 4.8.1;
    - 4.3.3 - The Proponent shall provide DFO with sufficient information for DFO to determine if flooding of south portion of Whale Tail Lake area as a result of the Whale Tail Dike (PATH No.: 16-HCAA-00370) provides suitable habitat and enhances productivity of target species as identified through consultation with local communities prior to commencement of consultation on final design of offsetting sill. A report shall be presented to DFO as outlined in section 5.3.1 of this Authorization.

- Condition 5.1 - Schedule and criteria: The Proponent shall conduct monitoring of the implementation of offsetting measures according to the timeline and criteria below [or according to the timeline and criteria in the offsetting plan approved by DFO, referred to in section 4.2 and attached to this authorization and which are the following:
    - 5.1.1 List of timeline(s) and monitoring and reporting criteria:
        - 5.1.1.1 The Proponent shall monitor the geotechnical aspect of the proposed offsetting sill to establish its efficacy to maintain water levels as predicted and examine erosion or slumping twice a year over a 10-year period following the construction of the offsetting sill in 2026.
        - 5.1.1.2 The Proponent shall monitor both biological (fish use, health and biological traits) and ecological (water quality, periphyton productivity) properties of the offsetting habitat expanding on required monitoring in the Fisheries Act Authorization for the Approved Project (PATH No.: 16-HCAA-00370). The proponent shall conduct the biological monitoring programs every year from the date of issuance of the Authorization to the construction of the offsetting sill to show compliance with criteria 4.3.3 and in years 1, 3, 5 and 10 following the construction of the offsetting habitat to establish efficacy of the offsetting measures to provide suitable habitat and enhance productivity of target species.
- Condition 5.2 - List of reports to be provided to DFO: The Proponent shall report to DFO on whether the offsetting measures were conducted according to the conditions of this authorization by providing the following:
    - 5.2.1 The Proponent shall provide a Whale Tail Expansion Fish Habitat Offset Monitoring Report to DFO including geotechnical and biological and ecological monitoring as per section 5.1.1. The Proponent is required to provide the Report by March 31 of 2027 and update annually for 10 years or until DFO indicates requirements of this Authorization have been met.
    - 5.2.2 As part of the annual report the Proponent shall include, but is not limited to:
        - 5.2.2.1 a digital photographic record with GPS coordinates of pre-construction, during construction and post construction conditions shall be compiled using the same vantage points and direction to show that the approved works have been completed in accordance with the offsetting plan, and as-built plans and engineering diagrams;
        - 5.2.2.2 a summary of field observations for each respective year; and,

        - 5.2.2.3 a detailed analysis report summarizing the effectiveness of the offsetting measures including the final engineering designs, and maps from flooding models.

    - 5.2.3 The Proponent shall provide a summary report of all Whale Tail Expansion Fish Habitat Offset Monitoring Reports described in section 5.2.1 before March 31, 2036 to DFO (and interested parties) which shall analyse results from the offsetting measures of the Whale Tail Expansion Project following the construction of the offsetting habitat. DFO reserves the right to request additional Summary Report if annual reporting were to continue until requirement has been met.

- Condition 5.3 Other monitoring and reporting conditions for offsetting:

    - 5.3.1 The Proponent shall provide a detailed *Impact Analysis of Fish Habitat from Flooding* by March 31, 2024. The content of this report shall be discussed and approved by DFO (and interested parties) and will be used to establish if the proposed offsetting measures are likely to provide suitable habitat and enhance productivity of target species.

Further, in accordance with monitoring recommendations in DFO guidance documents (e.g. Smokoroski et al., 2015), two types of monitoring are specified:

1. “Compliance” monitoring assesses the physical structure and stability of offsetting features to verify that they were constructed as designed.

2. “Effectiveness” monitoring of biological and ecological endpoints (water quality, periphyton growth, fish use) to assess whether offsetting features are functioning effectively as fish habitat.

## 1.2 OBJECTIVES

The majority of habitat gains for Whale Tail Site offsetting are planned to be achieved through habitat creation and enhancement efforts. To ensure that offsets are functioning as effective fish habitat, assessment of the structure, stability, and successful utilization of these features by fish are the primary goals of the monitoring program for habitat enhancement/creation offsets.

The overall objectives of FHOMP reporting are:

a. To describe the compliance and effectiveness monitoring methods for assessments conducted in the preceding year according to the FHOMP and describe any deviations from the FHOMP.
b. To present the results of data analyses conducted according to the FHOMP.
c. Using those results, to determine whether criteria for success have been met.

In addition to the constructed habitat offsetting features to be monitored through this plan, a portion of offsetting for Whale Tail Mine (FAA 16-HCAA-00370) will be provided through a suite of complementary measures (research projects). Full progress reporting is completed for these programs under separate cover and provided to DFO by May 30 annually, according to conditions of the FAA. Study plans and success criteria for the complementary measures are described in the *Whale Tail Pit - Fish Habitat Offsetting Plan* – Appendix C (May 2018) and referred to minimally here. However, this report does include a summary of research study progress, along with annual activities of the oversight body (Meadowbank Fisheries Research Advisory Group; MFRAG) and indicates when criteria for success have been achieved.

## 1.3 SUMMARY OF OFFSETTING FEATURES

The following constructed features will create or enhance fish habitat to offset losses occurring from the Whale Tail Mine. Complementary measures (research projects) are also summarized. Further details are provided in the *Whale Tail Pit - Fish Habitat Offsetting Plan* (March, 2018 and its Appendix C, May 2018) and the *Whale Tail Pit Expansion Project Fish Habitat Offsetting Plan* (March, 2020).

### 1.3.1 Constructed Offsets

#### *1.3.1.1 Rock Shoals and Road Scarification*

Placement of rock material to change lake basin substrate from fine or mixed to coarse (i.e., the creation of rock shoals) is a commonly used fish habitat enhancement technique. In the dewatered area of Whale Tail Lake (Figure 1), roads and jetties will be scarified or converted to coarse substrate as necessary to create shoal-like features. In addition, an 8.7 ha network of shoals (termed grid shoals based on their conceptual design pattern) will convert a portion of the North Basin to higher-value habitat. Works will be conducted prior to the start of reflooding (est. 2026) and be accessible to fish post-reflooding (est. 2042).

#### *1.3.1.2 Water Retention Sills and Flooding*

During the operations period for the Whale Tail site, flooding of terrestrial zones in Whale Tail Lake (South Basin) and areas to the southwest is required for water management purposes (Figure 1). Flooding was initiated in 2019 and was complete in 2020. The majority of fish habitat offsets for the Whale Tail Mine will be obtained by constructing two permanent water control structures (sills) to maintain elevated water levels in this area long-term.

Prior to the pit reflooding period (est. start 2026) while Whale Tail Lake North Basin is still dry, one sill will be constructed just upstream (east) of Mammoth Dike. Once the Whale Tail Dike and Mammoth Dike are breached and flows resume their natural direction from Whale Tail Lake to Kangislulik (Mammoth) Lake, this feature will ensure that water levels in the re-flooded Whale Tail Lake remain at 1 m higher than baseline conditions, creating approximately 46.6

ha of new aquatic habitat. This sill is further described in the *Whale Tail Pit - Fish Habitat Offsetting Plan* (C. Portt and Associates, 2018a).

Similarly, a sill is planned to be constructed between lake A18 and Whale Tail Lake. This structure will maintain water levels in the southwest flood zone (A18 – A22 & A63, termed "Lake A18" in the offsetting plan) at 1.3 m above baseline, creating approximately 31.35 ha of permanent aquatic habitat. This sill is further described in the *Whale Tail Pit Expansion Project Fish Habitat Offsetting Plan* (ERM, 2020).

PROJECT: DA11-062-08

CLIENT: Agnico-Eagle Mines Ltd. Meadowbank Division

DATE: 18, March 2024

DRAWN BY: J. Sauder/ D. Scott/ J. Lacsamana/E. Heizer

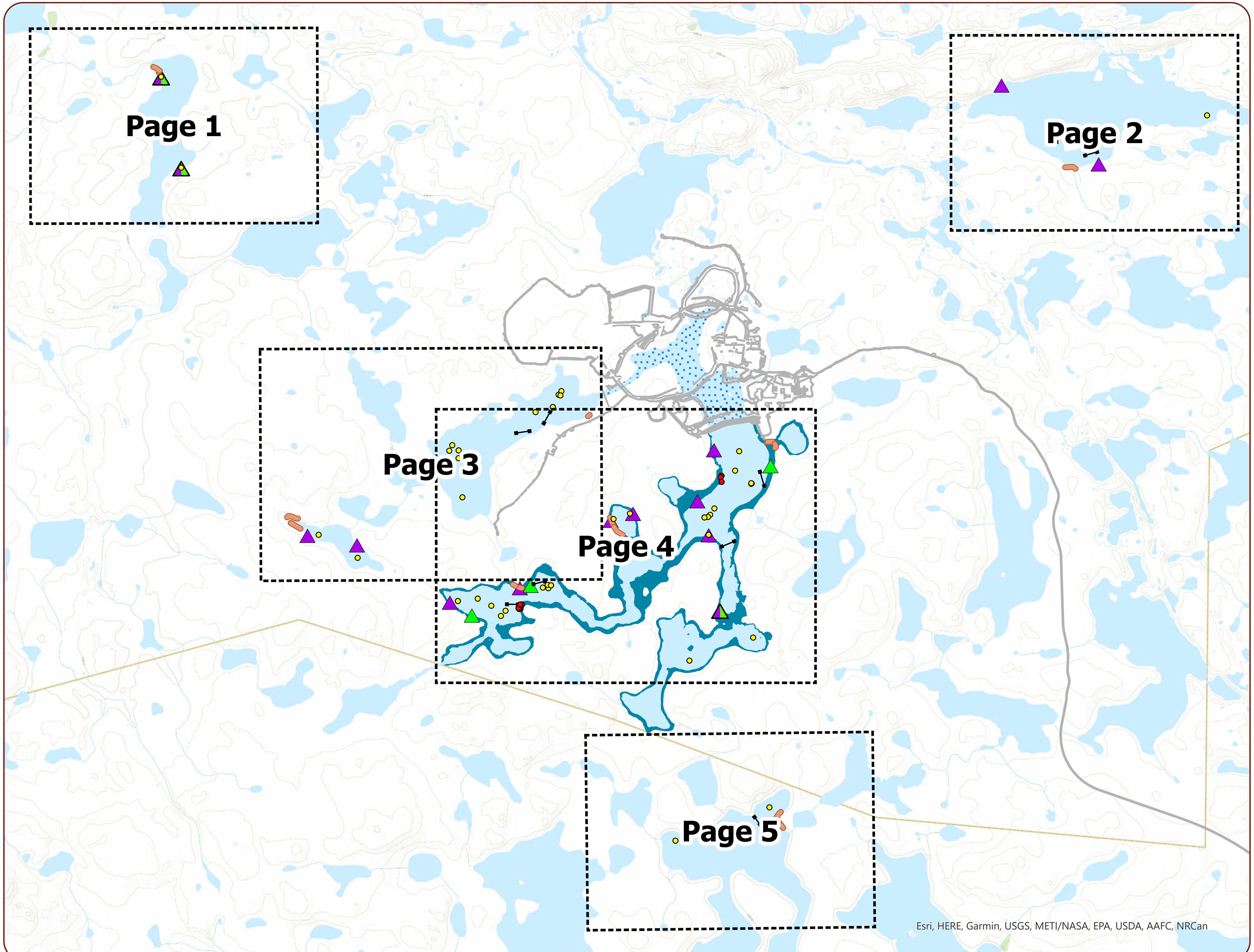


Figure 1: 2023 FHOMP Overview Monitoring Locations

Whale Tail Mine

- Water Chemistry Station
- Underwater Camera Locations
- Periphyton Substrate Stations
- Periphyton Visual Survey Station
- Shoreline Electrofishing Routes
- Gillnet Locations
- Infrastructure
- Baseline Water Level
- Dewatered Lake
- Flood Zone

0 0.65 1.3 km

N

UTM Zone 17N NAD83

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PROJECT: DA11-062-08
CLIENT: Agnico-Eagle Mines Ltd. Meadowbank Division
DATE: 18, March 2024
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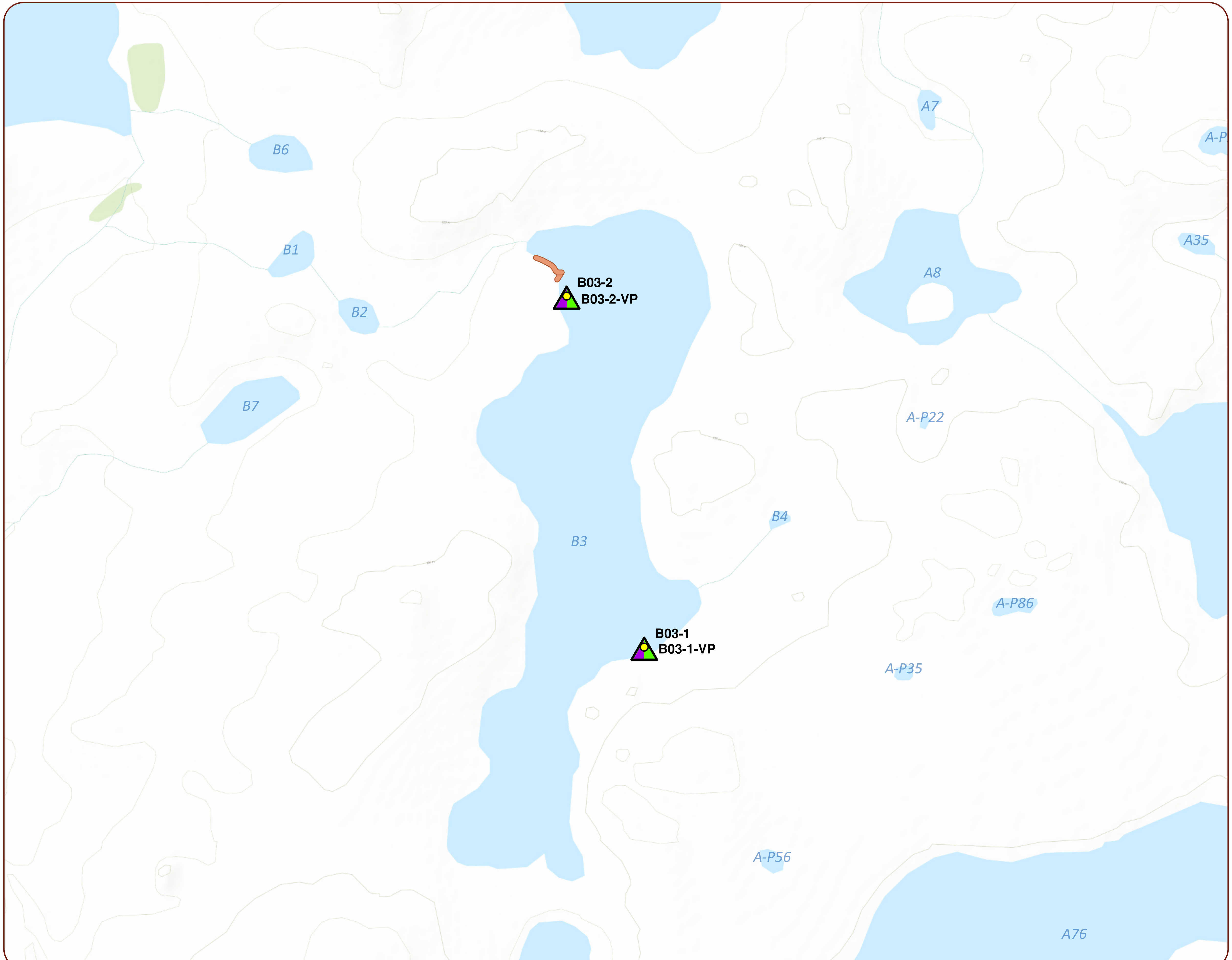


Figure 1-1: 2023 FHOMP Monitoring Locations

Whale Tail Mine

- Underwater Camera Locations
- Water Chemistry Station
- Periphyton Substrate Stations
- Periphyton Visual Survey Station
- Shoreline Electrofishing Routes
- Gillnet Locations
- Infrastructure
- Baseline Water Level
- Dewatered Lake
- Flood Zone

0 0.15 0.3 km

N

UTM Zone 17N NAD83

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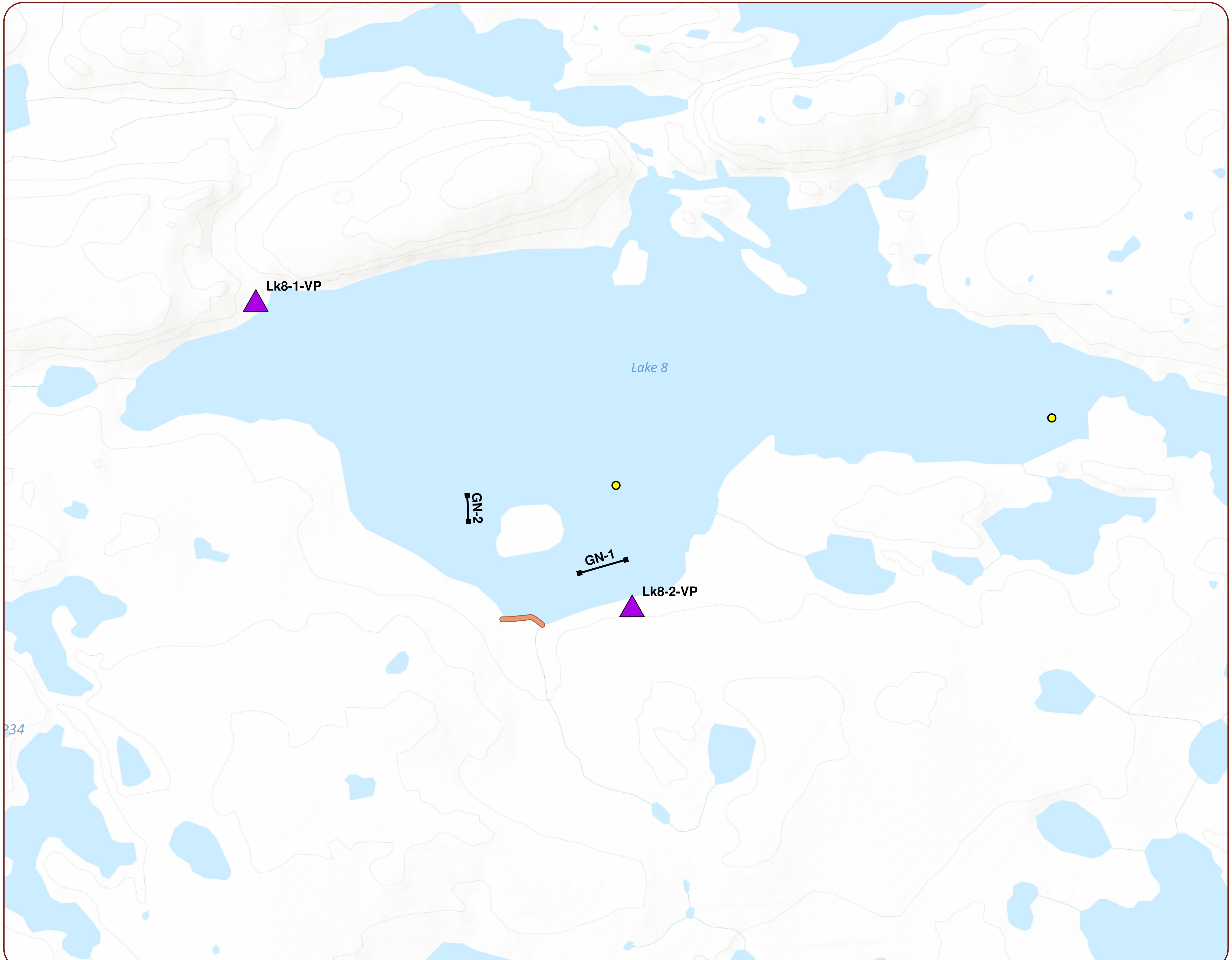


# Figure 1-2: 2023 FHOMP Monitoring Locations

Whale Tail Mine

- Underwater Camera Locations
- Water Chemistry Station
- Periphyton Substrate Stations
- Periphyton Visual Survey Station
- Shoreline Electrofishing Routes
- Gillnet Locations
- Infrastructure
- Baseline Water Level
- Dewatered Lake
- Flood Zone

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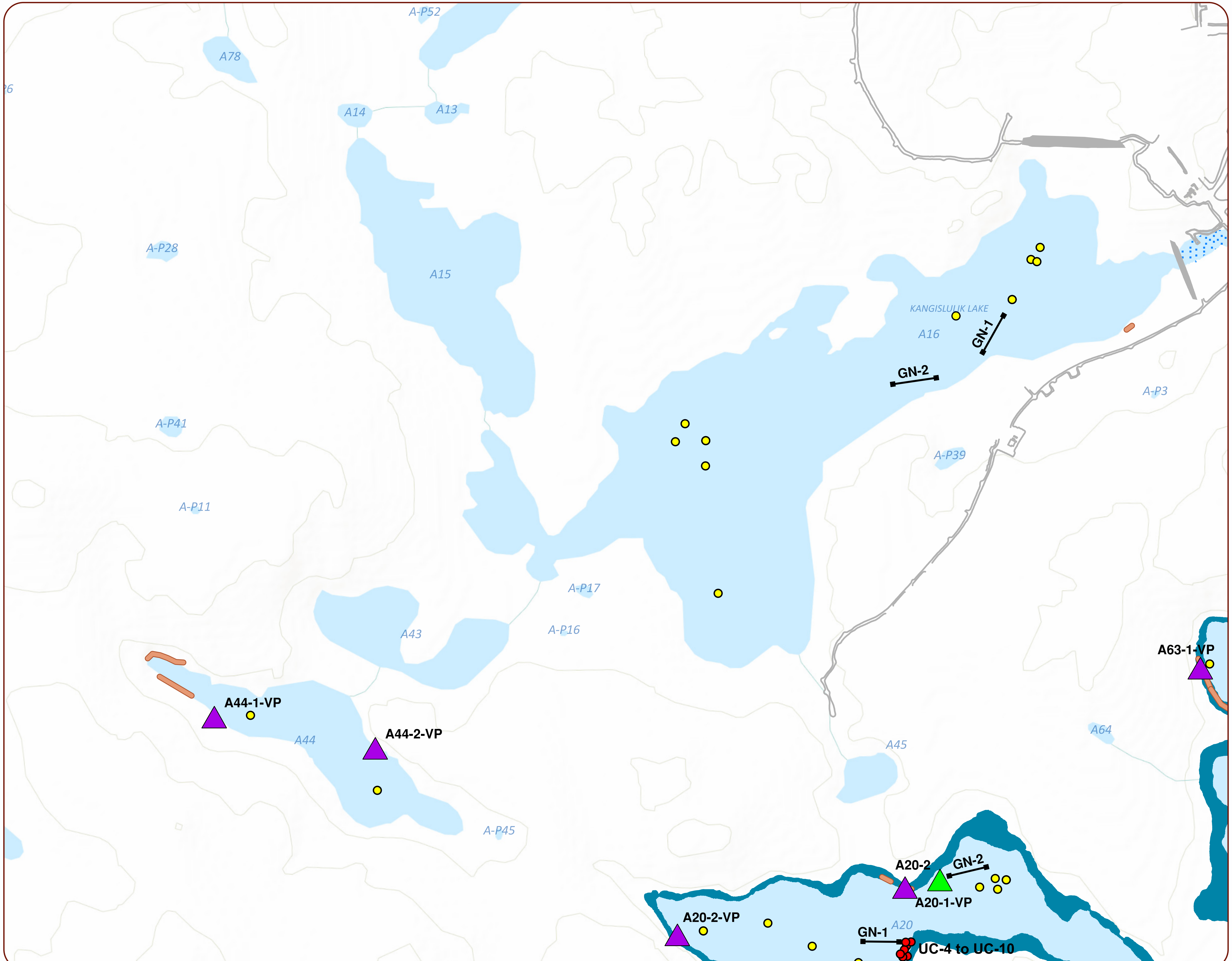


# Figure 1-3: 2023 FHOMP Monitoring Locations

Whale Tail Mine

- Underwater Camera Locations
- Water Chemistry Station
- Periphyton Substrate Stations
- Periphyton Visual Survey Station
- Shoreline Electrofishing Routes
- Gillnet Locations
- Infrastructure
- Baseline Water Level
- Dewatered Lake
- Flood Zone

0 0.2 0.4 km

N

UTM Zone 17N NAD83

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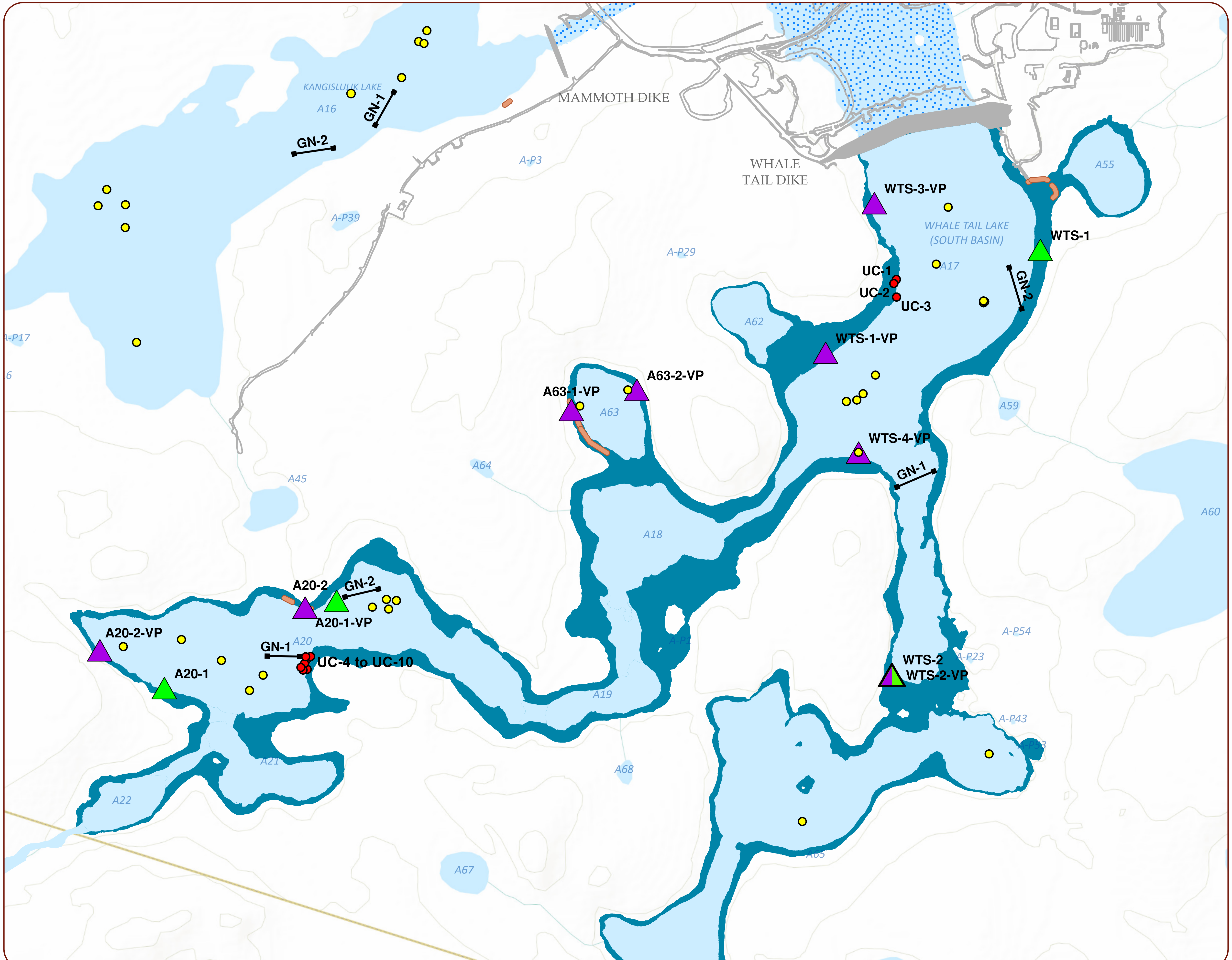


Figure 1-4: 2023 FHOMP Monitoring Locations

Whale Tail Mine

- Underwater Camera Locations
- Water Chemistry Station
- Periphyton Substrate Stations
- Periphyton Visual Survey Station
- Shoreline Electrofishing Routes
- Gillnet Locations
- Infrastructure
- Baseline Water Level
- Dewatered Lake
- Flood Zone

0 0.2 0.4 km

N

UTM Zone 17N NAD83

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PROJECT: DA11-062-08

CLIENT: Agnico-Eagle Mines Ltd. Meadowbank Division

DATE: 18, March 2024

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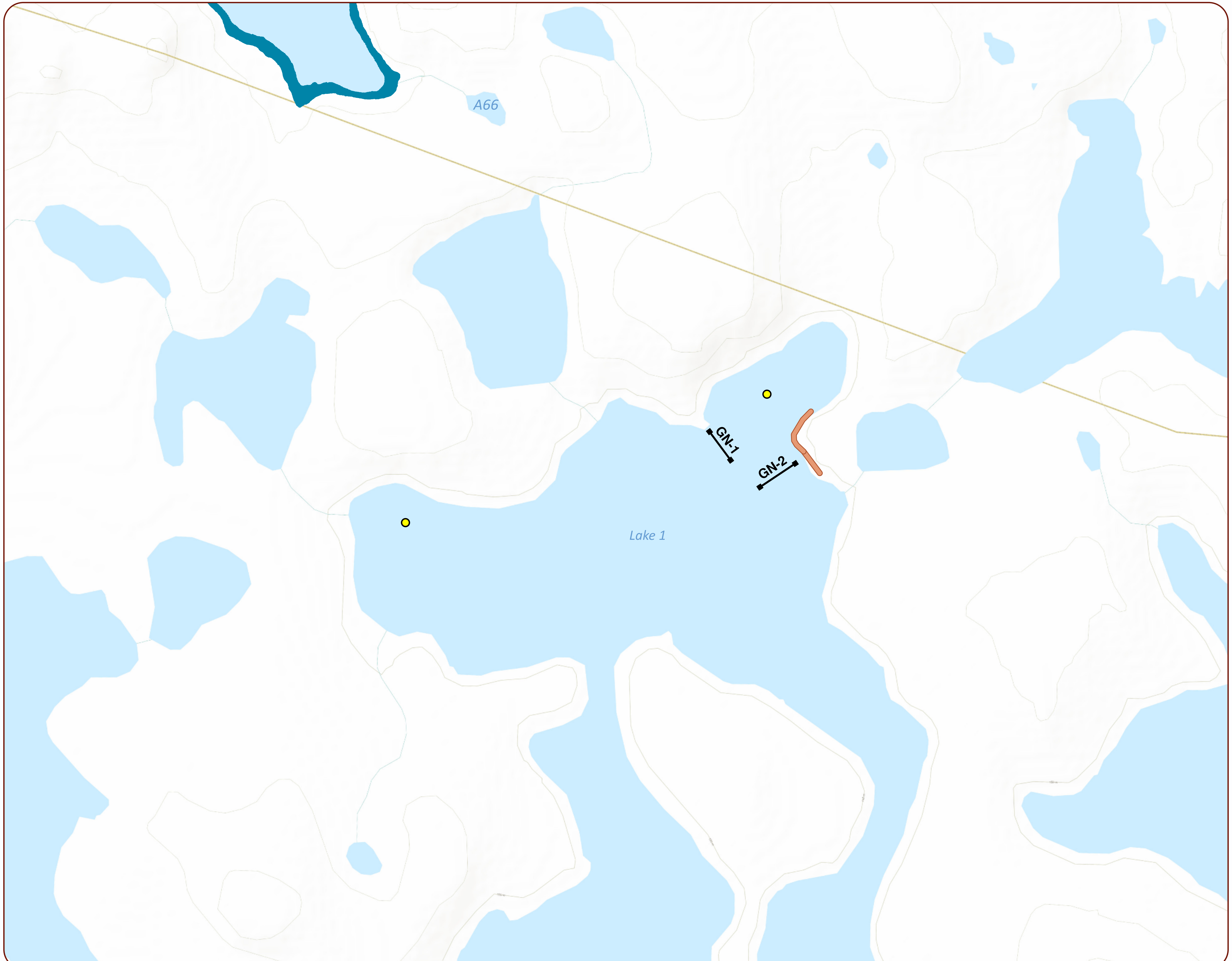


# Figure 1-5: 2023 FHOMP Monitoring Locations

Whale Tail Mine

- Underwater Camera Locations
- Water Chemistry Station
- Periphyton Substrate Stations
- Periphyton Visual Survey Station
- Shoreline Electrofishing Routes
- Gillnet Locations
- Infrastructure
- Baseline Water Level
- Dewatered Lake
- Flood Zone

0 0.15 0.3 km

N

UTM Zone 17N NAD83

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PROJECT: DA11-062-08

CLIENT: Agnico-Eagle Mines Ltd. Meadowbank Division

DATE: 10, March 2024

DRAWN BY: D. Scott, E. Heizer


# Figure 2: 2023 FHOMP Monitoring Locations

Meadowbank Mine

- Water Chemistry Station
- Periphyton Visual Survey Station
- Periphyton Substrate Stations
- Infrastructure

0 1.5 3 km

N

UTM Zone 17N NAD83

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Disclaimer:
The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations, features, or roads, nor as a guide to navigation.

### 1.3.2 Complementary Measures

A suite of complementary measures (research projects) is included as offsetting for the Whale Tail Mine. These studies continue to inform Agnico Eagle's offset planning in Nunavut as well as fish and fish habitat monitoring techniques. The complete scope of these complementary measures including methods, timelines, deliverables, and budgets is provided in Appendix C (May, 2018) of the *Whale Tail Pit - Fish Habitat Offsetting Plan* (C. Portt and Associates, 2018a). Studies include:

1. Assessment of changes in aquatic productivity and fish populations due to flooding of Whale Tail South and downstream lakes during operations
2. Assessment of impacts of the Baker Lake wastewater outflow on aquatic systems including fish and fish habitat
3. Literature review and field validation of northern lake fish habitat preferences
4. Arctic Grayling occupancy modeling (complete)
5. Assessment of pit lake habitat and use by fish
6. Development of methods for the collection and analysis of aquatic eDNA for fish community assessment

These programs have been developed in collaboration with research partners at academic institutions, and generally consist of 2-5 year study plans initiated in 2018 or 2019. One study (pit lake habitat use assessment) is planned to begin in or around 2027 at the Meadowbank Mine, following completion of flooding for the Phaser and Vault Pits, unless a suitable alternate research site is identified in the nearer term.

## 1.4 SCHEDULE FOR MONITORING

The proposed schedule for monitoring of offsets is described in the FHOMP (Agnico Eagle, 2021).

Generally, a pre-offsetting monitoring program occurred from 2021 – 2023, prior to construction of any permanent sills, to determine effectiveness of flooded terrestrial zones as fish habitat. A summary of results for this program (2021 – 2023) is included here, with the final analysis to be provided to DFO under separate cover in 2024 (*Impact Analysis of Fish Habitat from Flooding*), in fulfillment of Condition 5.3.1 of FAA 20-HCAA-00275.

Final monitoring for constructed offsets is planned to begin after 2026, when construction of the permanent sills is complete. Monitoring for the A18 flood zone and Whale Tail South flooding offsets will occur from 2027 – 2036 and monitoring for the Whale Tail North flooding and shoals offsets will occur from 2040 – 2052.

Progress updates for complementary measures will be provided annually.

**Table 2. General schedule of assessments conducted under the pre-offsetting ecological monitoring program for the Whale Tail site.**

| Component | 2021 | 2022 | 2023 |
|---|---|---|---|
| Water levels | ✓ | ✓ | ✓ |
| Water quality | ✓ | ✓ | ✓ |
| Periphyton (visual and/or artificial substrate study) | ✓* | ✓ | ✓ |
| Small-bodied fish – shoreline habitat | ✓ | ✓ | ✓ ** |
| Large-bodied fish - foraging and spawning habitat | - | - | ✓ |
| Report | Data report (2022) | Data report (2023) | Data report (March 31, 2024) and final analysis report (2024) |

**Pilot study*

***Not required under FHOMP, but collected opportunistically.*

# SECTION 2 • MONITORING METHODS

## 2.1 CONSTRUCTED OFFSETS

Constructed habitat offsets for the Whale Tail Mine consist of rock shoals and two water retention sills to maintain specified flood levels. The monitoring plan for these habitat features consists of both physical and ecological components. Monitoring of physical components is intended to confirm and report compliance with requirements of the associated *Fisheries Act* Authorizations to construct specific habitat offsets. Ecological monitoring will be conducted to assess the effectiveness of these features in supporting fish. A complete description of scheduled monitoring to assess physical structure and ecological function of the offsetting features is provided in the FHOMP, and methods for assessments completed in 2023 are described below.

### 2.1.1 Physical Structure Monitoring

Once permanent offsetting features are constructed (est. 2026+), physical monitoring will include an assessment of flood zone area (hectares flooded, using measured water levels), shoal area, and stability of the features. No physical structure monitoring is specified in the FHOMP prior to that time. However, a review of water levels in the flooded Whale Tail South area is provided here for reference and to support the final analysis of flood zone habitat suitability. Throughout the operations phase, water levels within the Whale Tail South flood zone are measured every 3 h by piezometers installed in the Whale Tail Dike.

### 2.1.2 Ecological Monitoring

As indicated in Table 2, ecological monitoring was conducted from 2021 - 2023 in support of the pre-offsetting ecological monitoring program. This included water quality monitoring under the CREMP, periphyton growth assessments, small-bodied fish population assessments within the newly created shoreline habitat, and large-bodied fish assessments in deeper water areas (2023 only). Details of these assessments including dates, locations, field methods and laboratory analyses are described below. Locations for 2023 are presented in Figures 1 and 2.

#### *2.1.2.1 Flood Zone Water Quality*

Water quality analyses conducted primarily under the CREMP are used to confirm suitable water quality within the Whale Tail flood zones that form part of offsetting plans. Under this program, mid-water column samples in areas > 5 m deep are collected at two sites from each of two formerly separate lakes in the flood zone (Whale Tail South and A20), as well as reference lake Inuggugayualik Lake, up to 5x/year. Complete methods are described in the 2023 CREMP Report (Azimuth, 2024), an Appendix of the Meadowbank Complex 2023 Annual Report.

For the purposes of FHOMP monitoring, supplemental water quality sampling following CREMP methods was also conducted once annually in lakes where fish surveys took place, if sampling was not already conducted as part of the CREMP. Under the FHOMP (2022 and 2023), these lakes included A63 (part of the flood zone) and reference lakes B03, A44, and/or Lake 8 (as feasible).

In addition, water quality analyses were conducted from 2018 – 2021 as part of the complementary measures research study lead by Dr. Heidi Swanson (Section 3.2.2) in all lakes where electrofishing occurred. These results are analyzed separately by the research team to inform their program. A summary of those results was provided in the 2023 MFRAG meeting (see Section 3.2.1) and full results will be presented in the final research report (expected end of 2024).

#### *2.1.2.2 Periphyton Growth*

The periphyton community consists of a collection of microorganisms, including algae, that grow attached to or in very close proximity to submerged substrate. Colonization of the community occurs over time, with rates depending on factors such as nutrient and light availability. Periphyton is an important food source for benthic invertebrates and has been broadly used as an indicator metric in biomonitoring protocols for many years.

For the Whale Tail Mine, colonization of periphyton is monitored to provide a commentary on growth in flood zone habitat compared to reference areas. Historical data analysis as part of the 2015 CREMP design update (Azimuth, 2016) has indicated that due to extreme natural variability, statistical comparisons of periphyton on in-situ substrate (e.g., submerged rock faces) are not well suited for receiving environment monitoring in this area. As a result, periphyton monitoring for the Whale Tail Mine has included two alternate methods:

1) Visual surveys in designated locations within newly created flood zones to qualitatively assess progression of periphyton development on natural rock substrate.

2) Deployment of artificial substrate samplers to confirm whether colonization rates are comparable to reference systems, indicating that a periphyton community can become established.

Since periphyton sampling using artificial substrate had not previously been used at the Meadowbank Complex, a pilot study was conducted in 2021 with a limited set of lakes to assess feasibility and field test methods. This study was expanded to its full scope beginning in 2022, and visual surveys were also conducted in accordance with the FHOMP.

##### *2.1.2.2.1 Artificial Substrate Sampling*

In 2021, a pilot study was conducted to test the feasibility of measuring a periphyton growth metric (chlorophyll-a) on artificial substrate within the study lakes over the ice-free season. Although there was a high rate of sample substrate loss, this pilot study was successful in demonstrating that seasonal periphyton biomass as represented by chlorophyll-a concentration can be effectively measured using artificial substrate samplers in the Whale Tail flood zone. With some adjustments to sampler design intended to improve sample retention, periphyton substrates were again deployed in 2022 and 2023 across the target lake basins, according to the FHOMP. Details of the samplers, dates, locations, and analysis are described below.

**Artificial Substrate Samplers** – Each periphyton sampler consisted of two or four Plexiglas slides (30.5 cm x 20.3 cm each) suspended side-by-side approximately 25 cm below a wood float, with supplemental rubber buoy. A weight (U-bolt, washer, or hockey puck) was attached to each slide to help keep them suspended vertically in the water column (Figure 3).

**Figure 3. Artificial substrate sampler for periphyton study in 2022.**

**Sample Locations & Dates** – For both study years (2022 and 2023), four Plexiglas slides were deployed at each monitoring station (Figures 1 & 2). Locations were the same in both years. Each sampler was deployed in a shoreline location in 1 – 2 m water depth and secured using anchors affixed to the ends of the wood float (Figure 4).

In general, samplers were deployed from the end of June to the beginning of September (exact dates in Section 3.1.2.2.1). All samplers except those at the far field reference site (INUG) were checked mid-season, and fixed as needed (e.g., re-attached rubber buoys, re-tied loose or untied anchor ropes, moved to deeper water as needed). In 2022, water levels dropped rapidly towards the end of the season, and several samplers were found onshore or were not located at collection time. Any impacts of sampler loss on final results are presented in Section 3.1.2.2.1. In 2023, sampler design and deployment methods were optimized after two years' experience, and all samplers remained intact in the water column throughout the season.

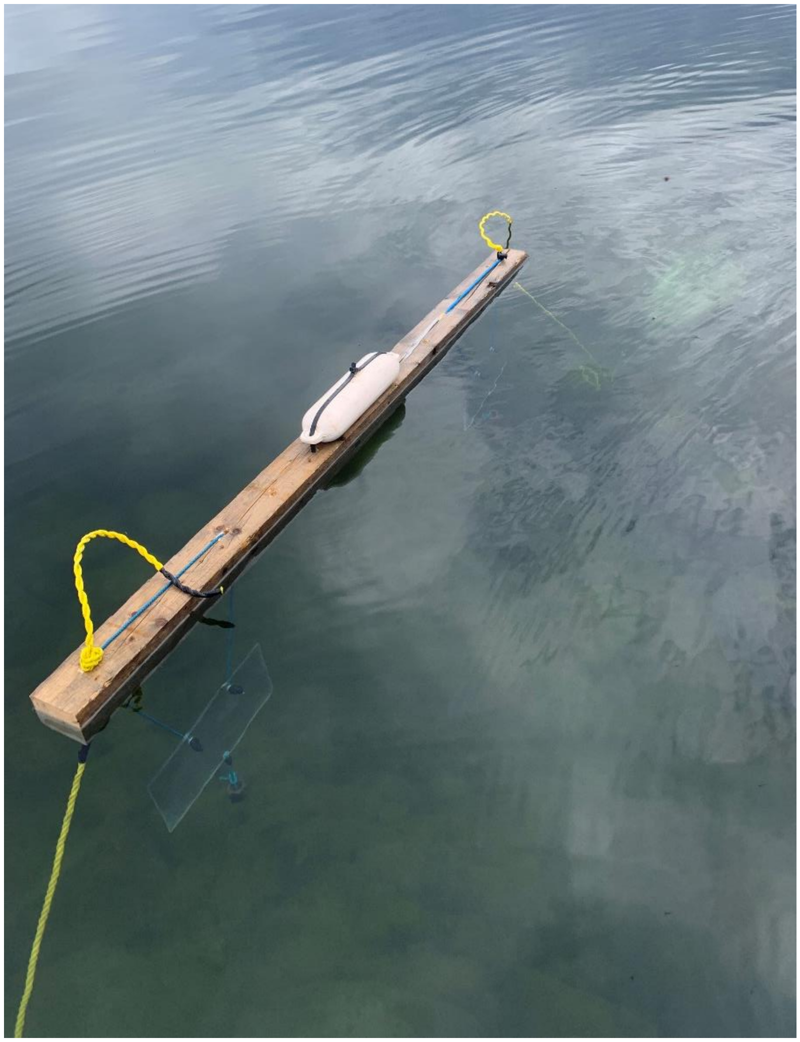


**Figure 4. Artificial substrate periphyton sampler in-situ (2023).**

**Sample Collection and Analysis** – Periphyton samplers were retrieved from the water and placed in labelled sample bags after tether ropes were removed. Care was used not to disturb periphyton on the slides during this process. Slides were stored in a dark cooler with ice packs prior to processing (periphyton removal) onsite. Upon return to the onsite laboratory, Plexiglas slides were removed from sample bags and scraped clean into the sample bags using a plastic scraper and a small amount of deionized water. Sample bags were sealed and stored frozen prior to and during shipping to the accredited laboratory for analysis. Analysis for chlorophyll-a as a relative measure of biomass was performed by ALS Laboratories using procedures modified from EPA Method 445.0. Briefly, chlorophyll-a content by mass is determined using a 90% acetone extraction followed with analysis by fluorometry.

##### *2.1.2.2.2 Visual Surveys*

At the end of the summer season (September 2 – 15, 2022 and August 25 – September 9, 2023), visual observations of periphyton growth were recorded at two to four stations in the study lakes (Figure 1 and 2). A rectangular plot of 1 x 2 m was observed and photographed, and specified periphyton characteristics were recorded. Methods followed those used by Portt & Associates for baseline surveys conducted for the Whale Tail Mine FEIS (Agnico Eagle, 2016), and described in Golder (2015). Specifically, for each sampling location:

- A shoreline area of approximately 1 x 2 m was identified, extending from the water's edge. Locations were marked to facilitate re-analysis in the next year.
- To retain a visual record, photographs were taken of each plot at the micro scale (substrate/periphyton as seen looking down on the plot) and macro scale (~20 m of shoreline).
- The following information was recorded:
    - Substrate proportions at the microhabitat level
    - Description of colour, approx. thickness, and texture of periphyton at the microhabitat level
    - Percent cover of periphyton at the micro habitat scale (none 0%, sparse <5%, low 5-25%, moderate 25-75%, high >75%) and evenness at the macrohabitat scale (even/patchy)

For this report, a qualitative inter-annual comparison of results is provided including available baseline survey results.

#### ***2.1.2.3 Fish Use***

##### *2.1.2.3.1 Shoreline Habitat (Habitat Types 2 & 3)*

To determine effectiveness of flood zones as fish habitat, relative abundance and population dynamics indicators for resident small-bodied fish in flooded shoreline areas are evaluated and compared to reference sites.

According to the Whale Tail Habitat Evaluation Procedure (HEP; Portt & Associates, 2018; ERM, 2020), the newly created shoreline in Whale Tail Lake will provide primarily foraging habitat for Ninespine Stickleback (*Pungitius pungitius*) and Slimy Sculpin (*Cottus cognatus*), as Habitat Types 2 and 3. This assumption has been evaluated using shoreline electrofishing surveys in flood zone areas (Whale Tail South (WTS), A63, and A20)[3], downstream areas (Kangislulik (Mammoth) Lake[a]), and reference areas (Lake 8, A44, B03) (Figure 1, Table 3).

Electrofishing is an active fishing technique that uses pulsed direct current to initiate an involuntary swimming action in fish. When exposed to the electrical field, fish become oriented toward the electrofisher and involuntarily swim towards the anode and are collected with a dip net. In all study years, backpack electrofishing was conducted by a team of two (including at least one person experienced and trained in backpack electrofishing). One person with a backpack electrofisher, and another with a dip net, collected fish by wading along representative shorelines in Habitat Types 2 and 3 of flooded lakes and reference lakes.

Electrofishing surveys have been carried out from 2018 – 2023 in this area. Surveys from 2018 – 2021 were conducted by research teams from the laboratory of Dr. Heidi Swanson (Wilfred Laurier University, formerly, University of Waterloo), and surveys in 2022 and 2023 were conducted by qualified Agnico Eagle employees and/or consultants.

Electrofishing locations for 2023 are shown in Figure 1. When time and access allowed, electrofishing was conducted until a minimum of 30 Slimy Sculpin were collected per lake. This number was selected by the research team (see Section 2.2) in 2019 using an *a priori* power analysis to determine minimum sample size.

For all surveys, fish species, length, and weight were recorded for the small-bodied fish captured, along with duration of shocking (seconds) for calculation of catch-per-unit effort (CPUE). Incidental catch of large-bodied fish was noted, with immediate live release. For surveys from 2018 – 2021, a subset of fish captured (approximately 30 per species) were euthanized for further analysis of tissue chemistry and age.

[3] Lake A65 was also electrofished from 2018 – 2021 for research purposes, but it is not included in the FHOMP study extension (2022 – 2023) because it is not planned to remain flooded post-closure and does not contribute to fish habitat offsets. Kangislulik (Mammoth) Lake was electrofished in all years (2018 – 2023) for research purposes and/or other compliance programs (EEM), and results are included here for reference but this lake is not part of flood zone, so is not specifically included in the FHOMP analysis.

**Table 3. Summary of shoreline electrofishing effort (total shocking time across species) under the FHOMP pre-offsetting ecological monitoring program for the Whale Tail Mine.**

| Habitat Type | Waterbody | 2021 | | 2022 | | 2023 | |
|---|---|---|---|---|---|---|---|
| | | Dates | Duration (min) | Dates | Duration (min) | Dates | Duration (min) |
| Flooded | Whale Tail South | Aug 14, 15, 16 | 143 | Aug 21 | 36 | Aug 20, 25, 26 | 61 |
| | A63 | Aug 16 | 54 | Aug 23 | 51 | Aug 23 | 85 |
| | A65 | Aug 12 | 74 | NF | NF | NF | NF |
| | A20 | Aug 10 | 100 | Aug 21 | 53 | Aug 23 | 33 |
| Downstream | Kangislulik (Mammoth)* | Aug 17 | 41 | Aug 18 | 66 | Aug 20 | 37 |
| Reference | Lake 8 | Aug 15 | 84 | Aug 20 | 105 | Aug 21 | 72 |
| | A44 | Aug 13 | 72 | Aug 19 | 57 | Aug 27 | 46 |
| | B03 | Aug 14, 18 | 57 | Aug 22 | 59 | Aug 30 | 37 |

NF = not fished.
*Fished for research or other purposes, not part of the FHOMP.

##### *2.1.2.3.2 Pelagic Habitat (Habitat Types 6 & 9)*

To evaluate the ongoing use of deeper water habitat in the Whale Tail Lake area after flooding, both visual survey methods (underwater camera) and gillnet surveys were conducted in 2023.

###### 2.1.2.3.2.1 <u>Underwater Camera</u>

In follow-up to baseline surveys conducted in 2016, underwater video was recorded in areas of WTS and A20 with habitat identified as having high potential for lake trout spawning (cobble/rubble substrate with little sediment infill, 2 – 5 m depth, at the edge of a slope to deeper water). Cameras were set in one general location in each of WTS and A20 (Figure 1). The WTS location was surveyed under baseline conditions and is still expected to meet these spawning habitat characteristics under the current flood levels. The A20 location is new high-potential spawning habitat created by flooding (this area was too shallow prior to flooding, but met substrate and slope characteristics).

Following baseline survey methods (C. Portt and Associates, 2018b), underwater video was recorded and reviewed for visual evidence of fish presence and spawning behaviour (Table 4). Surveys during the 2016 baseline study attempted to record overnight movements (primary spawning time), but the motion camera sensors did not function in the dark and recordings were only successful during daytime hours. While alternate methods to survey night-time movements were explored at that time and for 2023, none were ultimately identified as feasible. For example, night-time boat-based surveys with flood lights were not permitted in either year, based on safety considerations.

Survey dates and durations are provided along with results (observations) in Section 3.1.2.3.2.1.

**Table 4. Underwater camera methods.**

| Baseline Methods (2016) | Follow-Up Methods (2023) |
|---|---|
| • Action or sport video cameras (Wasp Waspcam Tack Camera) were deployed underwater with a view of an identified potential spawning shoal.<br>• Each camera was attached to a heavy metal base, and had an external battery pack.<br>• The camera was set to commence recording when motion was detected and to record for one minute after motion ceased.<br>• All deployments were overnight (approx. 16 h per location), during the period of August 27 – 31 (ultimately cameras only functioned in the day-time). | • HD compact video camera (Sony Steadyshot) were deployed underwater with a view of an identified potential spawning shoal (Figure 1).<br>• For most time periods, between two and three cameras were set in one location with different views.<br>• Each camera was attached to a heavy metal base.<br>• The camera was set to commence recording as soon as they were positioned underwater.<br>• All deployments were during the daytime, during the period of August 30 – September 19, and approximately 2 h |

| Baseline Methods (2016) | Follow-Up Methods (2023) |
|---|---|
| • The deployment and retrieval dates and times were recorded.<br>• The water depth and GPS coordinates at each location were determined.<br>• The recorded video was subsequently reviewed to identify fish presence and indications of spawning behaviour (e.g. releasing gametes, shuddering/gaping, following).<br>• The start and stop dates and times of each video segment and the number and the species of fish observed were determined, when possible. It was not possible to distinguish among individual fish, so a 'fish observation' was recorded each time a fish entered the video frame, regardless of whether it appeared likely it was the same individual(s) seen previously. | of video were obtained per location, per date set.<br>• The deployment and retrieval dates and times were recorded.<br>• GPS coordinates at each location were determined.<br>• The recorded video was subsequently reviewed to identify fish presence and indications of spawning behaviour (e.g. releasing gametes, shuddering/gaping, following).<br>• The time stamp of each video segment and the number and the species of fish observed were determined, when possible. It was not possible to distinguish among individual fish, so a "fish observation" was recorded each time a fish entered the video frame, regardless of whether it appeared likely it was the same individual(s) seen previously. |

2.1.2.3.2.2 <u>Gillnetting</u>

The intent of large-bodied fish surveys in 2023 was to provide evidence of ongoing use and effectiveness of newly created deep-water rearing/foraging habitat (generally, habitat converted from <2 m to >2 m). Gillnet surveys were scheduled in 2023 to coincide with timing of the Whale Tail EEM program, to minimize impacts on local fish populations. While the EEM program focused on Kangislulik (Mammoth) Lake as the effluent receiving environment, surveys were extended to Whale Tail South and A20 for the evaluation of flood-related effects, as well as the EEM program's two reference lakes (Lake 1 and Lake 8). Gillnet locations are shown in Figure 1.

Following EEM methods, index gill nets comprised of six panels of stretched mesh (sizes 126, 102, 76, 51, 38, and 25 mm) were used. Each panel of gill net was 1.8 m (6 feet) deep by 22.7 m (25 yards) long, so that the length of a six-panel gang was 136.4 m (150 yards). Nets were set in locations targeting lake trout habitat in each lake. Geographic coordinates were recorded, along with water depth, date, and time of set and retrieval (Table 5). Set duration was determined in the field based on local conditions, with the objective of capturing 25 lake trout and minimizing the mortality of additional lake trout and incidental catch. Under the FHOMP, Arctic char were also planned to be targeted, but subsequent review of baseline data for this species indicated that populations in the flood zone and reference lakes are too low to support catch of 25 Arctic char without significant incidental catch mortality, so the decision was made to focus the study on lake trout only. However, the number of individuals of each species captured in each net were recorded, for calculation of total CPUE. For lake trout (minimum of 25 or those not surviving capture), the following characteristics were recorded:

- Fork length (mm)
- Total weight (g)
- Deformities, lesions, tumours, or parasites (DELTs)
- Liver weight (g)
- Sex, gonad condition, and gonad weight (g)
- Egg weight for spawning females
- Otoliths were collected for aging

For each location, supporting water quality measurements were also collected for the purposes of the EEM analysis (specific conductivity, pH, dissolved oxygen, temperature).

**Table 5. 2023 gillnet study locations, net set times, and water depths.**

| Type | Waterbody | Net Set ID | Set Time | Lift Time | Water Depth |
|---|---|---|---|---|---|
| Flood Zone | Whale Tail South | Net 1 | August 23 20:05 | August 24 9:03 | 2.2 – 2.5 m |
| | | Net 2 | August 23 20:05 | August 24 10:03 | 2.3 – 6.1 m |
| | A20 | Net 1 | August 24 20:05 | August 25 07:45 | 3.5 – 5.3 m |
| | | Net 2 | August 24 20:15 | August 25 9:00 | 2 – 6.7 m |
| Downstream | Kangislulik (Mammoth)* | Net 1 | August 18 19:15 | August 19 09:00 | 2.8 – 4.7 m |
| | | Net 2 | August 18 18:46 | August 19 09:40 | 2.6 – 4.1 m |
| Reference | Lake 8 | Net 1 | August 20 13:00 | August 21 9:00 | 3 – 4.5 m |
| | | Net 2 | August 20 13:30 | August 21 10:00 | 3 – 4.5 m |
| | Lake 1 | Net 1 | August 17 14:30 | August 18 10:40 | 1.5 – 2 m |
| | | Net 2 | August 17 14:45 | August 18 11:03 | 2.5 – 2.5 m |
| *Kangislulik (Mammoth) Lake receives mine effluent, and was fished for EEM purposes. Results are presented here for reference, but are not specifically included in the FHOMP analysis. | | | | | |

## 2.2 COMPLEMENTARY MEASURES

As required by Fisheries Act Authorization 16-HCAA-00370, complete annual progress reports on complementary measures are provided to DFO by May 30 of the following year, including methods and preliminary results.

An interim update is provided in this report for each project, along with a description of activities of the MFRAG in the preceding year. These interim updates will focus on general activities and identifying progress towards study completion, and do not include specific methods and results.

# SECTION 3 • RESULTS & DISCUSSION

## 3.1 CONSTRUCTED OFFSETS

### 3.1.1 Physical Structure Monitoring (Water Levels)

Throughout the operations phase, water levels in the Whale Tail flood zone have been recorded every three hours using piezometers installed in the Whale Tail Dike. Measured water levels through 2023 are shown in Figure 5. During the first year of scheduled flooding (2019), peak water levels exceeded predictions in July (up to 155.8 meters above sea level; masl), but did not reach the maximum predicted final flood elevation of 156.0 masl). This was likely a result of record precipitation in that year. Since 2020, water levels have remained lower than FEIS model predictions, after an amendment to the final design[4] of the South Whale Tail Channel outlet was made. The design change included a decrease in the channel inlet elevation by 0.5 m, to 155.3 masl, in order to reduce peak water levels against the Whale Tail Dike. Operational water levels moving forward are therefore predicted remain lower than the original 156.0 masl prediction. To date (2020 - 2023) operations-phase flood-zone water levels have ranged between approximately 154.55 and 155.75 masl over the course of a year.

Despite a reduction in operational water levels compared to FEIS predictions throughout the flood zone, measured elevations are the same as or exceed those that will eventually be maintained permanently for offsetting purposes, following sill construction.

For Whale Tail Lake, offsetting plans assume an increase to 154.02 masl from a baseline of 153.02 masl (baseline determined from July 21, 2011 CanVEC imagery). To date, operational water levels in late July have remained in the range of 155.1 – 155.4 masl, or about 1.1 – 1.4 m higher than they will be post-offsetting. As a result, shoreline habitat in Whale Tail Lake – South Basin that is evaluated now under the pre-offsetting ecological monitoring program may

[4] The completed construction summary report for the South Whale Tail Channel is available through the NWB public registry here: ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-WTP1830%20Agnico/3%20TECH/D%20CONSTRUCTION/D16/South%20Channel/

be considered representative of, but not identical to, post-closure shoreline habitat in this area, once water levels are drawn down by 1.1 – 1.4 m.

For Lake A18, offsetting plans assume an increase to 155.3 masl from a baseline of 154.0 masl at the A18 sill[5]. Since the Whale Tail South Channel which is the current outlet for the flood zone was constructed at 155.3 masl, current operational water levels align with this plan and no significant change in water levels or shoreline habitat would be expected following sill construction.

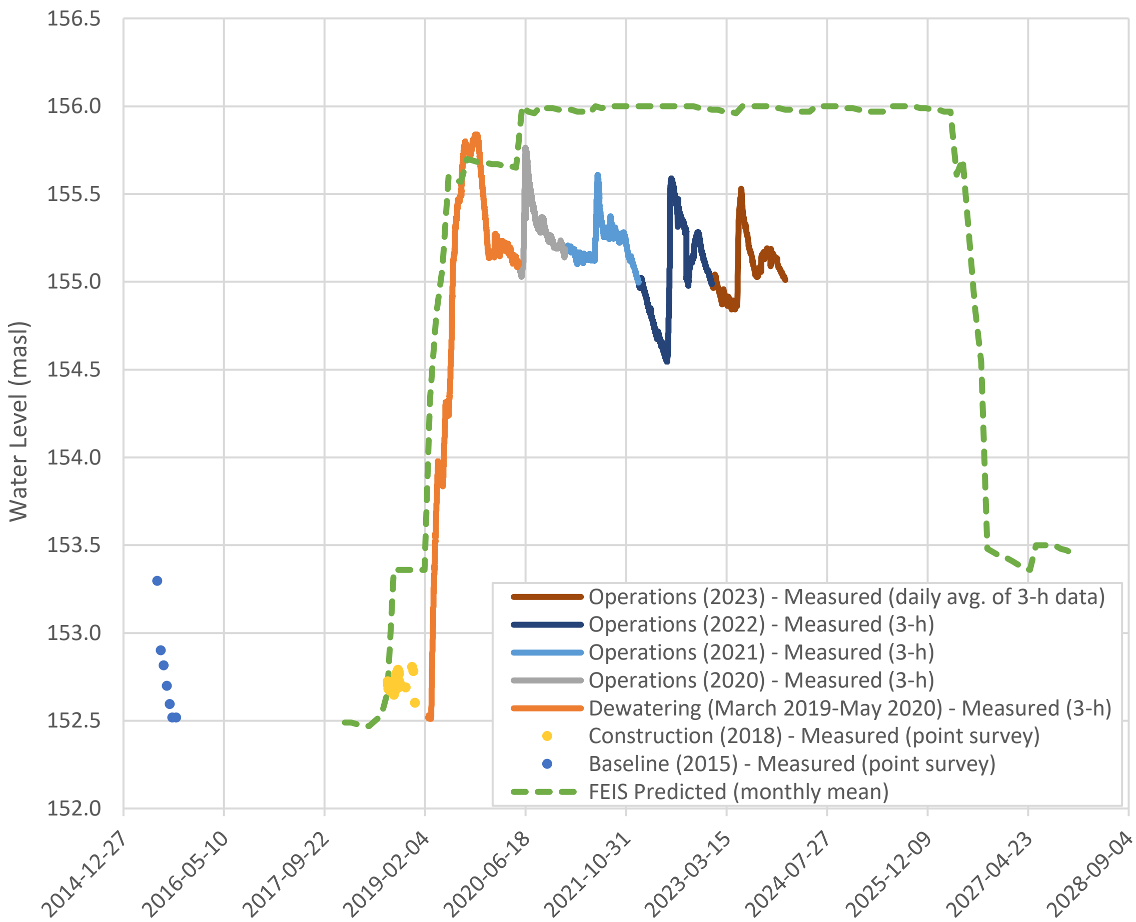



**Figure 5. Measured and predicted water levels in the Whale Tail South flood zone (point measurement by GPS survey, 3-h interval by piezometer, or modeled monthly mean, as indicated). Predicted water levels are for Whale Tail Lake from FEIS Addendum for the Whale Tail Pit Expansion Project, Appendix 6-O, Table D-14 (Agnico Eagle, 2018b).**

[5] For lakes further upgradient from A18 that will be permanently joined to it by flooding (A19 – A22 plus A63), baseline water elevations are higher than A18, so flooding to the planned 155.3 masl increases water depths in those lakes by less than 1.3 m. For example, baseline depths in A22 were measured at 155.0 masl in the offsetting plan, so flooding to 155.3 masl adds 0.3 m above baseline.

### 3.1.2 Ecological Monitoring

#### *3.1.2.1 Flood Zone Water Quality*

Complete results of annual CREMP water quality monitoring are presented in the 2023 CREMP Report (an appendix of the 2023 Meadowbank Complex Annual Report). Results of the CREMP analysis are the primary line of evidence for understanding water quality in the Whale Tail flood zone for the purposes of the FHOMP and are summarized below. This summary focuses on results within flood zone lakes (WTS and A20), as compared to baseline/reference (Inuggugayualik Lake) within the CREMP analysis framework.

Results for supplemental water quality sampling in locations where fish surveys have occurred that are not part of the CREMP are provided in Appendix A. This limited set of results is compared to CREMP threshold values (Azimuth, 2022), to generally confirm suitability as aquatic habitat during the monitoring period. All results met these guidelines, with the exception of one of two samples in Lake A63 in 2022, which marginally exceeded thresholds for aluminum and iron. Both of these CREMP thresholds are from 1987 CCME Water Quality Guidelines for the Protection of Aquatic Life, and both are now published or currently under review as Federal Environmental Quality Guidelines. In both cases, the published (aluminum) or draft (iron) federal guidelines would not be exceeded in the A63 sample, so the potential for adverse effects is not considered further here.

*3.1.2.1.1 CREMP Summary*

Briefly, during the FHOMP study period of 2021 - 2023, some exceedances of CREMP water quality triggers and statistically significant increases relative to baseline/reference conditions have been observed in flood zone lakes for:

- Conductivity, hardness, and related ionic compounds (TDS and constituent ions such as calcium, magnesium, potassium, and sodium),
- Nutrients (total Kjeldahl nitrogen, total phosphorus, total organic carbon and dissolved organic carbon),
- Titanium and lithium (WTS) – *no effects-based thresholds for aquatic life, and/or likely not mine-related*.

Similar to results seen over the years at the Meadowbank study lakes, these trends for conventional parameters and major ions represent increases above baseline/reference conditions only. Except for total phosphorus (discussed below), none of the analytes exceeding CREMP triggers (generally set at the 95$^{th}$ centile of baseline data) have effects-based thresholds (e.g. CCME Water Quality Guidelines for the Protection of Aquatic Life). While mine-related changes in these parameters have occurred, the observed concentrations are not expected to result in adverse effects to aquatic life, as described in a review conducted as an extension of the CREMP Report in 2019.

As predicted within the FEIS (Agnico Eagle, 2018b), mean annual total phosphorus at WTS has increased since flooding and effluent discharge began, and has exceeded the CREMP trigger value each year since 2019. For A20, the trigger has been exceeded each year beginning in 2021. FEIS-predicted and measured concentrations of total phosphorus (and other nutrients) to date are shown in Figure 6. While some measured concentrations of phosphorus have exceeded monthly FEIS predictions in WTS, all were within an order of magnitude (the level of uncertainty assigned to these predictions in the FEIS), and measured concentrations have remained within predicted trophic levels to date. According to the FEIS, phosphorus and nitrate levels are predicted to increase in WTS until 2026, after which time concentrations are predicted to decline.

Under the CREMP, phytoplankton community sampling is also conducted at the same time as the water chemistry program. Statistically significant increases in phytoplankton biomass compared to baseline/reference were observed in flood zone lakes in 2023, and biomass appears to be trending upwards in this area since 2021 (Figure 7). These changes are consistent with FEIS predictions (Agnico Eagle, 2018b) and correspond with nutrient increases. In general, changes in phytoplankton taxa richness evaluated annually have not been statistically significant.

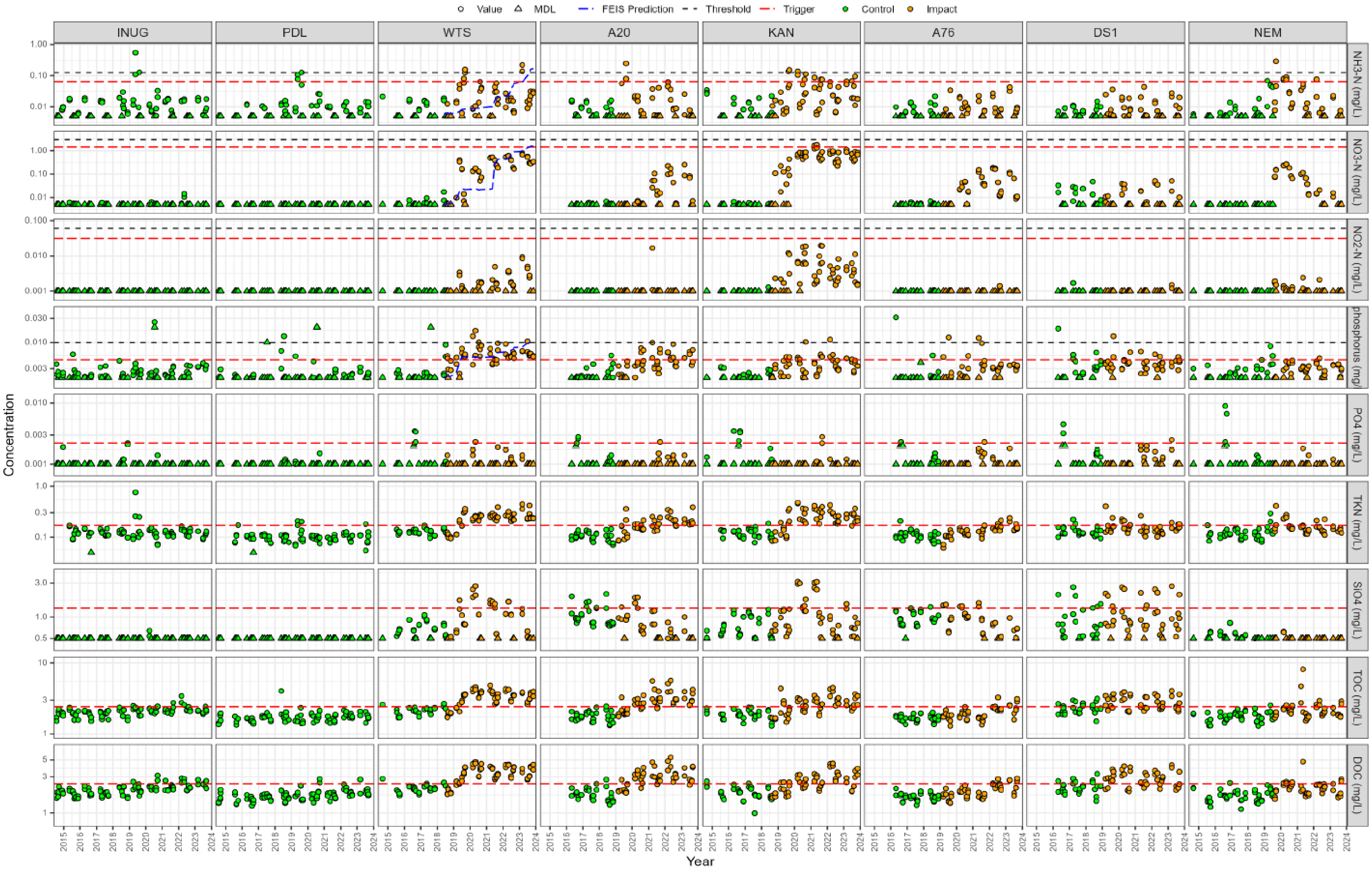



**Figure 6. Nutrient parameters measured in Whale Tail Mine area lakes since 2014. Blue dashed line indicates FEIS Addendum model prediction. Figure from Azimuth (2024). Flood zone lakes are WTS and A20.**

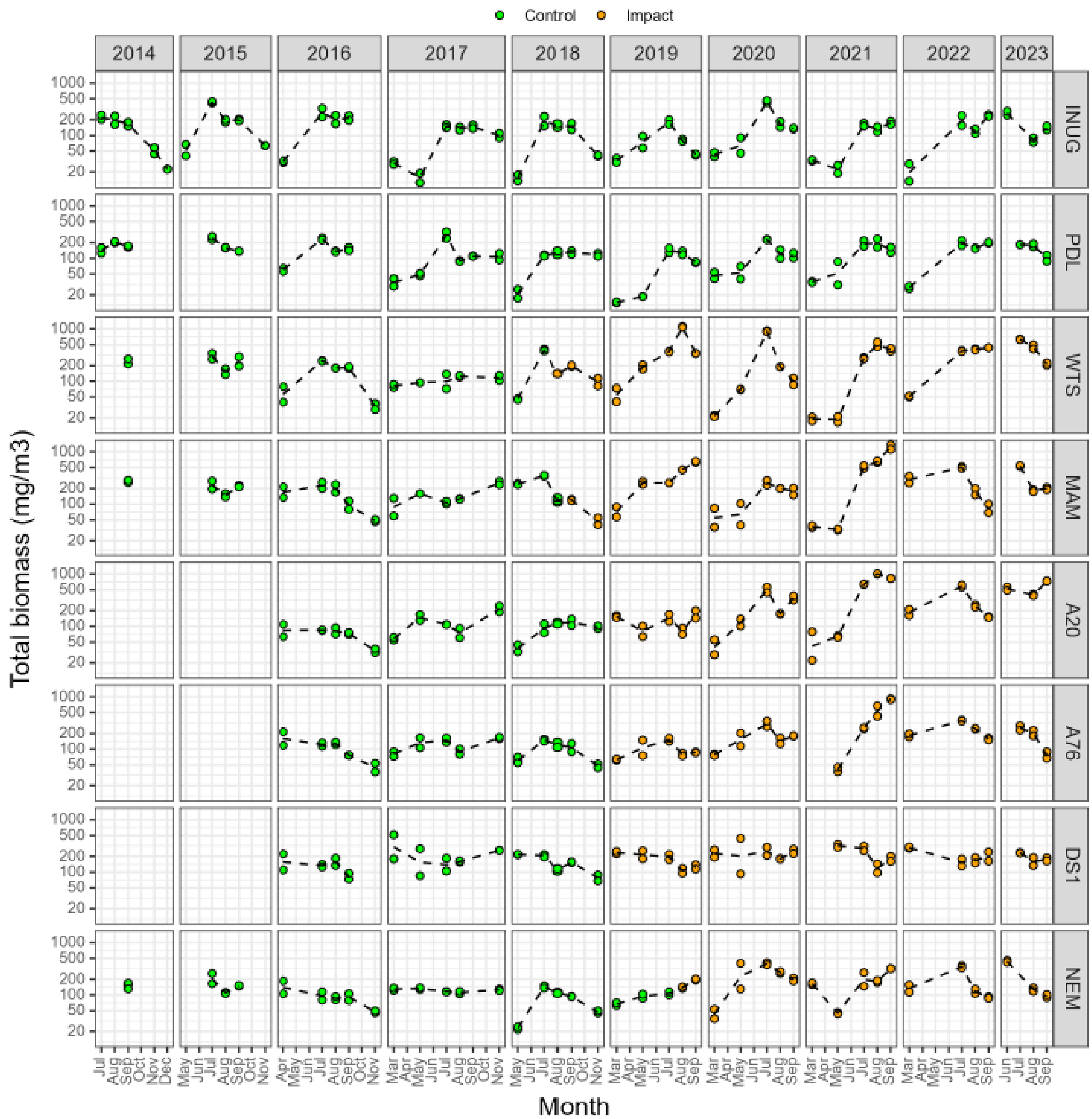



**Figure 7. Total phytoplankton biomass (mg/m$^3$) from the Whale Tail Mine study lakes since 2014. Figure from Azimuth (2024). Flood zone lakes are WTS and A20.**

#### *3.1.2.2 Periphyton Growth*

*3.1.2.2.1 Artificial Substrate Sampling*

**Sample Recovery -** In total, 32 periphyton slides were deployed in each of 2022 and 2023. As described in Section 2.1.2.2.1 and Table 6, below, some loss of samplers occurred in 2022, particularly in reference lakes, and primarily due to anchor ropes detaching or breaking, or a rapid decline in water levels that occurred from late August to early September in the flood zone lakes. No loss of Plexiglas slides from the float occurred in 2022, which was a significant improvement over 2021 pilot study methods. Anchor attachment and deployment depth were adjusted in 2023, and no sample loss occurred.

**Periphyton Biomass –** Results of the chlorophyll-a analysis in 2022 and 2023 are presented in Table 6 and Figure 8. While results for many reference sites in 2022 must be interpreted with caution and are excluded from data presented in Figure 8 (see comments in Table 6), it is clear that seasonal periphyton growth as represented by chlorophyll-a analysis was greater in the flood zone than reference lakes, and growth was apparently greater in WTS than A20.

CREMP results in 2022 and 2023 indicated a similar trend, with increased concentrations of both nutrients and phytoplankton biomass (Figures 6 and 7) in flood zone lakes compared to baseline/reference (Azimuth, 2024; as described in Section 3.1.2.1). Similar to periphyton results, water-column concentrations of chlorophyll-a were also apparently greater in WTS compared to A20 in 2022 and 2023 (Figure 9). These observations are in line with 2018 FEIS Addendum predictions for increased nutrient concentrations (e.g. total phosphorus predictions as shown in Figure 6) and primary productivity in WTS during mine operations (not quantified; Agnico Eagle, 2018b).

Results from the 2021 pilot study are not compared directly here, but three samples were collected in WTS, and mean chlorophyll-a was measured at 0.064+/-0.029 µg/cm$^2$. Only one sample result was available from INUG in the pilot study year and chlorophyll-a was not detectable.

**Table 6. Periphyton sampling dates and chlorophyll-a results for artificial substrate samplers.**

| Lake | Station ID | Sample ID | 2022 | | | 2023 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Chlor-a (µg/cm$^2$) | Dates | Comments | Chlor-a (µg/cm$^2$) | Dates | Comments |
| Whale Tail South | WTS-1 | WTS-1-a | 0.148 | July 4 - Sept 11 | Visible light brown periphyton. | 0.124 | June 29 - Sept 7 | Thick (3 mm) and even on both sides of the sample slide. Brown colour. |
| | | WTS-1-b | 0.169 | | | 0.095 | | |
| | | WTS-1-c | 0.136 | | | 0.117 | | |
| | | WTS-1-d | 0.127 | | | 0.108 | | |
| | WTS-2 | WTS-2-a | 0.107 | July 4 - Sept 11 | Visible darker brown periphyton. | 0.085 | June 29 - Sept 7 | Thick (3 mm) and even on both sides of the sample slide. Brown colour. |
| | | WTS-2-b | 0.204 | | | 0.186 | | |
| | | WTS-2-c | 0.17 | | | 0.152 | | |
| | | WTS-2-d | 0.201 | | | 0.114 | | |
| A20 | A20-1 | A20-1-a | *(ND)* | July 4 - Sept 11 | *Invalid samples - Slides in contact with substrate due to rapid drop in water level.* | 0.070 | June 29 - Sept 7 | Minimal visible periphyton. |
| | | A20-1-b | *(ND)* | | | 0.042 | | |
| | | A20-1-c | *(0.003)* | | | 0.044 | | |
| | | A20-1-d | *(0.034)* | | | 0.055 | | |
| | A20-2 | A20-2-a | 0.023 | July 4 - Sept 11 | Minimal visible periphyton. | 0.035 | June 29 - Sept 7 | Minimal visible periphyton. |
| | | A20-2-b | 0.009 | | | 0.054 | | |
| | | A20-2-c | 0.016 | | | 0.042 | | |
| | | A20-2-d | ND | | | 0.037 | | |
| B03 | B03-1 | B03-1-a | (0.003) | July 9 - Sept 15 | *Invalid samples - Samplers found onshore at mid-season check (Aug 18), and re-deployed. A few bright green patches.* | 0.001 | June 30 - Sept 8 | Minimal visible periphyton. |
| | | B03-1-b | (0.005) | | | 0.001 | | |
| | | B03-1-c | (0.004) | | | 0.001 | | |
| | | B03-1-d | (0.002) | | | 0.000 | | |
| | B03-2 | B03-2-a | ND | July 9 - Sept 15 | Minimal periphyton (a few green patches). | 0.002 | June 30 - Sept 8 | Minimal visible periphyton. |
| | | B03-2-b | ND | | | 0.002 | | |
| | | B03-2-c | ND | | | 0.003 | | |

| Lake | Station ID | Sample ID | 2022 | | | 2023 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Chlor-a (µg/cm$^2$) | Dates | Comments | Chlor-a (µg/cm$^2$) | Dates | Comments |
| | | B03-2-d | ND | | | 0.002 | | |
| Inuggug-ayualik | INUG-1 | INUG-1-a | ND | July 9 - Sept 11 | No sampling concerns. | 0.009 | June 29 - Sept 9 | Minimal visible periphyton. |
| | | INUG-1-b | ND | | | 0.011 | | |
| | | INUG -1-c | *(ND)* | | *Invalid samples - Found onshore.* | 0.010 | | |
| | | INUG -1-d | *(ND)* | | | 0.010 | | |
| | INUG-2 | INUG -2-a | *(0.001)* | July 9 - Sept 11 | *Invalid samples - Slides in contact with substrate.* | 0.009 | June 29 - Sept 9 | Minimal visible periphyton. |
| | | INUG -2-b | *(ND)* | | | 0.002 | | |
| | | INUG -2-c | - | | Missing | 0.004 | | |
| | | INUG -2-d | - | | | 0.001 | | |

ND = Non-detect
Note: Results in brackets are interpreted with caution due to various sampling concerns as described in comments, and are excluded from Figure 8.

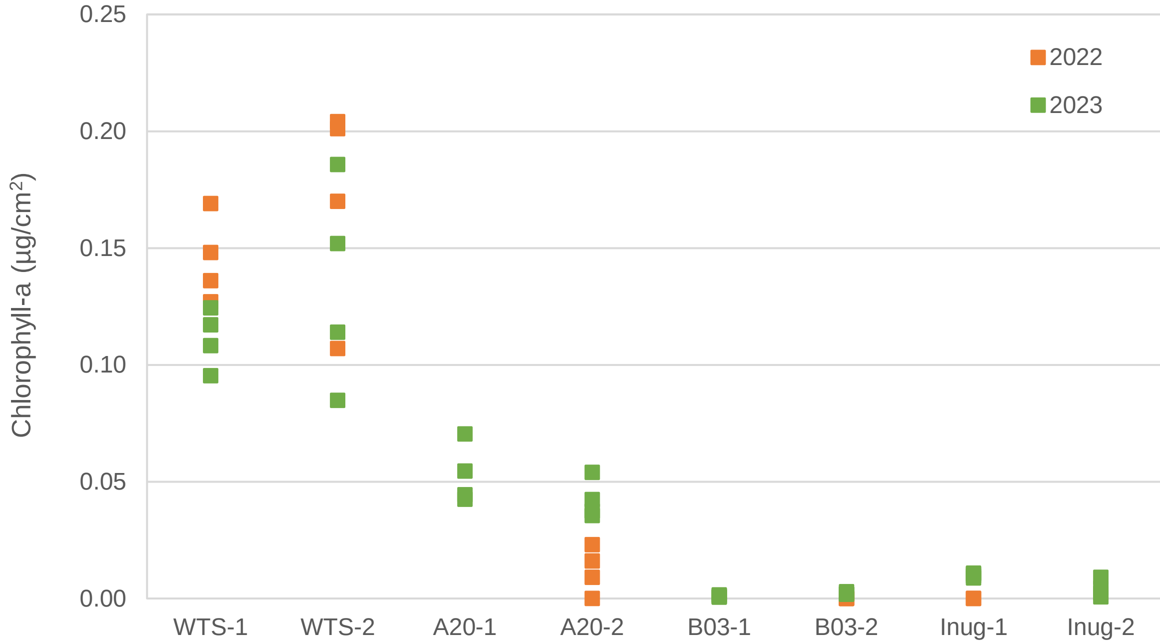



**Figure 8. Periphyton chlorophyll-a on artificial substrate slides in 2022 and 2023 in flood zone areas (WTS, A20) and reference lakes (B03, Inuggugayualik).**

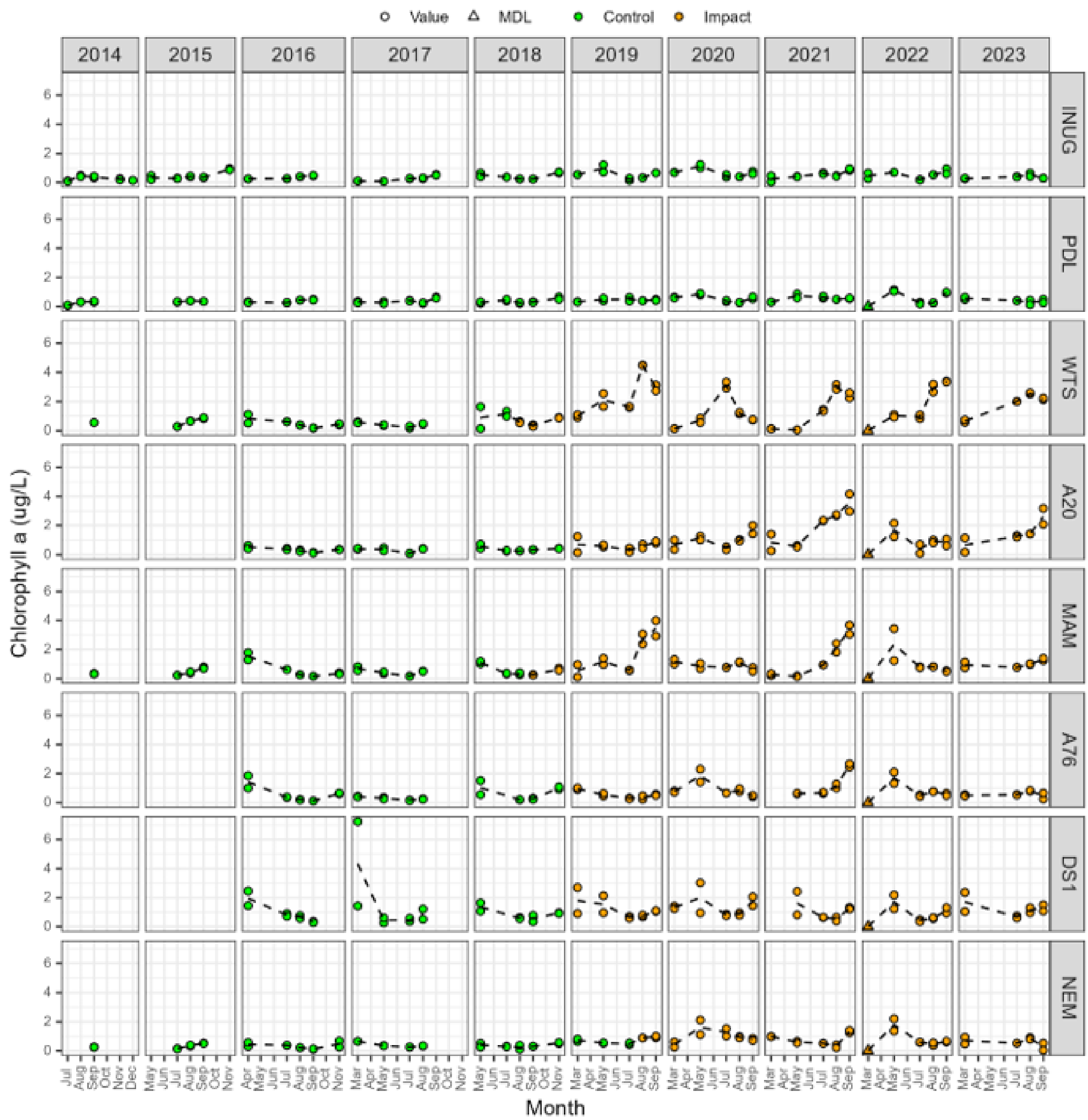



**Figure 9. Water-column chlorophyll-a (ug/L) measured in Whale Tail Mine area lakes including flood zone (WTS, A20) and reference lakes (INUG, PDL) since 2014.**

### *3.1.2.2.2 Visual Surveys*

Key characteristics of the in-situ periphyton observations are summarized in Table 7. Complete visual survey results for each station are provided in Appendix B, along with site photos at both the micro and macrohabitat scale.

In both 2022 and 2023, periphyton cover at the microhabitat scale (1 x 2 m patch) varied across both flood zone and reference lakes from sparse (<5%) to high (>75%), with both patchy and even coverage at the macrohabitat scale (20 m of shoreline). Nearly all periphyton was brown in colour. In 2023, thickness within the flood zone lakes was most often 2 – 3 mm (six of eight sites), while thickness in reference lakes was recorded at more than 5 mm at five of eight sites, and less than 3 mm at the other three sites. While texture in flood zone lakes was most commonly characterized as a spongy mat compared to flat/compact periphyton in reference lakes, this was determined to be a reference to the flooded tundra vegetation, rather than aquatic periphyton growth. Where periphytic growth on rocks was specified at flood zone sites, it was most commonly described as filamentous, which occurred in the same proportion of reference lake sites (3 of 8).

**Table 7. Periphyton visual surveys – summary of dominant results for flood zone and reference sites in 2022 and 2023.**

| Characteristic | Flood Zone Sites (WTS, A20, A63) | | Reference Sites (A44, Lake 8, B03, Inuggugayualik) | |
|---|---|---|---|---|
| | 2022 | 2023 | 2022 | 2023 |
| Cover (Microhabitat) | 0 – 75+% | 5 – 75+% | 0 – 75+% | 5 – 75+% |
| Evenness (Macrohabitat) | Both patchy and even sites | Both patchy and even sites | Both patchy and even sites | Both patchy and even sites |
| Colour | Brown | Brown, light brown | Brown | Brown, light brown |
| Thickness | 1 – 3 mm (7 of 8 sites) | 1 – 3 mm (8 of 8 sites) | 1 – 3 mm (6 of 8 sites) | 5+ mm (5 of 8 sites) |
| Texture | [Spongy mat* (7 of 8 sites)] | [Spongy mat* (4 of 8 sites);] Filamentous (3 of 8 sites) | Flat/compact (3 of 8 sites); Loosely attached (3 of 8 sites) | Compact, slimy, mossy (5 of 8 sites); Filamentous (3 of 8 sites) |
| *[*Refers to the flooded tundra vegetation, rather than aquatic periphyton growth. See discussion in text]* | | | | |

In the baseline phase (2015) visual observations were recorded for three sites in Whale Tail Lake (South Basin) in June and September (along with additional sites in Kangislulik (Mammoth) Lake and Nemo Lake, not included here). Results of the September 2015 surveys in WTS (Agnico Eagle, 2016; Appendix 6-G) are summarized in Table 8, in comparison to WTS results for 2022 and 2023, which were also collected in September. While observations of cover type, evenness, and texture appeared similar between years, colour was categorized as green (muddy or olive) during the baseline survey, and brown during the post-flood surveys. No photos were available for the baseline period surveys, so further interpretation of this apparent difference is difficult. However, periphyton colour in reference lakes in 2022 and 2023 was also mainly identified as brown, so it may be an artifact of the subjective evaluation.

**Table 8. Summary of results for periphyton visual surveys in WTS during the baseline period (2015) and post-flood (2022 and 2023).**

| Characteristic | Whale Tail Lake – South Basin | |
|---|---|---|
| | **2015 (3 sites)** | **2022 / 2023 (4 sites/year)** |
| Cover (Microhabitat) | Moderate 25 – 75%) to high (>75%) | Moderate 25 – 75%) to high (>75%) |
| Evenness (Macrohabitat) | Even | Both patchy and even sites |
| Colour | Muddy or olive green, lighter patches | Brown |
| Thickness | “fairly thick” or not recorded | 1 – 3 mm (7 of 8 observations) |
| Texture | Fine growth, some tufts, poorly attached | Filamentous or flat |

Overall, results of the periphyton analyses suggest that over the past two years, seasonal growth has been greater in flood zone lakes than reference lakes (artificial substrate sampling, Figure 8). Accumulated biomass thickness as estimated in visual surveys may still be somewhat less in newly flooded habitat than reference sites (Table 7; 3 mm or less in most sites, compared to 5 mm or more in most sites) but this only occurred in 2023. Thickness as estimated from visual observations was similar across flood zone and reference sites in 2022. Thickness was not quantified in baseline surveys. While visual assessments for cover, evenness, colour, and texture are more subjective, results of these analyses did not indicate any major or consistent differences between current flood zone sites and baseline/reference sites.

#### *3.1.2.3 Fish Use*

##### *3.1.2.3.1 Shoreline Habitat (Habitat Types 2 & 3)*

Catch-per-unit effort (CPUE) and length-frequency results for electrofishing surveys conducted from 2021 – 2023 (FHOMP study years) are provided here. Raw data is provided in Appendix C. Fish surveys also occurred from 2018 – 2020 as part of complementary measures research program (Section 3.2.2), and complete results incorporating data across all study years will be available following research study completion (est. end 2024).

Total catch of fish captured through backpack electrofishing of shoreline habitat annually from 2021 - 2023 is provided in Table 9, and catch-per-unit effort is shown in Figure 10. From 2021 to 2023, both Ninespine Stickleback and Slimy Sculpin appear to have been present in flooded shoreline habitat at rates no lower than reference lakes, on average.

**Table 9. Total catch of Ninespine Stickleback, Slimy Sculpin and other fish by-catch from shoreline electrofishing. Note: Results for Kangislulik (Mammoth) Lake are provided here for reference, but are not specifically evaluated as part of the FHOMP study.**

| Habitat Type | Waterbody | 2021 | | | 2022 | | | 2023 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | NSSB | SLSC | Other | NSSB | SLSC | Other | NSSB | SLSC | Other |
| Flooded | Whale Tail South | 15 | 32 | LKTR, RNWH, BURB, ARCH | 29 | 25 | Unknown | 44 | 37 | LKTR |
| | A63 | 16 | 29 | - | 66 | 34 | - | 59 | 30 | BURB, LKTR |
| | A65 | 3 | 12 | LKTR, RNWH, ARCH, | NF | NF | - | NF | NF | - |
| | A20 | 19 | 6 | ARCH | 12 | 35 | - | 16 | 32 | RNWH, LKTR |
| Downstream | Kangislulik (Mammoth) | 32 | 31 | - | 13 | 35 | BURB, LKTR | 0 | 54 | LKTR |
| Reference | Lake 8 | NF | 10 | ARCH, Sal. | 0 | 34 | LKTR | 0 | 51 | LKTR |
| | A44 | 4 | 8 | LKTR | 33 | 12 | BURB, Unknown | 7 | 29 | LKTR |
| | B03 | 9 | 30 | ARCH, LKTR, BURB | 1 | 38 | - | 2 | 31 | LKTR |
| **Total** | | **98** | **158** | - | **154** | **213** | - | **94** | **261** | - |

NF = not fished
Bycatch ID: LKTR = lake trout, RNWH = round whitefish, BURB = burbot, ARCH = Arctic char, Sal. = Salmonid

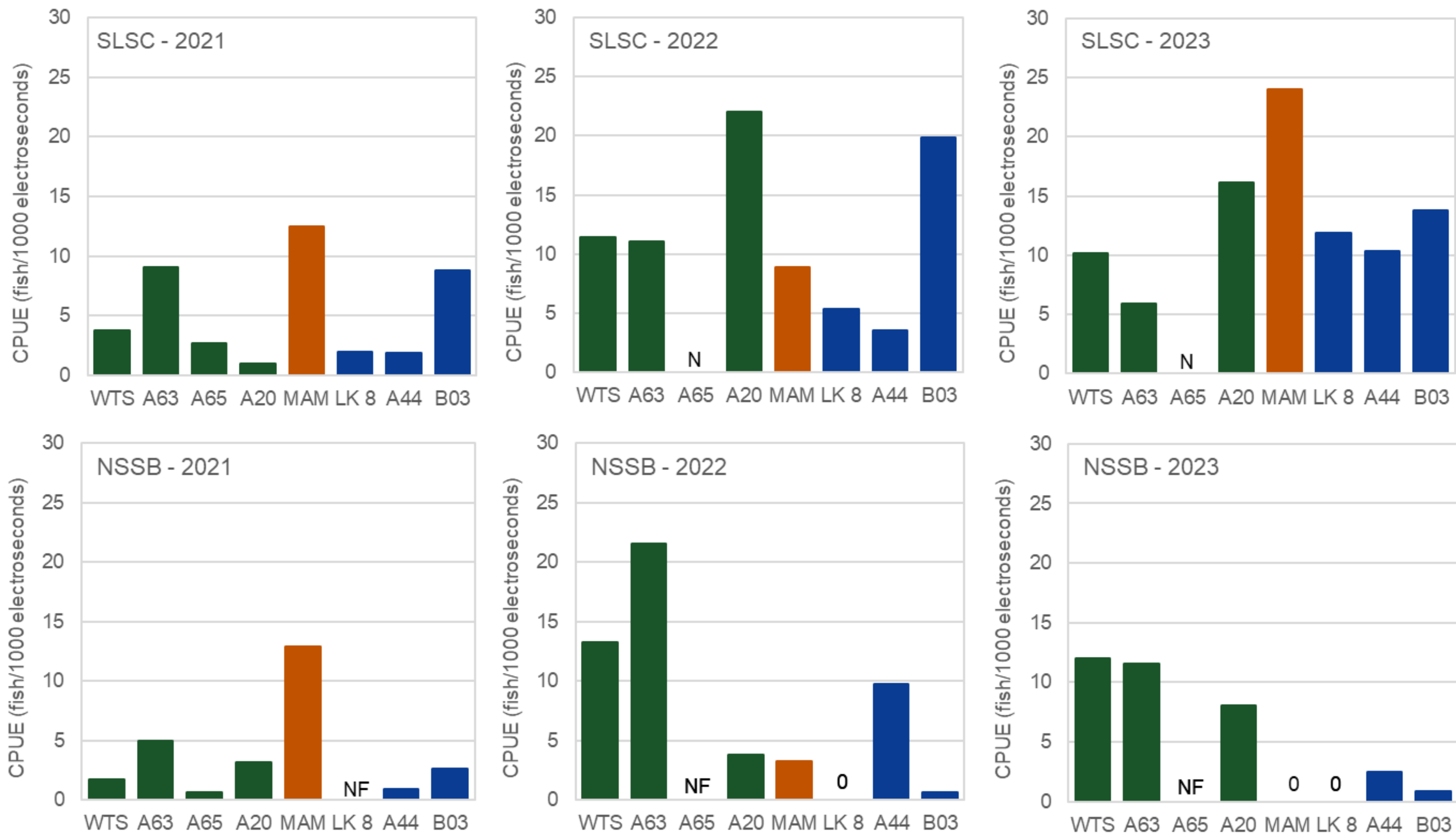



**Figure 10. Catch per unit effort of Slimy Sculpin and Ninespine Stickleback collected from 2021 - 2022 in the study lakes (green = flooded, orange = downstream, blue = reference). NF = not fished.**

Length-frequency distributions for Slimy Sculpin and Ninespine Stickleback are provided in Figures 11 and 12. It is noted that Ninespine Stickleback were not the primary target species, and relatively few were captured in reference lakes. No major differences in the shapes of length-frequency distributions between flood and reference lakes are evident.

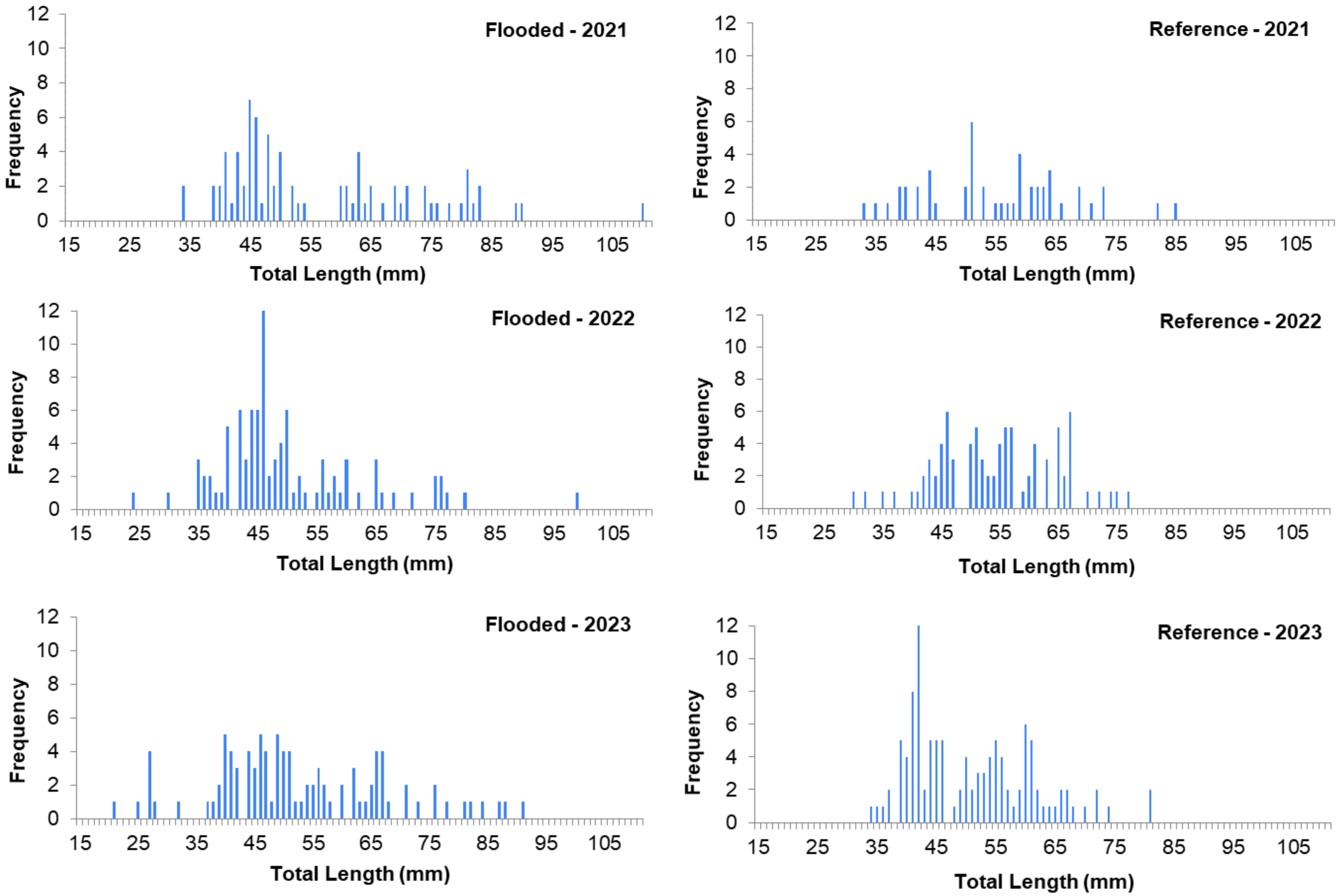



**Figure 11. Length-frequency distributions for Slimy Sculpin collected in flooded lakes (WTS, A20, A63, A65) and reference lakes (A44, B03, Lake 8).**

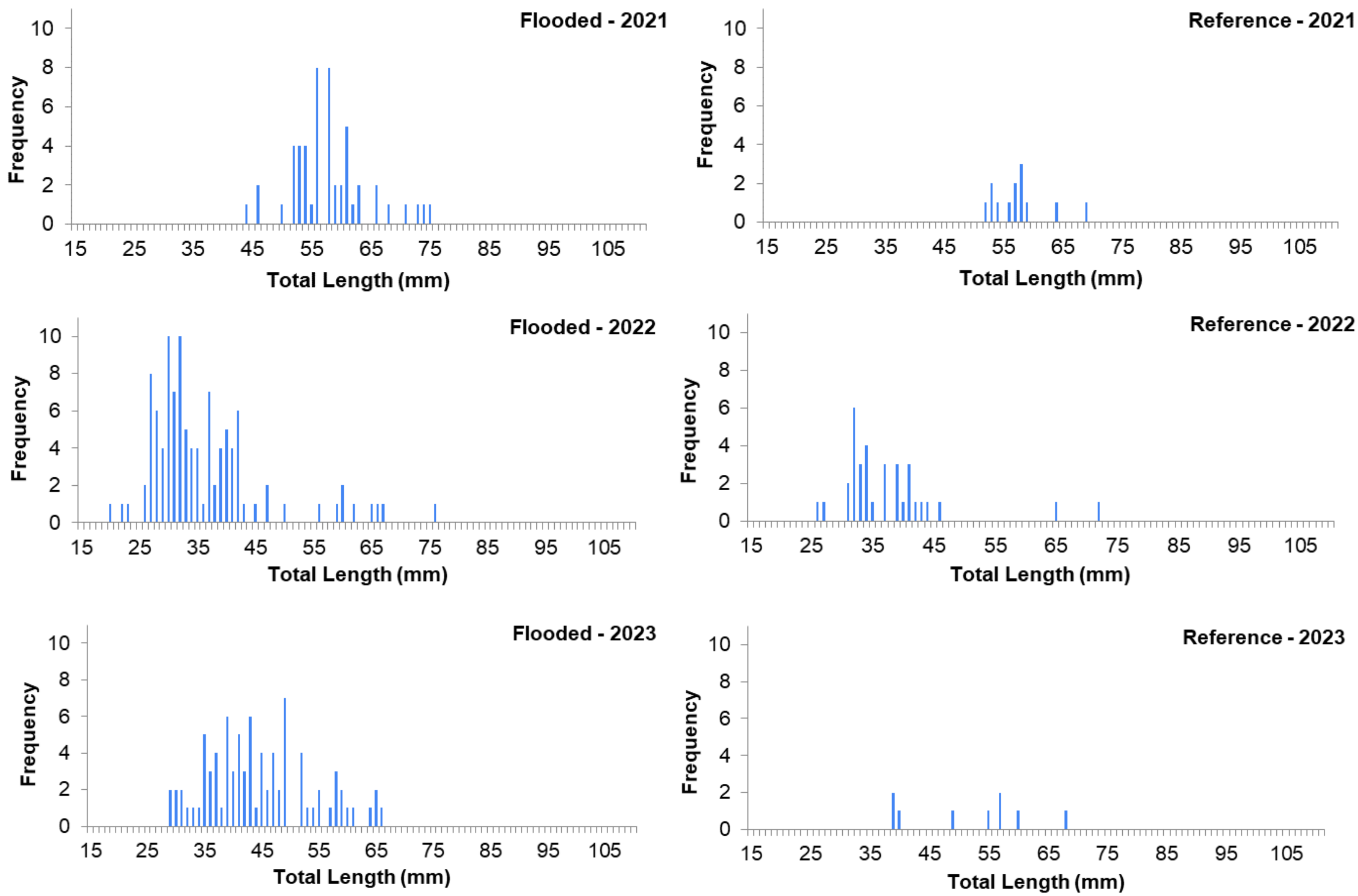



**Figure 12. Length-frequency distributions for Ninespine Stickleback collected in flooded lakes (WTS, A20, A63, A65) and reference lakes (A44, B03, Lake 8).**

### *3.1.2.3.2 Pelagic Habitat (Habitat Types 6 & 9)*

#### 3.1.2.3.2.1 Underwater Camera

Observations from underwater video recorded at high-potential lake trout spawning locations in 2023 are summarized in Table 10. Fish were identified at both the WTS and A20 stations, and in 19 of 21 individual camera sets. Lake trout specifically were observed in nine of fourteen sets in WTS, but only in two of seven sets in A20. Cameras were set earlier in the month in WTS (beginning August 30) compared to A20 (beginning September 13). Lake trout spawning activity may have been declining by the time they were set in A20, as water temperatures had decreased to 7°C by September 7, which is below the literature-estimated optimal spawning range of approximately 9 – 13°C (Table 11).

In all cases where observations were recorded, fish were seen swimming across the image, and in several cases multiple fish were observed together. No spawning-specific behaviours were observed (e.g. releasing gametes, shuddering/gaping). This is similar to results of baseline video surveys in 2016, when two instances of following were noted, but no spawning-specific behaviours. Following is a component of lake trout spawning behaviour, but it doesn't necessarily only occur during spawning.

In general, these results confirm the ongoing presence of lake trout in areas that were identified as having high potential for spawning under baseline conditions (Whale Tail South station), as well as in new potential spawning locations created by flooding (A20 station). Although specific visual evidence of spawning behaviour was not identified, these results are similar to baseline observations, and both were impeded by the inability to evaluate night-time activity.

**Table 10. Underwater video camera survey dates and number of fish observations (*multiple fish noted in at least one observation). All video was recorded during daylight hours. Cameras were generally set in one location in WTS (UC 1 to 3) and one location in A20 ((UC 4 to 9) see Figure 1).**

| Waterbody | Date (2023) | Set ID | Video Duration (h) | # Observations & Species |
|---|---|---|---|---|
| Whale Tail South | Aug 30 | UC-1 | 2.00 | 2 - LKTR |
| | | UC-2 | 2.20 | 1 – LKTR |
| | | UC-3 | 1.48 | 4 - LKTR |
| | Sept 4 | UC-1 | 2.07 | 2 – LKTR |
| | | UC-2 | 2.13 | 1 - LKTR<br>2 – Unknown* |
| | | UC-3 | 1.47 | - |
| | Sept 5 | UC-1 | 2.10 | 1 - LKTR<br>3 - Unknown |
| | | UC-2 | 2.10 | 4 – Unknown |
| | | UC-3 | 1.48 | 3 - Unknown |
| | Sept 7 | UC-1 | 1.22 | 2 - Unknown<br>1 - RNWH |

| Waterbody | Date (2023) | Set ID | Video Duration (h) | # Observations & Species |
|---|---|---|---|---|
| | | UC-2 | 1.83 | 1 - LKTR<br>10 – Unknown |
| | | UC-3 | 0.95 | 1 – Unknown* |
| | Sept 9 | UC-2 | 2.18 | 1 - LKTR |
| | | UC-3 | 1.92 | 3 - LKTR<br>6 – NSSB*<br>9 – Unknown* |
| A20 | Sept 13 | UC-8 | 1.95 | 1 - ARCH |
| | | UC-9 | 1.97 | - |
| | | UC-10 | 2.45 | 1 - LKTR<br>1 – RNWH*<br>1 – ARCH |
| | Sept 15 | UC-6 | 2.10 | 3 - RNWH |
| | | UC-7 | 1.98 | 1 – RNWH |
| | Sept 18 | UC-5 | 2.03 | 1 - LKTR<br>2 - RNWH<br>1 - Unknown |
| | Sept 19 | UC-4 | 2.52 | 1 - RNWH |

**Table 11. Measured water temperatures at approximately 2 m depth in flood zone lakes WTS and A20 in August and September, 2023 (from Azimuth, 2024).**

| Waterbody | August 17, 2023 | September 7, 2023 |
|---|---|---|
| WTS | 17°C | 7°C |
| A20 | 14°C | 7°C |

3.1.2.3.2.2 Gillnetting

Total catch, soak time, and calculated total catch per unit effort (CPUE) are provided for all net sets in FHOMP study lakes in Table 12. Soak time was field-determined with the objective of capturing 25 lake trout and minimizing incidental mortalities. Final times varied from 12 – 20 h per net set, and all sets were overnight (Table 5).

For all sets, CPUE (across species) in flood zone lakes (WTS and A20) was greater than reference lakes (Lake 8 and Lake 1).

**Table 12. Gillnet soak times, total catch, and calculated CPUE (fish/h). Note: Results for Kangislulik (Mammoth) Lake are indicated here for reference, but are not specifically included in the FHOMP analysis.**

| Waterbody | Net Set ID | Soak Time (h) | Lake Trout | Arctic Char | Round Whitefish | Total Count | CPUE (fish/h) |
|---|---|---|---|---|---|---|---|
| Whale Tail South | Net 1 | 12.97 | 30 | 1 | 23 | 54 | 4.16 |
| | Net 2 | 13.63 | 50 | 0 | 26 | 76 | 5.57 |

| Waterbody | Net Set ID | Soak Time (h) | Lake Trout | Arctic Char | Round Whitefish | Total Count | CPUE (fish/h) |
|---|---|---|---|---|---|---|---|
| A20 | Net 1 | 11.67 | 27 | 1 | 25 | 53 | 4.54 |
| | Net 2 | 12.75 | 26 | 0 | 27 | 53 | 4.16 |
| Lake 8 | Net 1 | 20.00 | 16 | 2 | 0 | 18 | 0.90 |
| | Net 2 | 20.50 | 16 | 2 | 0 | 18 | 0.88 |
| Lake 1 | Net 1 | 20.17 | 25 | 4 | 5 | 34 | 1.69 |
| | Net 2 | 20.30 | 16 | 5 | 3 | 24 | 1.18 |
| Kangislulik (Mammoth) | Net 1 | 13.75 | 24 | 1 | 10 | 35 | 2.47 |
| | Net 2 | 14.90 | 18 | 0 | 8 | 26 | 1.74 |

Basic characteristics of the captured lake trout populations are summarized by waterbody in Tables 13 and 14, and Figure 13. Additional raw data (liver, gonad, stomach content, and DELTs analysis) is provided in Appendix C.

Overall, the length of fish in flood zone lakes was similar to reference Lake 8, though WTS had a greater proportion of smaller-sized fish than the other locations. Reference Lake 1 lake trout were, on average, larger than those from the flood zone lakes and reference Lake 8. The proportion of mature female lake trout that were reproducing (ripe) during the study was higher in WTS than in the other lakes.

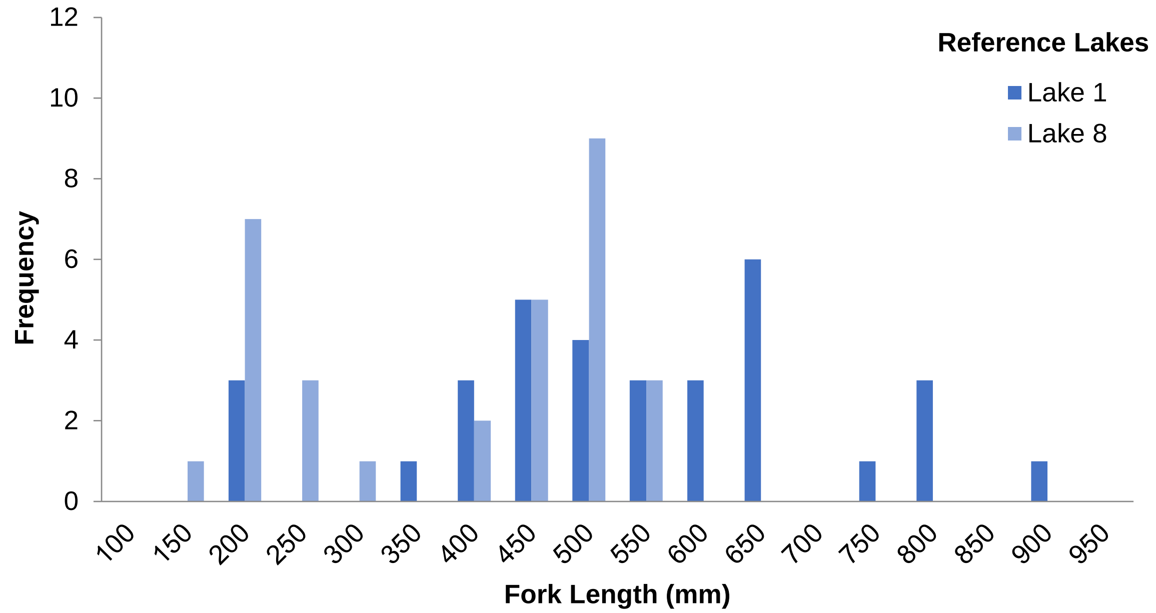
Further interpretation of these data is included in the *Impact Analysis of Fish Habitat from Flooding*, to be provided to DFO under separate cover in 2024 in fulfillment of Condition 5.3.1 of FAA *20-HCAA-00275*.

**Table 13. Average, maximum, and minimum length, weight, and Fulton's condition factor (K) for lake trout caught through gillnetting in 2023.**

| Waterbody | n | Avg. Length (mm) | Max. Length (mm) | Min. Length (mm) | Avg. Weight (g) | Max. Weight (g) | Min. Weight (g) | Avg. Condition (unitless) | Max. Condition (unitless) | Min. Condition (unitless) |
|---|---|---|---|---|---|---|---|---|---|---|
| Whale Tail South | 45 | 353 | 878 | 131 | 921 | 8760 | 21 | 1.2 | 1.4 | 0.91 |
| A20 | 27 | 420 | 749 | 236 | 1078 | 4731 | 126 | 1.1 | 1.4 | 0.75 |
| Lake 8 | 31 | 360 | 520 | 134 | 675 | 1510 | 24 | 1.0 | 1.3 | 0.84 |
| Lake 1 | 33 | 516 | 861 | 180 | 2166 | 8660 | 64 | 1.1 | 1.3 | 0.94 |
| Kangislulik (Mammoth) | 31 | 359 | 876 | 146 | 789 | 8430 | 33 | 1.1 | 1.3 | 0.90 |

**Table 14. Sex, maturity, and reproductive status (ripe vs resting) among lake trout caught through gillnetting in 2023.**

| Waterbody | n (Total # Captured) | # Sex Undetermined | Male:Female % | Males | | | Females | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Total # | % Mature (# fish) | % Ripe (# fish) | Total # | % Mature (# fish) | % Ripe (# fish) |
| Whale Tail South | 45 | 17 | 50:50 | 14 | 71 (10) | 20 (2) | 14 | 43 (6) | 67 (4) |
| A20 | 27 | 3 | 58:42 | 14 | 64 (9) | 67 (6) | 10 | 0 | 0 |
| Lake 8 | 31 | 10 | 43:57 | 9 | 56 (5) | 0 | 12 | 58 (7) | 0 |
| Lake 1 | 33 | 5 | 32:68 | 9 | 56 (5) | 0 | 19 | 37 (7) | 14 (1) |
| Kangislulik (Mammoth) | 31 | 6 | 44:56 | 11 | 55 (6) | 0 | 14 | 29 (4) | 25 (1) |



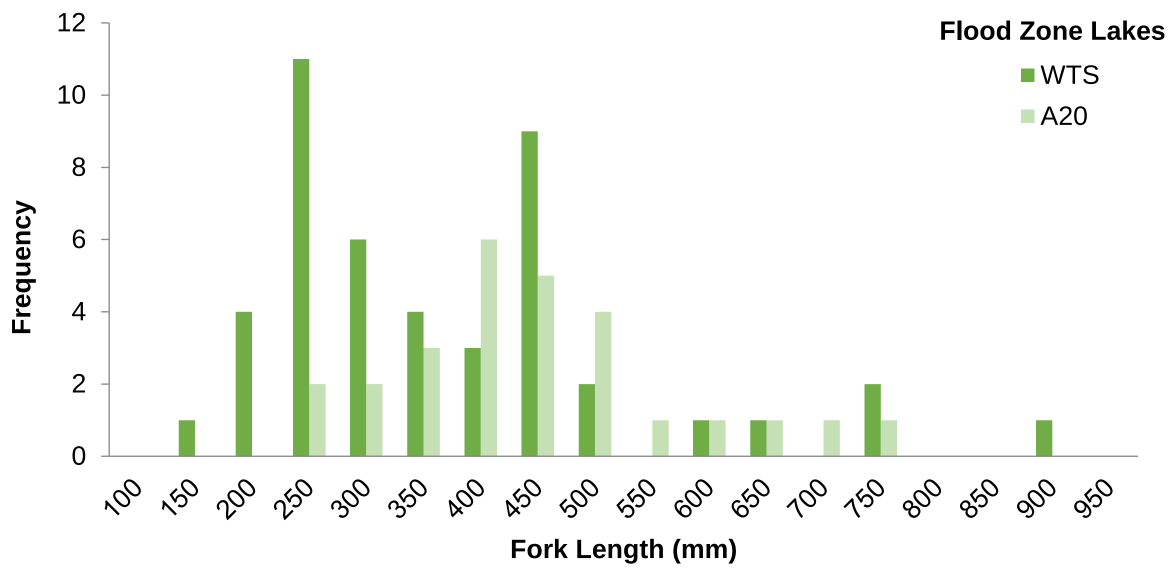




**Figure 13. Length-frequency distributions for lake trout caught in gillnets set in Whale Tail flood zone and reference lakes in 2023.**

## 3.2 COMPLEMENTARY MEASURES

An update is provided here on activities of the MFRAG along with a summary of progress for each research study in 2023. Full research methods are documented in annual progress reports provided to DFO by May 30 annually.

### 3.2.1 Activities of the MFRAG

As part of the Fish Habitat Offsetting Plan for Whale Tail Mine (C. Portt and Associates, 2018a), the MFRAG was conceptualized to provide a forum for input from key stakeholders. The MFRAG meets annually to review project progress reports, propose and approve or reject new projects or project components, and assess whether criteria for success have been met.

In 2019, Agnico Eagle confirmed interest in MFRAG participation by DFO, the Kivalliq Inuit Association (KivIA), and the Baker Lake Hunters and Trappers Organization (BLHTO). As planned in the Fish Habitat Offsetting Plan for Whale Tail Mine, Appendix C (C. Portt and Associates, 2018a), Agnico Eagle also identified a third party external advisor (Dr. Kelly Munkittrick, University of Calgary) who will participate in all MFRAG activities. A draft Memorandum of Understanding and Terms of Reference (TOR) were developed by Agnico Eagle and reviewed by all parties. The initial meeting of the MFRAG was held on December 12, 2019 in Montreal, Quebec. Representatives from all member groups were in attendance. The group received presentations by lead researchers involved in each study, and had the opportunity for questions, comments, and open discussion. Each MFRAG member group was requested to provide written comments, if any, by February 28, 2020. Written comments were distributed to research study leads for consideration.

In 2020, the MFRAG TOR were finalized, and signed by all parties as of March, 2021. The second annual meeting of the MFRAG was held by video conference due to COVID restrictions on December 2, 2020, with all member groups participating (Agnico Eagle, DFO, KivIA, BLHTO). As in 2019, the group received presentations by lead researchers involved in each study, and had the opportunity for questions, comments, and open discussion. Each MFRAG member group was requested to provide written comments, if any, by January 13, 2021. Written comments were again distributed to all member groups and the research study leads for consideration. No major concerns with research study progress were raised during the meeting or in follow-up comments.

In 2021, the third annual meeting of the MFRAG was held by video conference due to COVID restrictions on December 14, 2021, with all member groups participating. As in previous years, the group received presentations by lead researchers involved in each study, and had the opportunity for questions, comments, and open discussion. Each MFRAG member group agreed to provide written comments, if any, by January 25, 2022. Written comments were again distributed to all member groups and the research study leads for consideration. No major concerns with research study progress were raised during the meeting or in follow-up comments.

In 2022, the fourth MFRAG meeting was held by video conference on November 18, 2022, with all member groups participating. The meeting format was the same as previous years. In advance of the meeting, all member groups received the previous year's Annual Progress Report, along with a non-technical summary in English and Inuktitut, and had the opportunity for questions, comments, and open discussion with the research teams. For Study 2 - Assessment of Impacts of the Baker Lake Wastewater Outflow on Fish Productivity and Fish Habitat (H. Swanson), a change in objectives was proposed to accommodate a delayed construction schedule for upgrades to the Baker Lake municipal wastewater treatment system. All MFRAG member groups were requested to provide written comments, if any, by December 16. Comments from DFO/KIA were received on December 23. Comments were also received from the external advisor, and were distributed to all parties and researchers for consideration.

In 2023, the fifth MFRAG meeting was held by video conference on December 12, with all member groups participating. As required every three years, the MFRAG Terms of Reference were reviewed, with no comment from any party. In advance of the meeting, all member groups received the previous year's Annual Progress Report, along with a non-technical summary in English and Inuktitut. Progress of each research study was presented by the lead researcher, and MFRAG parties had the opportunity for questions, comments, and open discussion with the research teams. Each MFRAG member group agreed to provide written comments, if any, by January 26, 2024. Written comments were only received from the external advisor, and were distributed to all member groups and the research study leads for consideration.

### 3.2.2 Study 1 - Assessment of Changes in Aquatic Productivity and Fish Populations Due to Flooding (H. Swanson)

#### *3.2.2.1 Research Objectives*

This research study aims to understand changes in small-bodied fish metrics indicative of population productivity during and after flooding in the Whale Tail Lake area. Changes in productivity will be related to water quality variables and qualitatively related to habitat characteristics.

#### *3.2.2.2 Research Methods & Summary of Activities*

In 2018, 2019, 2020, and 2021 the study focused on the collection of baseline data (2018) and flooding year 1, 2, and 3 data (2019, 2020, 2021) for small-bodied fish species (Slimy Sculpin, Ninespine Stickleback) within the Whale Tail South area. Shoreline electrofishing was completed for small-bodied fish in up to 8 waterbodies in the area of Whale Tail Lake: Whale Tail Lake, Kangislulik (Mammoth) Lake, A63, A20, A65, A44, B03, and Lake 8 (Figure 14).

Monitoring endpoints that were selected for analysis (statistical or visual) include catch per unit effort, proportional catch, length, weight, condition, age, weight-at-age, and isotopes of carbon and nitrogen as indicators of carbon source and lipid content.

In addition, the University of Waterloo team collected annual supplemental water quality data, which will be used to support the interpretation of fish population data. Water quality data collected under compliance monitoring programs will similarly be used in this assessment.

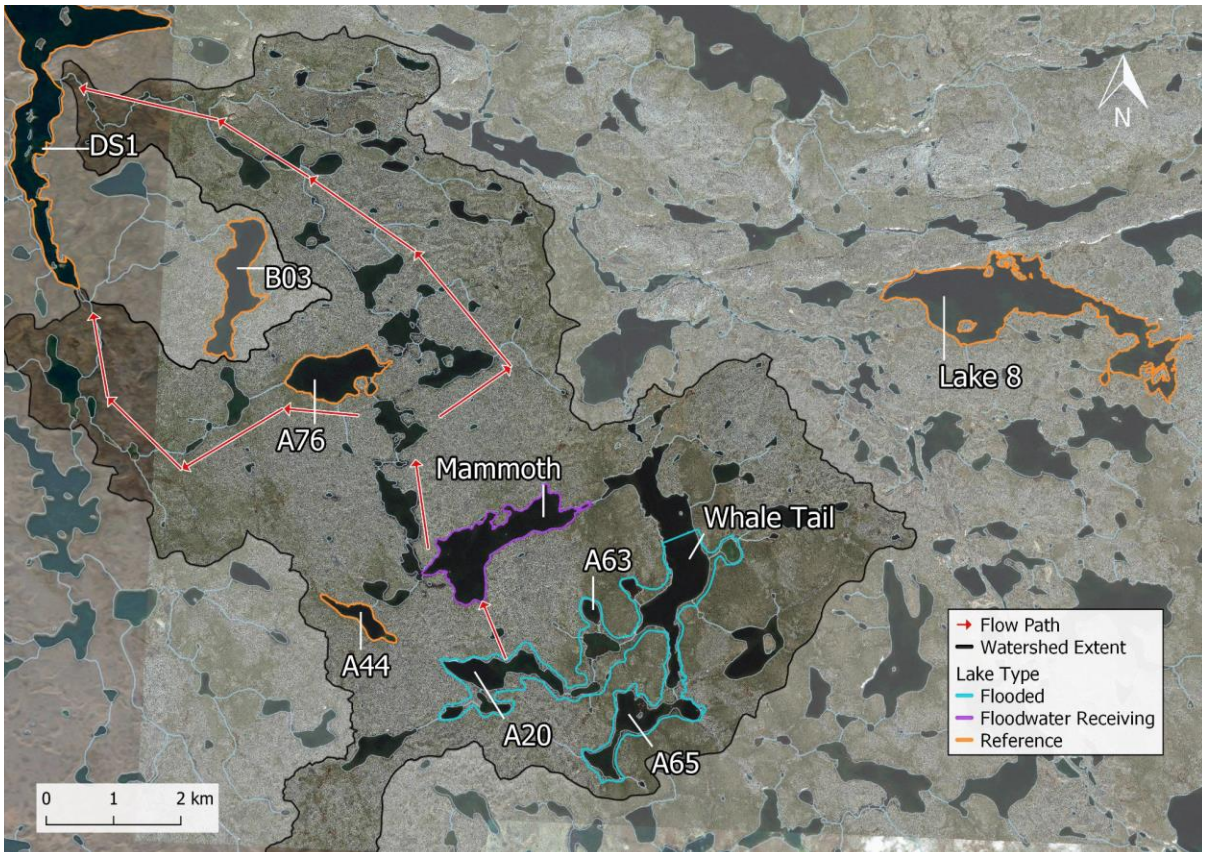



**Figure 14. Whale Tail Productivity study area (Mammoth Lake is now referred to as Kangislulik Lake).**

#### *3.2.2.3 Study Completion*

This study was scheduled for completion (final journal article submission) in 2022. However, due to COVID-related delays, a two-year extension is currently anticipated, with final journal article submission in 2024. Preliminary results were presented at the 2023 MFRAG meeting. The final field season was completed on time as originally scheduled, in 2021.

### 3.2.3 Study 2 – Assessment of Impacts of the Baker Lake Wastewater Outflow on Fish Productivity and Fish Habitat (H. Swanson)

#### *3.2.3.1 Research Objectives*

A research program lead by Dr. Rob Jamieson (Dalhousie University) is underway to assess the current status of the wastewater treatment system in the hamlet of Baker Lake and develop designs for upgrades. This study was awarded an NSERC Collaborative Research and Development grant (NSERC-CRD) in 2019 to supplement funding from Agnico. As part of this holistic assessment, key questions related to understanding fish health, fish habitat, nutrient status and fish productivity are included as offsetting for the Whale Tail Mine. The fish and fish habitat portion of the study is being conducted by Dr. Heidi Swanson (Laurier University, formerly the University of Waterloo).

The following goals specific to fish and fish habitat were originally developed:

1. Quantify the current fish habitat, fish health and fish productivity in the Arctic wastewater system.

2. Quantify changes in fish habitat, fish health and fish productivity associated with Arctic wastewater treatment system upgrades.

However, due to a longer timeline than originally anticipated for construction of a new municipal wastewater facility, the following revised goals were proposed to the MFRAG in 2022, along with specific revised objectives:

1. Quantify the current fish habitat, fish health and fish productivity in the Arctic wastewater system (extended pre-construction assessment).

2. Develop and delivery training activities to support community-lead environmental monitoring programs for the post-construction period, tailored to the interests of community organizations.

Having received agreement from the MFRAG, the revised project objectives were presented to NSERC for consideration and approved. Changes to planned study activities are presented briefly, below, and the complete revised study plan was provided in the 2022 Annual Progress Report to DFO (May 30, 2023).

#### *3.2.3.2 Research Methods & Summary of Activities*

General study methods follow Environmental Effects Monitoring (EEM) protocols to assess changes in large-bodied fish population health and habitat that occur as a result of wastewater treatment outflow. Supplemental methods similar to those employed in Study 1 will be used to further assess changes in productivity in small-bodied fish, which may occur under shorter time frames. Specific target lakes include those within the current wastewater flow path, as well as a reference system (Figure 15). This study is focusing on:

- Finger Lake,
- Lagoon Lake,
- Airplane Lake,
- Baker Lake,
- the connecting streams, and
- reference lakes.


**Figure 15. Baker Lake wastewater study lakes and reference lakes.**

In 2018, 2019 and 2021, the University of Waterloo completed field reconnaissance and collected water quality, sediment samples, fish tissue samples, and conducted presence/absence surveys.

2018:

- Reconnaissance year
- Collected water samples and sampled fish in Finger Lake and Airplane Lake
- Evaluated potential reference sites

2019:

- Selection of reference lakes
- Shoreline electrofishing, minnow trapping, gill netting in 5 waterbodies (Lagoon, Finger, Airplane Lake, R1 and R2)

- Fish presence/ absence
- Collected Ninespine Stickleback and Arctic Grayling for health indicators, otoliths, and tissue
- Working in collaboration with University of Manitoba and Dalhousie University, collected water quality samples and submitted for analysis.

2020: Due to restrictions under the COVID-19 pandemic, the 2020 field season could not proceed. The study period has thus been extended by one year.

2021:

- Shoreline electrofishing, minnow trapping, gill netting in 5 waterbodies and the outlet of Airplane Lake (Lagoon, Finger, Airplane Lake, Airplane Lake creek, R1 and R2).
- Fish presence/ absence.
- Collected Ninespine Stickleback and Arctic Grayling for health indicators, aging structures (i.e., otoliths), and tissue.
- Collected sediment chemistry data.
- Collected periphyton and zooplankton data.
- Working in collaboration with University of Manitoba and Dalhousie University, collected water quality samples and submitted for analysis.
- Completed otolith microchemistry analysis at University of Manitoba.
- Data analysis, interpretation, thesis and manuscript writing.

2022: Ongoing data analysis. No field data collection.

2023: Field data collection similar to 2021, and conducted 3-d field training (year 1) in consultation with the KIA, including videography for eventual development of visual sampling protocols for community use.

2024 plan: Benthic invertebrate sampling and year 2 training for community-lead monitoring. Completion of MSc thesis document for fish study component.

2025 plan: Benthic invertebrate sampling (final year).

2026 plan: Completion of manuscript for benthic invertebrate study component.

#### *3.2.3.3 Study Completion*

With the proposed change in study objectives, final manuscript submissions for the fish health and habitat portion of the study is anticipated for 2025 (fish) and 2026 (benthic invertebrates).

### 3.2.4 Study 3 – Literature Review and Field Validation of Northern Lake Fish Habitat Preferences (S. Doka)

#### *3.2.4.1 Research Objectives*

Habitat preferences of northern fish species are not well understood, which causes significant uncertainty in habitat-based offset calculations. This study aims to:

1 - Identify literature data gaps in habitat associations of Meadowbank-area lake fishes such as Lake Trout, Arctic Char, and Round Whitefish,

2 - Field-test a variety of methods for filling data gaps.

#### *3.2.4.2 Research Methods and Summary of Activities*

This study was planned to be conducted over three years, from 2018 – 2020. Methods include a literature review, data gap analysis, and field programs to assess various sampling techniques for identifying fish habitat associations. Field surveys occurred in 2018 and 2019.

**Literature Review and Gap Analysis -** Following closely the Centre of Environmental Evidence guidelines for systematic literature review, a graduate student with Lakehead University under the co-supervision of Dr. Mike Rennie and Dr. Susan Doka reviewed primary and grey literature sources as well as unpublished data (e.g., Golder & Associates 2016, DFO FishOut database) on 11 northern species, including Lake Trout (*Salvelinus namaycush*) Burbot (*Lota lota*), Lake Whitefish (*Coregonus clupeaformis*), Lake Cisco (*Coregonus artedi*), Round Whitefish (*Prosopium cylindraceum*), Arctic Char (*Salvelinus alpinus*), Arctic Grayling (*Thymallus arcticus*), Slimy Sculpin (*Cottus cognatus*), Ninespine Stickleback (*Pungitius pungitius*), Dolly Varden (*Salvelinus malma*) and Bull Trout (*Salvelinus confluentus*) with current fish distributions in lakes of Nunavut and the Northwest Territories (Mandrak, et al. in review) and expert input from individuals that have been in the field in recent years (C. Portt & Associates, 2018b). The data extracted from the review has been analyzed using appropriate statistical methods to synthesize the information by life stage (3 stages: spawning, nursery, juvenile/adult habitats) for the 11 northern fish species.

**Field Programs -** Fisheries and Oceans in partnership with Lakehead University conducted ten days of sampling (August 20-30, 2018) in the vicinity of the Amaruq mine camp. The objective of this work was to perform reconnaissance sampling to test efficiencies and logistical challenges of using conventional methods used by scientific consultants and government researchers in the south to assess habitat and fish communities. A variety of equipment was used to meet this objective including, a multi-probe water quality sonde (EXO), passive and active fish sampling gears in both lakes and connecting channels (e.g., minnow traps, GoPro video footage, backpack electrofishing, drift nets) and hydroacoustic surveys (BioSonics MX) for physical habitat mapping (e.g., depth and substrate). The latter was conducted to complement hydroacoustic fish distribution data collected by Milne Technologies (mid-July 2018). Troubleshooting these methods in the field during 2018 informed how to standardize methods for fish habitat sampling in the North (Arctic Region) and how to proceed with habitat and fish assessment pilot tests during the 2019 field season.

Based on year one field tests and literature review results, field work in year two (2019) focussed on pilot testing methods to fill data gaps around habitat associations for small-bodied fishes, while assessing novel or alternative sampling approaches. The 2019 field program consisted of an analysis of Visible Implant Elastomer tagging methods for use in mark-recapture studies to evaluate stream habitat preferences, as well as deep water electrofishing, near-shore electrofishing, and netting techniques. Those programs were conducted over two study periods, in late June and August/September. Analysis of the 2019 field trial results continues.

##### *3.2.4.3 Study Completion*

The MSc thesis fulfilling objective 1 of this study (literature data gap review) was completed in September, 2020 (Hancock, 2020). Final reporting for this study including results and recommendations of field trials was initially planned for 2020 but was delayed due to DFO staffing constraints under the COVID-19 pandemic. The final report submission has now been extended four years, to 2024.

### 3.2.5 Study 4 – Arctic Grayling Occupancy Modelling (H. Swanson)

Objectives of this work were the development of occupancy models for Arctic grayling in the Meadowbank region, and a comparison of habitat predictors in this area with those observed in the NWT. Understanding the potential for occupancy of fluvial systems by fish species based on readily measurable habitat characteristics could facilitate and improve the accuracy of environmental impact assessment and offset planning.

This study was conducted from 2018 – 2021, and final reports consist of an MSc thesis submitted to the University of Waterloo in April, 2020 (Ellenor, 2020), and a peer- reviewed manuscript published in November, 2021 (Ellenor et al., 2021). These documents contain the complete research objectives, methods, and results. Briefly, from Ellenor et al. (2021):

> *Visual surveys of young-of-year Arctic grayling were conducted in 48 streams near Baker Lake, Nunavut, Canada. Occupancy modeling was used to relate stream habitat and landscape variables to fish presence/absence. The best predictors of occupancy were total area of contributing upstream lakes and landcover (upland/lowland); stream basins with larger contributing upstream lake area and more lowland cover were more likely to be occupied. Results suggest that occupancy reflects reliability of stream connectivity throughout the open water season and across years. The occupancy model developed here can adequately predict stream suitability for young-of-year Arctic grayling using lake area and land classification data that are remotely accessed. This may lessen the considerable financial and logistical constraints of conducting field research on Arctic grayling in*

> *the vast Barrenlands and facilitate more directed field programs to inform conservation and mitigation plans.*

Publication of the peer-reviewed manuscript fulfills this study's criteria for success, and it is now considered complete.

### 3.2.6 Study 5 – End-pit Lake Habitat Suitability Assessment

Fish use of re-flooded pit areas with good connectivity to natural systems is not well understood, yet these areas may represent a significant opportunity for fish habitat offsetting. Since multiple pits of various sizes at the Meadowbank Complex are planned to be reflooded in the relatively near term (2027 – 2029), there is an opportunity to thoroughly characterize fish use of pit lake habitat and population growth in re-flooded lakes through a research program. This study will aim to characterize fish use of new pit lake habitat in relation to habitat and water quality variables, and particularly in relation to reference systems. The research team and program details will be developed by the MFRAG prior to study initiation (est. 2026).

While study methods and research members will not be determined until closer to study initiation, a literature review was provided to DFO in February 2019 in fulfillment of Condition 4.2.1.3 of FAA 16-HCAA-00370.

### 3.2.7 Study 6 – eDNA Methods Development (J. Stetefeld and M. McDougall)

#### *3.2.7.1 Research Objectives*

eDNA methods present a potentially useful tool for rapid and non-invasive assessments of fish communities but have not been significantly developed or validated for Arctic systems. The main goal of this project is to develop and optimize monitoring tools based on eDNA metabarcoding technology to assess fish species assemblages (presence/absence and relative abundance) in the Kivalliq region.

Objectives are:

1. Development and optimization of the eDNA metabarcoding technique adapted for the arctic environment as a substitute for current fish species determination approaches.

2. Producing guidelines for handling and analyzing of samples and deliver the method and provide training to the local community.

3. Produce long-term reliable and precise baseline data on the distribution of aquatic associated fish species in the Amaruq mine site lakes using developed eDNA technology.

4. Producing data on the physiochemical properties of the lake water including dissolved mineral content to understand if any changes in stated parameters affect the eDNA/fish assemblage results.

5. Examine the impact of flooding Whale Tail Lake South Basin with the coincident changes in physiochemical properties of the aquatic area (e.g., increase in turbidity, dissolved solids) on the fish population using developed eDNA technique.

6. Collecting baseline eDNA and water quality data on lakes nearby Amaruq mine site outside the mining activity (potential candidates include B03 or DS1) and use them as a control for population changes.

#### *3.2.7.2 Research Methods & Summary of Activities*

This study involves a 5-year plan to develop and utilize an eDNA metabarcoding approach to measure fish assemblages in the Whale Tail area. Environmental DNA metabarcoding technology will be developed and optimized to detect fish species including Arctic Char, Arctic Grayling, Lake Trout, Round Whitefish, Burbot, Slimy Sculpin, Ninespine Stickleback, Hybridized Lake Trout/Arctic Char and analyze their relative abundances. For water quality data, temperature, pressure, dissolve oxygen, pH, salinity, conductivity, and dissolved metals including Cu/Zn/Cd/Fe/Hg/Mn will be measured.

The first two rounds of sampling were completed before significant in-water construction (July 2017). The second round of sampling was done in August, 2018, during construction of the Whale Tail Dike. The third round of sampling was done in August 2019, during flooding of the Whale Tail South area. Additional sampling was completed after flooding (2021). No further field programs are scheduled. The results will be used to assess the influence of mining activity on changes in fish species populations, as measured through eDNA methods.

In furthering the training objectives of this project, eDNA sampling workshops were held at the University of Manitoba in February 2019 and 2020, with 4 and 7 members of the Kivalliq Inuit community in attendance, respectively. The 3-day workshops featured of number of lecturers in the eDNA community, as well as a hands-on DNA extraction laboratory, and a foundation for further involvement of the Inuit community in eDNA sampling was laid. In the 2019 season, two of the trainees from the program also assisted in sample collection.

#### *3.2.7.3 Study Completion*

This study was substantially complete in 2023, with a research report provided to Agnico Eagle in December. Initially, one manuscript was planned to be submitted for publication in 2020 (sampling and analysis methods), with another in 2023. During manuscript preparation in mid-2023, the research team lead was advised by others in the field that the material was no longer suitable for peer-review publication, since techniques were not considered sufficiently novel at this point. In 2024, Agnico and the research team will discuss alternate avenues for presentation of these study results, and an update will be provided to DFO and the MFRAG parties in the annual progress report (May 30, 2024).

# SECTION 4 • SUMMARY AND EVALUATION OF SUCCESS

## 4.1 CONSTRUCTED OFFSETS

Year 3 monitoring was conducted in 2023 under the FHOMP's pre-offsetting ecological monitoring program (Agnico Eagle, 2021). Results are provided here with basic analysis. Additional assessment is included in the *Impact Analysis of Fish Habitat from Flooding*, to be provided to DFO in 2024 in fulfillment of Condition 5.3.1 of FAA *20-HCAA-00275*.

In general, results of the pre-offsetting ecological monitoring program indicate:

- Suitable water quality for aquatic life within the Whale Tail flood zone;
- Seasonal growth of periphyton on introduced substrate in the flood zone at rates greater than reference sites;
- Periphyton growth on natural substrate submerged through flooding, with accumulated biomass at or approaching reference conditions;
- Presence of small-bodied fish populations in newly created shoreline habitat at rates no lower than reference areas; and
- Continued presence of large-bodied fish in deeper water habitat at rates no lower than reference areas.

## 4.2 COMPLEMENTARY MEASURES

Criteria for success for each research project are focussed on publication of study results in the peer-reviewed literature, or similar primary sources. In 2021, Study 4 – *Arctic Grayling Occupancy Modelling* was completed and met these criteria with manuscript submission (Ellenor et al. 2022).

As a result of COVID-related delays or restrictions, original timelines for study completion have been extended for four of the six studies (Table 15). In the interim, several studies have been presented at academic conferences, and two MSc theses publications have been completed.

**Table 15. Target study publication dates and publication or presentation references. *Current as of December 2023.**

| Study | Study Initiation | Target Final Publication Submission Date | | Publications and Presentations |
|---|---|---|---|---|
| | | Original | Current* | |
| Study 1: Productivity (H. Swanson) | 2018 | 2022 | 2024 | Ellenor, J., Portt, C., and Swanson, H.K. 2019. Variation in Slimy Sculpin (*Cottus cognatus*) monitoring endpoints at six Barrenland lakes in central Nunavut.  Poster presentation. Canadian Conference for Fisheries Research on January 3-6, 2019. |
| Study 2: Wastewater (H. Swanson) | 2019 | 2021 & 2024 | 2025/2026 | Bronte McPhedran presented preliminary findings and research methods at Young Environmental Scientists SETAC conference in Texas, on March 9-11, 2020. |
| Study 3: Habitat Preferences (S. Doka) | 2018 | 2020 | 2024 | **MSc Thesis**: Hancock H., 2020. Physical habitat associations of fish species in the Kivalliq region of Nunavut, Canada. Lakehead University, Orillia, Ontario. Available at: http://ceelab.ca/wpcontent/ uploads/2020/10/Hannah final-thesis-10132020.pdf<br><br>Two presentations have been given at scientific fora by the graduate student, Hannah Hancock of Lakehead University: at Canadian Conference for Fisheries Research in London ON in January, 2019 and at the American Fisheries Society - Ontario Chapter meeting in Orillia ON in February, 2019. |

| Study | Study Initiation | Target Final Publication Submission Date | | Publications and Presentations |
|---|---|---|---|---|
| | | Original | Current* | |
| Study 4: Arctic Grayling Occupancy<br>(H. Swanson) - **COMPLETE** | 2018 | 2021 | 2021 | **Manuscript**: Ellenor, J.R., P.A. Cott and H.K. Swanson (2021). Occupancy of young-of-year Artic grayling (*Thymallus arcticus*) in Barrenland streams. Hydrobiologia (published online 15 November 2021). Available at: https://link.springer.com/article/10.1007%2Fs10750-021-04742-3<br><br>**MSc Thesis**: Ellenor, J. 2020, June. Habitat use of young-of-year Arctic Grayling (*Thymallus arcticus*) in Barrenland streams of central Nunavut, Canada. University of Waterloo, Waterloo, Ontario. Available from http://hdl.handle.net/10012/15969.<br><br>**Conference presentation**: Ellenor J., Swanson, H. K., 2019. Factors influencing how Arctic Grayling (*Thymallus arcticus*) use Barrenland streams near Baker Lake, Nunavut. Platform presentation. ArcticNet Annual Scientific Meeting on December 2-5, 2019. |
| Study 5: End Pit Lake Habitat Use<br>(Researcher TBD) | 2027 | 2030-2034 | 2030-2035 | - |
| Study 6: eDNA Study<br>(J. Stetefeld/M. McDougall) | 2018 | 2020 (interim), 2023 (final) | 2023 (report to Agnico); Public report TBD | - |

# SECTION 5 • NEXT STEPS

## 5.1 CONSTRUCTED OFFSETS

Under the FHOMP, monitoring of fish populations is not currently scheduled for 2024, and will resume following construction of the water retention sill between Lake A18 and Whale Tail Lake (planned for 2026). However, water levels will continue to be measured in the Whale Tail flood zone through piezometric measurement, and annual CREMP evaluations in Lakes A20 and WTS will continue (water quality, sediment quality, phytoplankton community, benthic invertebrate community). The final pre-offsetting monitoring phase report, *Impact Analysis of Fish Habitat from Flooding*, will be provided to DFO in fulfillment of Condition 5.3.1 of FAA *20-HCAA-00275* and next steps will be determined in consideration of review of that document.

## 5.2 COMPLEMENTARY MEASURES

In 2024, field programs, laboratory assessments, and/or data analysis will continue for studies 1, 2 and 3. Study 3 is planned to be completed with final report submission, and plans for publication of results from Study 6 will be determined. Study 4 was complete in 2022.

A sixth meeting of the MFRAG is planned for November or December 2024.

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# APPENDIX A

## Supplemental Water Quality Results

**Table A-1: Supplemental water quality analyses for non-CREMP lakes that were electrofished in 2022 (lakes A63, A44, and Lake 8).**

| Parameter | Units | CREMP Threshold[1] | Lake A63 | | Lake A44 | | Lake 8 | |
|---|---|---|---|---|---|---|---|---|
| | | | 2022-09-13 | 2022-09-13 | 2022-09-05 | 2022-09-05 | 2022-09-15 | 2022-09-15 |
| | | | A63-1 | A63-2 | A44-1 | A44-2 | LK8-19 | LK8-20 |
| ***Field Measured (average of measurements at 1-m depth intervals)*** | | | | | | | | |
| Temperature | °C | | 6.92 | 6.94 | 8.54 | 9.02 | 7.86 | 7.08 |
| pH | pH units | 6.5 - 9 | 7.25 | 7.19 | 6.97 | 6.91 | 6.95 | 6.87 |
| Conductivity | uS/cm | | 81.63 | 80.43 | 25.00 | 25.43 | 16.27 | 15.50 |
| Dissolved oxygen | mg/L | | 11.64 | 11.93 | 11.84 | 11.39 | 11.12 | 11.60 |
| Dissolved oxygen | % | | 99.00 | 101.08 | 101.50 | 101.45 | 96.30 | 98.43 |
| ***Conventional Parameters*** | | | | | | | | |
| pH | pH units | 6.5 - 9 | 7.3 | 7.33 | 6.64 | 6.64 | 6.73 | 7.04 |
| Hardness, as CaCO3 (N) | NTU | | 29.6 | 29.7 | 9.46 | 9.83 | 6.14 | 6.14 |
| | | | 30.8 | 29.4 | 9.02 | 9.20 | 5.82 | 6.07 |
| Total alkalinity, as CaCO3 | uS/cm | | 14 | 14 | 6.1 | 6.2 | 4.8 | 5.4 |
| Carbonate, as CaCO3 | mg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Bicarbonate, as CaCO3 | mg/L | | 14 | 14 | 6.1 | 6.2 | 4.8 | 5.4 |
| Hydroxide, as CaCO3 | mg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| TDS | mg/L | | 67 | 62.3 | 23.9 | 24.5 | 13.6 | 14.9 |
| TSS | mg/L | 5 | 1.3 | 1.6 | <1.0 | <1.0 | <1.0 | <1.0 |
| Total organic carbon | mg/L | | 4.05 | 4.17 | 2.06 | 2.16 | 1.44 | 1.65 |
| Dissolved organic carbon | mg/L | | 4.02 | 4.24 | 2.86 | 2.74 | 1.92 | 1.9 |
| ***Major Ions*** | | | | | | | | |
| Bromide | mg/L | | 0.115 | 0.11 | <0.050 | <0.050 | <0.050 | <0.050 |
| Chloride | mg/L | 120 | 10.1 | 10 | 1.78 | 1.91 | 0.56 | 0.58 |
| Fluoride | mg/L | 0.12 | 0.059 | 0.06 | 0.03 | 0.029 | 0.028 | 0.028 |
| Potassium (SW6020B) | mg/L | | 2.21 | 2.22 | 0.737 | 0.735 | 0.396 | 0.369 |
| Sodium (SW6020B) | mg/L | | 1.93 | 1.92 | 0.695 | 0.701 | 0.515 | 0.492 |
| Sulfate | mg/L | 128 | 7.00 | 7.11 | 3.06 | 3.06 | 1.67 | 1.92 |
| ***Nutrients and Chlorophyll a*** | | | | | | | | |
| Ammonia Nitrogen (as N) | mg/L | 0.126 | 0.008 | 0.0058 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Nitrate (as N) | mg/L | 30 | 0.0166 | 0.0157 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Nitrite (as N) | mg/L | 0.06 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Total phosphorus | mg/L | >50% above baseline | 0.0163 | 0.0155 | <0.050 | <0.050 | 0.0028 | 0.0028 |
| | | | <0.050 | <0.050 | 0.0026 | 0.0029 | <0.050 | <0.050 |
| Dissolved phosphorus | mg/L | | 0.0055 | 0.0046 | <0.0020 | <0.0020 | 0.0029 | 0.0027 |
| | | | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| Orthophosphate | mg/L | | <0.0010 | <0.0010 | <0.0010 | 0.001 | <0.0010 | <0.0010 |
| Chlorophyll a | µg/sample | | 1.82 | 1.7 | 0.215 | 0.24 | 0.325 | 0.299 |
| Chlorophyll a | mg/L | | 0.00364 | 0.0034 | 0.00043 | 0.00048 | 0.00065 | 0.000598 |
| ***Total Metals*** | | | | | | | | |
| Aluminum | mg/L | 0.1 | **0.136** | 0.0596 | 0.0146 | 0.0249 | 0.0061 | 0.0126 |
| Antimony | mg/L | 0.009 | 0.00016 | 0.00015 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic | mg/L | 0.025 | 0.00081 | 0.00063 | 0.0004 | 0.00048 | 0.0002 | 0.0002 |
| Barium | mg/L | 1 | 0.0109 | 0.0095 | 0.00674 | 0.00693 | 0.00242 | 0.00279 |
| Beryllium | mg/L | 0.00013 | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 |
| Bismuth | mg/L | | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Boron | mg/L | 1.5 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| Cadmium | mg/L | 0.00004 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| Calcium (total) | mg/L | | 7.93 | 7.55 | 2.46 | 2.58 | 1.22 | 1.22 |
| Cesium | mg/L | | 0.000022 | 0.000014 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Chromium | mg/L | 0.005 | 0.002 | 0.0008 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt | mg/L | 0.00077 | 0.00023 | 0.00014 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Copper | mg/L | 0.002 | 0.00053 | <0.00050 | 0.00057 | 0.00058 | <0.00050 | <0.00050 |
| Iron | mg/L | 0.3 | **0.432** | 0.262 | 0.047 | 0.073 | 0.011 | 0.028 |
| Lead | mg/L | 0.001 | 0.0001 | 0.000062 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Lithium | mg/L | | 0.0013 | 0.0012 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Magnesium (total) | mg/L | | 2.67 | 2.55 | 0.807 | 0.822 | 0.675 | 0.735 |
| Manganese | mg/L | 0.0044*Hardness+0.605 | 0.0591 | 0.0291 | 0.00264 | 0.00396 | 0.00127 | 0.00192 |
| Mercury | mg/L | 0.000026 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| Molybdenum | mg/L | 0.073 | 0.000124 | 0.000107 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Nickel | mg/L | 0.025 | 0.00158 | 0.00116 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Potassium (total) | mg/L | | 2.29 | 2.22 | 0.752 | 0.751 | 0.36 | 0.374 |
| Rubidium | mg/L | | 0.00354 | 0.00347 | 0.001 | 0.00103 | 0.00064 | 0.00067 |
| Selenium | mg/L | 0.001 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Silicon | mg/L | | 0.41 | 0.28 | 0.7 | 0.72 | 0.33 | 0.45 |
| Silver | mg/L | 0.00025 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (total) | mg/L | | 1.96 | 1.96 | 0.706 | 0.702 | 0.481 | 0.502 |
| Strontium | mg/L | 2.5 | 0.0588 | 0.0553 | 0.0135 | 0.0145 | 0.00566 | 0.00572 |
| Tellurium | mg/L | | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |
| Thallium | mg/L | 0.0008 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Thorium | mg/L | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Tin | mg/L | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Titanium | mg/L | | 0.00534 | 0.00255 | 0.00049 | 0.00112 | <0.00030 | 0.00032 |
| Tungsten | mg/L | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Uranium | mg/L | 0.015 | 0.00006 | 0.00006 | 0.00003 | 0.000038 | 0.000017 | 0.00002 |
| Vanadium | mg/L | 0.12 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc | mg/L | | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| Zirconium | mg/L | | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |
| Sulfur | mg/L | | 2.22 | 2.42 | 1.22 | 1.2 | <0.50 | 0.52 |
| ***Dissolved Metals*** | | | | | | | | |
| Aluminum | mg/L | 0.05 | 0.005 | 0.0069 | 0.0027 | 0.0027 | 0.0024 | 0.0055 |
| Antimony | mg/L | 0.009 | 0.00013 | 0.00013 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic | mg/L | 0.025 | 0.00041 | 0.0006 | 0.00028 | 0.00028 | 0.0002 | 0.00018 |
| Barium | mg/L | 1 | 0.0092 | 0.0088 | 0.00642 | 0.00639 | 0.00248 | 0.00262 |
| Beryllium | mg/L | 0.00013 | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 |
| Bismuth | mg/L | | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Boron | mg/L | 1.5 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| Cadmium | mg/L | 0.00004 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| Cesium | mg/L | | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Chromium | mg/L | 0.005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt | mg/L | 0.00077 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Copper | mg/L | 0.002 | 0.00067 | 0.00049 | 0.00056 | 0.00061 | 0.0007 | 0.00046 |

**Table A-1: Supplemental water quality analyses for non-CREMP lakes that were electrofished in 2022 (lakes A63, A44, and Lake 8).**

| Parameter | Units | CREMP Threshold[1] | Lake A63 | | Lake A44 | | Lake 8 | |
|---|---|---|---|---|---|---|---|---|
| | | | 2022-09-13 | 2022-09-13 | 2022-09-05 | 2022-09-05 | 2022-09-15 | 2022-09-15 |
| | | | A63-1 | A63-2 | A44-1 | A44-2 | LK8-19 | LK8-20 |
| Iron | mg/L | 0.3 | 0.034 | 0.038 | 0.011 | <0.010 | <0.010 | <0.010 |
| Lead | mg/L | 0.001 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Lithium | mg/L | | 0.0013 | 0.0013 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Manganese | mg/L | | 0.00408 | 0.00503 | 0.00184 | 0.00138 | 0.00064 | 0.00106 |
| Mercury | mg/L | 0.000026 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| Molybdenum | mg/L | 0.073 | 0.000093 | 0.000096 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Nickel | mg/L | 0.025 | 0.00088 | 0.00106 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Rubidium | mg/L | | 0.00303 | 0.00328 | 0.00101 | 0.00099 | 0.00065 | 0.00055 |
| Selenium | mg/L | 0.001 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Silicon | mg/L | | 0.132 | 0.162 | 0.684 | 0.678 | 0.295 | 0.397 |
| Silver | mg/L | 0.00025 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Strontium | mg/L | 2.5 | 0.0556 | 0.0546 | 0.0131 | 0.0139 | 0.00601 | 0.00601 |
| Tellurium | mg/L | | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |
| Thallium | mg/L | 0.0008 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Thorium | mg/L | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Tin | mg/L | | 0.00037 | <0.00010 | <0.00010 | <0.00010 | 0.00018 | <0.00010 |
| Titanium | mg/L | | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 |
| Tungsten | mg/L | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Uranium | mg/L | 0.015 | 0.000036 | 0.000042 | 0.000026 | 0.000028 | 0.000014 | 0.000019 |
| Vanadium | mg/L | 0.12 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc | mg/L | 0.004 | 0.0018 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Zirconium | mg/L | | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |

[1]Azimuth (Azimuth Consulting Group Inc.), 2022. Core Receiving Environment Monitoring Program (CREMP) 2022 Plan Update. Prepared for: Agnico Eagle Mines Ltd. Prepared by Azimuth Consulting Group Inc. April, 2022.

Table A-2: Supplemental water quality analyses for non-CREMP lakes that were electrofished in 2023 (lakes B03, A63, A44).

| Parameter | Units | CREMP Threshold[1] | Lake A63 | | Lake A44 | | Lake B03 | |
|---|---|---|---|---|---|---|---|---|
| | | | 2023-08-25 | 2023-08-25 | 2023-08-27 | 2023-08-27 | 2023-09-08 | 2023-09-08 |
| | | | A63-3 | A63-4 | A44-3 | A44-4 | B03-5 | B03-6 |
| ***Field Measured (average of measurements at 1-m depth intervals)*** | | | | | | | | |
| Temperature | **°C** | | 10.41 | 10.40 | 9.02 | 8.83 | 11.55 | 10.40 |
| pH | **pH units** | 6.5 - 9 | 6.79 | 7.08 | 6.23 | 6.34 | 7.90 | 7.73 |
| Conductivity | **uS/cm** | | 103.73 | 103.70 | 28.50 | 29.07 | 22.97 | 20.02 |
| Dissolved oxygen | **mg/L** | | 10.50 | 10.57 | 10.89 | 11.01 | 10.34 | 10.93 |
| Dissolved oxygen | **%** | | 96.70 | 97.30 | 96.97 | 97.63 | 99.85 | 102.45 |
| ***Conventional Parameters*** | | | | | | | | |
| pH | **pH units** | 6.5 - 9 | 7.37 | 7.36 | 6.85 | 6.91 | 6.94 | 6.97 |
| Turbidity | **NTU** | | 0.93 | 0.82 | 1.7 | 0.8 | 0.57 | 0.54 |
| Specific conductivity | **uS/cm** | | 102 | 101 | 43.1 | 27.6 | 19.2 | 19.1 |
| Hardness, as CaCO3-Dissolved | **mg/L** | | 36.7 | 36.7 | 15.3 | 10.2 | 6.62 | 6.66 |
| Hardness, Calcium and Magnesium | **mg/L** | | 36.4 | 36.8 | 15.6 | 9.74 | 6.68 | 6.57 |
| Total alkalinity, as CaCO3 | **mg/L** | | 19.8 | 19.7 | 6.1 | 6.4 | 6.4 | 6.2 |
| Carbonate, as CaCO3 | **mg/L** | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Bicarbonate, as CaCO3 | **mg/L** | | 19.8 | 19.7 | 6.1 | 6.4 | 6.4 | 6.2 |
| Hydroxide, as CaCO3 | **mg/L** | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| TDS | **mg/L** | | 62.3 | 60.3 | 33.8 | 21.8 | 16.8 | 17.4 |
| TSS | **mg/L** | 5 | <1.0 | 1.1 | 1 | <1.0 | 1.4 | <1.0 |
| Total organic carbon | **mg/L** | | 3.78 | 3.77 | 3.52 | 2.58 | 1.98 | 1.98 |
| Dissolved organic carbon | **mg/L** | | 3.9 | 3.65 | 3.53 | 2.49 | 1.75 | 1.79 |
| ***Major Ions*** | | | | | | | | |
| Bromide | **mg/L** | | 0.119 | 0.116 | <0.050 | <0.050 | <0.050 | <0.050 |
| Chloride | **mg/L** | 120 | 12 | 11.9 | 1.78 | 1.75 | 0.86 | 0.85 |
| Fluoride | **mg/L** | 0.12 | 0.071 | 0.071 | 0.032 | 0.034 | 0.033 | 0.031 |
| Potassium (SW6020B) | **mg/L** | | 2.54 | 2.61 | 0.844 | 0.733 | 0.556 | 0.549 |
| Silica | **mg/L** | | <0.50 | <0.50 | 2.82 | 1.43 | 1.26 | 1.26 |
| Sodium (SW6020B) | **mg/L** | | 2.26 | 2.26 | 0.945 | 0.702 | 0.649 | 0.642 |
| Sulfate | **mg/L** | 128 | 9.56 | 9.58 | 9.92 | 3.58 | 1.51 | 1.46 |
| ***Nutrients and Chlorophyll a*** | | | | | | | | |
| Ammonia Nitrogen (as N) | **mg/L** | 0.126 | 0.031 | 0.0067 | 0.0074 | 0.0098 | 0.0096 | 0.0058 |
| Nitrate (as N) | **mg/L** | 30 | <0.0050 | <0.0050 | 0.0089 | <0.0050 | <0.0050 | <0.0050 |
| Nitrite (as N) | **mg/L** | 0.06 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Nitrogen, Kjeldahl | **mg/L** | | 0.263 | 0.243 | 0.128 | 0.117 | 0.114 | 0.112 |
| Total phosphorus | **mg/L** | >50% above baseline | 0.0066<br><0.050 | 0.0078<br><0.050 | 0.0022<br><0.050 | 0.0031<br><0.050 | 0.0031<br><0.050 | 0.0033<br><0.050 |
| Dissolved phosphorus | **mg/L** | | 0.0034<br><0.050 | 0.0033<br><0.050 | 0.0038<br><0.050 | 0.0025<br><0.050 | <0.0020<br><0.050 | <0.0020<br><0.050 |
| Orthophosphate | **mg/L** | | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Chlorophyll a | **µg/sample** | | 0.891 | 0.921 | 0.312 | 0.164 | 0.677 | 0.611 |
| Chlorophyll a | **mg/L** | | 0.00178 | 0.00184 | 0.000624 | 0.000328 | 0.00135 | 0.00122 |
| ***Total Metals*** | | | | | | | | |
| Aluminum | **mg/L** | 0.1 | 0.0059 | 0.0063 | 0.0567 | 0.0131 | 0.0114 | 0.0099 |
| Antimony | **mg/L** | 0.009 | 0.00023 | 0.00023 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic | **mg/L** | 0.025 | 0.00054 | 0.00054 | 0.00036 | 0.00046 | 0.00022 | 0.00019 |
| Barium | **mg/L** | 1 | 0.011 | 0.0113 | 0.0139 | 0.00729 | 0.00405 | 0.00382 |
| Beryllium | **mg/L** | 0.00013 | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 |
| Bismuth | **mg/L** | | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Boron | **mg/L** | 1.5 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| Cadmium | **mg/L** | 0.00004 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| Calcium (total) | **mg/L** | | 9.7 | 9.8 | 3.65 | 2.43 | 1.65 | 1.64 |
| Cesium | **mg/L** | | 0.000011 | 0.000012 | 0.000011 | <0.000010 | <0.000010 | <0.000010 |
| Chromium | **mg/L** | 0.005 | <0.00010 | <0.00010 | 0.00033 | 0.00013 | <0.00010<br><0.00050 | 0.00011<br><0.00050 |
| Cobalt | **mg/L** | 0.00077 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Copper | **mg/L** | 0.002 | <0.00050 | <0.00050 | 0.0008 | 0.00052 | <0.00050 | <0.00050 |
| Iron | **mg/L** | 0.3 | 0.094 | 0.094 | 0.124 | 0.069 | 0.045 | 0.047 |
| Lead | **mg/L** | 0.001 | <0.000050 | <0.000050 | 0.000055 | <0.000050 | <0.000050 | <0.000050 |
| Lithium | **mg/L** | | 0.0015 | 0.0015 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Magnesium (total) | **mg/L** | | 2.95 | 3 | 1.58 | 0.892 | 0.623 | 0.602 |
| Manganese | **mg/L** | 0.0044*Hardness+0.605 | 0.0217 | 0.0216 | 0.0151 | 0.00754 | 0.00923 | 0.00737 |
| Mercury | **mg/L** | 0.000026 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| Molybdenum | **mg/L** | 0.073 | 0.000237 | 0.000237 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Nickel | **mg/L** | 0.025 | 0.00079 | 0.00084 | 0.00152 | 0.00077 | <0.00050 | <0.00050 |
| Potassium (total) | **mg/L** | | 2.7 | 2.84 | 0.89 | 0.782 | 0.516 | 0.495 |
| Rubidium | **mg/L** | | 0.00397 | 0.00409 | 0.00111 | 0.00093 | 0.0008 | 0.00086 |
| Selenium | **mg/L** | 0.001 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Silicon | **mg/L** | | 0.17 | 0.18 | 1.49 | 0.72 | 0.62 | 0.62 |
| Silver | **mg/L** | 0.00025 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (total) | **mg/L** | | 2.4 | 2.55 | 1.01 | 0.715 | 0.629 | 0.602 |
| Strontium | **mg/L** | 2.5 | 0.0749 | 0.0748 | 0.0234 | 0.0144 | 0.00956 | 0.00942 |
| Sulfur | **mg/L** | | 3.6 | 3.54 | 3.65 | 1.33 | <0.50 | <0.50 |
| Tellurium | **mg/L** | | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |
| Thallium | **mg/L** | 0.0008 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Thorium | **mg/L** | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Tin | **mg/L** | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Titanium | **mg/L** | | <0.00030 | <0.00030 | 0.00158 | 0.00047 | 0.00032 | 0.00036 |
| Tungsten | **mg/L** | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Uranium | **mg/L** | 0.015 | 0.00003 | 0.00003 | 0.000068 | 0.000034 | 0.00002 | 0.000022 |
| Vanadium | **mg/L** | 0.12 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc | **mg/L** | | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| Zirconium | **mg/L** | | <0.00020 | <0.00020 | 0.0002 | <0.00020 | <0.00020 | <0.00020 |
| ***Dissolved Metals*** | | | | | | | | |
| Aluminum | **mg/L** | 0.05 | 0.0028 | 0.0033 | 0.0209 | 0.004 | 0.0019 | 0.003 |
| Antimony | **mg/L** | 0.009 | 0.0002 | 0.00021 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic | **mg/L** | 0.025 | 0.00044 | 0.00045 | 0.0003 | 0.0005 | 0.00017 | 0.00013 |
| Barium | **mg/L** | 1 | 0.0105 | 0.0105 | 0.013 | 0.0067 | 0.00391 | 0.00402 |
| Beryllium | **mg/L** | 0.00013 | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 |

**Table A-2: Supplemental water quality analyses for non-CREMP lakes that were electrofished in 2023 (lakes B03, A63, A44).**

| Parameter | Units | CREMP Threshold[1] | Lake A63 | | Lake A44 | | Lake B03 | |
|---|---|---|---|---|---|---|---|---|
| | | | 2023-08-25 | 2023-08-25 | 2023-08-27 | 2023-08-27 | 2023-09-08 | 2023-09-08 |
| | | | A63-3 | A63-4 | A44-3 | A44-4 | B03-5 | B03-6 |
| Bismuth | **mg/L** | | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Boron | **mg/L** | 1.5 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| Cadmium | **mg/L** | 0.00004 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| Calcium (SW6020B) | **mg/L** | | 9.85 | 9.67 | 3.67 | 2.65 | 1.65 | 1.65 |
| Cesium | **mg/L** | | 0.00001 | 0.000012 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Chromium | **mg/L** | 0.005 | <0.00010 | <0.00010 | 0.00019 | <0.00010 | <0.00010<br><0.00050 | <0.00010<br><0.00050 |
| Cobalt | **mg/L** | 0.00077 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Copper | **mg/L** | 0.002 | 0.00028 | 0.00028 | 0.0007 | 0.00054 | 0.00022 | 0.00021 |
| Iron | **mg/L** | 0.3 | 0.03 | 0.032 | 0.062 | 0.014 | <0.010 | 0.013 |
| Lead | **mg/L** | 0.001 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Lithium | **mg/L** | | 0.0015 | 0.0014 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Magnesium (SW6020B) | **mg/L** | | 2.94 | 3.04 | 1.49 | 0.875 | 0.608 | 0.617 |
| Manganese | **mg/L** | | 0.00514 | 0.00575 | 0.0118 | 0.00353 | 0.00551 | 0.0043 |
| Mercury | **mg/L** | 0.000026 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| Molybdenum | **mg/L** | 0.073 | 0.00022 | 0.000224 | <0.000050 | 0.000077 | <0.000050 | <0.000050 |
| Nickel | **mg/L** | 0.025 | 0.00075 | 0.00078 | 0.00131 | 0.00078 | <0.00050 | <0.00050 |
| Rubidium | **mg/L** | | 0.00376 | 0.00401 | 0.00102 | 0.00092 | 0.00086 | 0.00092 |
| Selenium | **mg/L** | 0.001 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Silicon | **mg/L** | | 0.135 | 0.132 | 1.33 | 0.699 | 0.575 | 0.596 |
| Silver | **mg/L** | 0.00025 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Strontium | **mg/L** | 2.5 | 0.0718 | 0.0727 | 0.0222 | 0.0149 | 0.00942 | 0.00884 |
| Sulfur (SW6020B) | **mg/L** | | 3.29 | 3.37 | 3.18 | 1.47 | 0.56 | 0.52 |
| Tellurium | **mg/L** | | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |
| Thallium | **mg/L** | 0.0008 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Thorium | **mg/L** | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Tin | **mg/L** | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Titanium | **mg/L** | | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 |
| Tungsten | **mg/L** | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Uranium | **mg/L** | 0.015 | 0.000026 | 0.000026 | 0.000058 | 0.000028 | 0.000017 | 0.000016 |
| Vanadium | **mg/L** | 0.12 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc | **mg/L** | 0.004 | <0.0010 | 0.001 | 0.0016 | 0.0028 | <0.0010 | <0.0010 |
| Zirconium | **mg/L** | | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |

[1]Azimuth (Azimuth Consulting Group Inc.), 2022. Core Receiving Environment Monitoring Program (CREMP) 2022 Plan Update. Prepared for: Agnico Eagle Mines Ltd. Prepared by Azimuth Consulting Group Inc. April, 2022.

**Table A-3: Supplemental water quality analyses for non-CREMP lakes that were electrofished in 2023 (Lake 8).**

| Parameter | Units | CREMP Threshold[1] | Lake 8 | |
|---|---|---|---|---|
| | | | 2023-08-19 | 2023-08-19 |
| | | | LK8-21 | LK8-22 |
| ***Field Measured (average of measurements at 1-m depth intervals)*** | | | | |
| Temperature | **°C** | | 14.69 | 14.81 |
| pH | **pH units** | 6.5 - 9 | 7.11 | 7.03 |
| Conductivity | **uS/cm** | | 16.84 | 16.90 |
| Dissolved oxygen | **mg/L** | | 9.84 | 9.86 |
| Dissolved oxygen | **%** | | 99.64 | 99.93 |
| Turbidity | **NTU** | | 1002.64 | 989.06 |
| ***Conventional Parameters*** | | | | |
| pH | **pH units** | 6.5 - 9 | 6.75 | 6.73 |
| Turbidity | **NTU** | | 0.18 | 0.17 |
| Specific conductivity | **uS/cm** | | 16.4 | 16.5 |
| Hardness, as CaCO3-Dissolved | **mg/L** | | 5.84 | 5.77 |
| Hardness, Calcium and Magnesium | **mg/L** | | 5.93 | 6.02 |
| Total alkalinity, as CaCO3 | **mg/L** | | 4.3 | 4.4 |
| Carbonate, as CaCO3 | **mg/L** | | <1.0 | <1.0 |
| Bicarbonate, as CaCO3 | **mg/L** | | 4.3 | 4.4 |
| Hydroxide, as CaCO3 | **mg/L** | | <1.0 | <1.0 |
| TDS | **mg/L** | | 16.9 | 18.3 |
| TSS | **mg/L** | 5 | 1.2 | <1.0 |
| Total organic carbon | **mg/L** | | 1.51 | 1.56 |
| Dissolved organic carbon | **mg/L** | | 1.37 | 1.37 |
| ***Major Ions*** | | | | |
| Bromide | **mg/L** | | <0.050 | <0.050 |
| Chloride | **mg/L** | 120 | 0.56<br>0.56 | 0.55<br>0.55 |
| Cyanide | **mg/L** | | <0.0010 | <0.0010 |
| Cyanide (free) | **mg/L** | | <0.0010 | <0.0010 |
| Fluoride | **mg/L** | 0.12 | 0.027 | 0.027 |
| Potassium (SW6020B) | **mg/L** | | 0.354 | 0.349 |
| Silica | **mg/L** | | 0.71 | 0.7 |
| Sodium (SW6020B) | **mg/L** | | 0.489 | 0.481 |
| Sulfate | **mg/L** | 128 | 1.57 | 1.55 |
| ***Nutrients and Chlorophyll a*** | | | | |
| Ammonia Nitrogen (as N) | **mg/L** | 0.126 | 0.0092 | 0.0067 |
| Nitrate (as N) | **mg/L** | 30 | <0.0050 | <0.0050 |
| Nitrite (as N) | **mg/L** | 0.06 | <0.0010 | <0.0010 |
| Nitrogen, Kjeldahl | **mg/L** | | 0.093 | 0.102 |
| Total phosphorus | **mg/L** | >50% above baseline | <0.0020<br><0.050 | 0.0023<br><0.050 |
| Dissolved phosphorus | **mg/L** | | <0.0020<br><0.050 | <0.0020<br><0.050 |
| Orthophosphate | **mg/L** | | <0.0010 | <0.0010 |
| Chlorophyll a | **µg/sample** | | 0.188 | 0.152 |
| Chlorophyll a | **mg/L** | | 0.000376 | 0.000304 |
| ***Total Metals*** | | | | |
| Aluminum | **mg/L** | 0.1 | 0.0059 | 0.0051 |
| Antimony | **mg/L** | 0.009 | <0.00010 | <0.00010 |
| Arsenic | **mg/L** | 0.025 | 0.00019 | 0.00022 |
| Barium | **mg/L** | 1 | 0.00268 | 0.00267 |
| Beryllium | **mg/L** | 0.00013 | <0.000100 | <0.000100 |
| Bismuth | **mg/L** | | <0.000050 | <0.000050 |
| Boron | **mg/L** | 1.5 | <0.010 | <0.010 |
| Cadmium | **mg/L** | 0.00004 | <0.0000050 | <0.0000050 |
| Calcium (total) | **mg/L** | | 1.25 | 1.27 |
| Cesium | **mg/L** | | <0.000010 | <0.000010 |
| Chromium | **mg/L** | 0.005 | <0.00010<br><0.00050 | 0.00016<br><0.00050 |
| Cobalt | **mg/L** | 0.00077 | <0.00010 | <0.00010 |
| Copper | **mg/L** | 0.002 | <0.00050 | <0.00050 |
| Iron | **mg/L** | 0.3 | 0.01 | <0.010 |
| Lead | **mg/L** | 0.001 | <0.000050 | <0.000050 |
| Lithium | **mg/L** | | <0.0010 | <0.0010 |
| Magnesium (total) | **mg/L** | | 0.683 | 0.691 |
| Manganese | **mg/L** | 0.0044*Hardness+0.605 | 0.00208 | 0.00187 |
| Mercury | **mg/L** | 0.000026 | <0.0000050 | <0.0000050 |
| Molybdenum | **mg/L** | 0.073 | <0.000050 | <0.000050 |
| Nickel | **mg/L** | 0.025 | <0.00050 | <0.00050 |

**Table A-3: Supplemental water quality analyses for non-CREMP lakes that were electrofished in 2023 (Lake 8).**

| Parameter | Units | CREMP Threshold[1] | Lake 8 | |
|---|---|---|---|---|
| | | | 2023-08-19 | 2023-08-19 |
| | | | LK8-21 | LK8-22 |
| Potassium (total) | **mg/L** | | 0.376 | 0.371 |
| Rubidium | **mg/L** | | 0.0007 | 0.00064 |
| Selenium | **mg/L** | 0.001 | <0.000050 | <0.000050 |
| Silicon | **mg/L** | | 0.32 | 0.32 |
| Silver | **mg/L** | | <0.000010 | <0.000010 |
| Sodium (total) | **mg/L** | | 0.514 | 0.511 |
| Strontium | **mg/L** | 2.5 | 0.00594 | 0.00594 |
| Sulfur | **mg/L** | | 0.59 | 0.54 |
| Tellurium | **mg/L** | | <0.00020 | <0.00020 |
| Thallium | **mg/L** | 0.0008 | <0.000010 | <0.000010 |
| Thorium | **mg/L** | | <0.00010 | <0.00010 |
| Tin | **mg/L** | | <0.00010 | <0.00010 |
| Titanium | **mg/L** | | <0.00030 | <0.00030 |
| Tungsten | **mg/L** | | <0.00010 | <0.00010 |
| Uranium | **mg/L** | 0.015 | 0.000016 | 0.000016 |
| Vanadium | **mg/L** | 0.12 | <0.00050 | <0.00050 |
| Zinc | **mg/L** | | <0.0030 | <0.0030 |
| Zirconium | **mg/L** | | <0.00020 | <0.00020 |
| ***Dissolved Metals*** | | | | |
| Aluminum | **mg/L** | 0.05 | 0.0017 | 0.0017 |
| Antimony | **mg/L** | 0.009 | <0.00010 | <0.00010 |
| Arsenic | **mg/L** | 0.025 | 0.00021 | 0.00023 |
| Barium | **mg/L** | 1 | 0.00258 | 0.00254 |
| Beryllium | **mg/L** | 0.00013 | <0.000100 | <0.000100 |
| Bismuth | **mg/L** | | <0.000050 | <0.000050 |
| Boron | **mg/L** | 1.5 | <0.010 | <0.010 |
| Cadmium | **mg/L** | 0.00004 | <0.0000050 | <0.0000050 |
| Calcium (SW6020B) | **mg/L** | | 1.23 | 1.2 |
| Cesium | **mg/L** | | <0.000010 | <0.000010 |
| Chromium | **mg/L** | 0.005 | <0.00010<br><0.00050 | <0.00010<br><0.00050 |
| Cobalt | **mg/L** | 0.00077 | <0.00010 | <0.00010 |
| Copper | **mg/L** | 0.002 | 0.00035 | 0.00034 |
| Iron | **mg/L** | 0.3 | <0.010 | <0.010 |
| Lead | **mg/L** | 0.001 | <0.000050 | <0.000050 |
| Lithium | **mg/L** | | <0.0010 | <0.0010 |
| Magnesium (SW6020B) | **mg/L** | | 0.673 | 0.673 |
| Manganese | **mg/L** | | 0.00038 | 0.00038 |
| Mercury | **mg/L** | 0.000026 | <0.0000050 | <0.0000050 |
| Molybdenum | **mg/L** | 0.073 | <0.000050 | <0.000050 |
| Nickel | **mg/L** | 0.025 | <0.00050 | <0.00050 |
| Rubidium | **mg/L** | | 0.00064 | 0.00064 |
| Selenium | **mg/L** | 0.001 | <0.000050 | <0.000050 |
| Silicon | **mg/L** | | 0.285 | 0.278 |
| Silver | **mg/L** | 0.00025 | <0.000010 | <0.000010 |
| Strontium | **mg/L** | 2.5 | 0.00562 | 0.00559 |
| Sulfur (SW6020B) | **mg/L** | | <0.50 | <0.50 |
| Tellurium | **mg/L** | | <0.00020 | <0.00020 |
| Thallium | **mg/L** | 0.0008 | <0.000010 | <0.000010 |
| Thorium | **mg/L** | | <0.00010 | <0.00010 |
| Tin | **mg/L** | | <0.00010 | <0.00010 |
| Titanium | **mg/L** | | <0.00030 | <0.00030 |
| Tungsten | **mg/L** | | <0.00010 | <0.00010 |
| Uranium | **mg/L** | 0.015 | 0.000014 | 0.000013 |
| Vanadium | **mg/L** | 0.12 | <0.00050 | <0.00050 |
| Zinc | **mg/L** | 0.004 | <0.0010 | <0.0010 |
| Zirconium | **mg/L** | | <0.00020 | <0.00020 |
| ***Radionuclides*** | | | | |
| Radium-226 | **Bq/l** | | <0.005 | <0.005 |

[1]Azimuth (Azimuth Consulting Group Inc.), 2022. Core Receiving Environment Monitoring Program (CREMP) 2022 Plan Update. Prepared for: Agnico Eagle Mines Ltd. Prepared by Azimuth Consulting Group Inc. April, 2022.

# APPENDIX C

## 2021 – 2023 Electrofishing Fish Data

(Location, Species, Length, Weight)

**&**

## 2023 Gillnetting Fish Data

(Location, Species, Length, Weight, Gonad/Egg Weight, Liver Weight, Stomach Contents)

**Table C-1: Length and weight data for slimy sculpin (SLSC) and ninespine stickleback (NSSB) retained for measurement after capture through electrofishing in FHOMP study lakes in 2021 (total counts may be higher).**

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 10-Aug-21 | A20 | 17373 | NSSB | 67 | 2.6 |
| 10-Aug-21 | A20 | 17374 | NSSB | 61 | 1.4 |
| 10-Aug-21 | A20 | 17375 | NSSB | 53 | 0.9 |
| 10-Aug-21 | A20 | 17376 | NSSB | 59 | 1.1 |
| 10-Aug-21 | A20 | 17377 | NSSB | 46 | 0.4 |
| 10-Aug-21 | A20 | 17378 | NSSB | 65 | 2.0 |
| 10-Aug-21 | A20 | 17379 | NSSB | 55 | 1.2 |
| 10-Aug-21 | A20 | 17380 | NSSB | 56 | 1.0 |
| 10-Aug-21 | A20 | 17381 | NSSB | 52 | 1.1 |
| 10-Aug-21 | A20 | 17382 | NSSB | 53 | 1.0 |
| 10-Aug-21 | A20 | 17383 | NSSB | 45 | 0.5 |
| 10-Aug-21 | A20 | 17385 | NSSB | 63 | 1.2 |
| 10-Aug-21 | A20 | 17386 | NSSB | 55 | 1.0 |
| 10-Aug-21 | A20 | 17387 | NSSB | 55 | 1.0 |
| 10-Aug-21 | A20 | 17388 | NSSB | 65 | 1.4 |
| 10-Aug-21 | A20 | 17389 | NSSB | 61 | 1.2 |
| 10-Aug-21 | A20 | 17390 | NSSB | 61 | 1.3 |
| 10-Aug-21 | A20 | 17391 | NSSB | 52 | 0.9 |
| 10-Aug-21 | A20 | 17392 | NSSB | 51 | 0.9 |
| 10-Aug-21 | A20 | 17368 | SLSC | 62 | 2.0 |
| 10-Aug-21 | A20 | 17369 | SLSC | 45 | 0.7 |
| 10-Aug-21 | A20 | 17370 | SLSC | 45 | 0.6 |
| 10-Aug-21 | A20 | 17371 | SLSC | 34 | 0.3 |
| 10-Aug-21 | A20 | 17372 | SLSC | 33 | 0.2 |
| 10-Aug-21 | A20 | 17393 | SLSC | 49 | 0.9 |
| 13-Aug-21 | A44 | 17414 | LKTR | 52 | 0.9 |
| 18-Aug-21 | A44 | 17626 | NSSB | 69 | 2.0 |
| 18-Aug-21 | A44 | 17627 | NSSB | 63 | 1.3 |
| 18-Aug-21 | A44 | 17628 | NSSB | 58 | 1.1 |
| 18-Aug-21 | A44 | 17629 | NSSB | 51 | 0.7 |
| 13-Aug-21 | A44 | 17409 | SLSC | 37 | 0.3 |
| 13-Aug-21 | A44 | 17410 | SLSC | 63 | 1.8 |
| 13-Aug-21 | A44 | 17411 | SLSC | 65 | 1.9 |
| 13-Aug-21 | A44 | 17412 | SLSC | 60 | 1.6 |
| 13-Aug-21 | A44 | 17413 | SLSC | 33 | 0.2 |
| 18-Aug-21 | A44 | 17623 | SLSC | 49 | 0.9 |
| 18-Aug-21 | A44 | 17624 | SLSC | 50 | 0.9 |
| 18-Aug-21 | A44 | 17625 | SLSC | 58 | 1.5 |
| 16-Aug-21 | A63 | 17485 | NSSB | 53 | 0.8 |
| 16-Aug-21 | A63 | 17486 | NSSB | 57 | 1.2 |
| 16-Aug-21 | A63 | 17487 | NSSB | 58 | 1.2 |
| 16-Aug-21 | A63 | 17488 | NSSB | 60 | 1.1 |
| 16-Aug-21 | A63 | 17489 | NSSB | 54 | 0.9 |
| 16-Aug-21 | A63 | 17490 | NSSB | 57 | 1.1 |
| 16-Aug-21 | A63 | 17491 | NSSB | 50 | 0.8 |
| 16-Aug-21 | A63 | 17492 | NSSB | 57 | 1.1 |
| 16-Aug-21 | A63 | 17493 | NSSB | 71 | 1.9 |
| 16-Aug-21 | A63 | 17494 | NSSB | 73 | 2.0 |
| 16-Aug-21 | A63 | 17495 | NSSB | 58 | 1.1 |
| 16-Aug-21 | A63 | 17496 | NSSB | 73 | 1.9 |
| 16-Aug-21 | A63 | 17497 | NSSB | 51 | 0.8 |
| 16-Aug-21 | A63 | 17498 | NSSB | 55 | 0.9 |
| 16-Aug-21 | A63 | 17499 | NSSB | 58 | 1.3 |
| 16-Aug-21 | A63 | 17500 | NSSB | 51 | 0.8 |
| 16-Aug-21 | A63 | 17456 | SLSC | 81 | 4.0 |
| 16-Aug-21 | A63 | 17457 | SLSC | 81 | 4.2 |
| 16-Aug-21 | A63 | 17458 | SLSC | 39 | 0.4 |
| 16-Aug-21 | A63 | 17459 | SLSC | 40 | 0.5 |
| 16-Aug-21 | A63 | 17460 | SLSC | 47 | 0.8 |
| 16-Aug-21 | A63 | 17461 | SLSC | 50 | 1.0 |
| 16-Aug-21 | A63 | 17462 | SLSC | 41 | 0.6 |
| 16-Aug-21 | A63 | 17463 | SLSC | 44 | 0.6 |
| 16-Aug-21 | A63 | 17464 | SLSC | 47 | 0.7 |
| 16-Aug-21 | A63 | 17465 | SLSC | 41 | 0.6 |
| 16-Aug-21 | A63 | 17466 | SLSC | 75 | 3.5 |
| 16-Aug-21 | A63 | 17467 | SLSC | 49 | 0.8 |
| 16-Aug-21 | A63 | 17468 | SLSC | 43 | 0.5 |
| 16-Aug-21 | A63 | 17469 | SLSC | 45 | 0.6 |
| 16-Aug-21 | A63 | 17470 | SLSC | 44 | 0.6 |

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 15-Aug-21 | Lake 8 | 17446 | SLSC | 59 | 1.4 |
| 15-Aug-21 | Lake 8 | 17447 | SLSC | 69 | 3.0 |
| 15-Aug-21 | Lake 8 | 17448 | SLSC | 52 | 1.0 |
| 15-Aug-21 | Lake 8 | 17449 | SLSC | 64 | 1.9 |
| 15-Aug-21 | Lake 8 | 17450 | SLSC | 82 | 4.6 |
| 15-Aug-21 | Lake 8 | 17451 | SLSC | 62 | 1.9 |
| 15-Aug-21 | Lake 8 | 17452 | SLSC | 59 | 1.4 |
| 15-Aug-21 | Lake 8 | 17453 | SLSC | 72 | 4.1 |
| 15-Aug-21 | Lake 8 | 17454 | SLSC | 62 | 1.9 |
| 15-Aug-21 | Lake 8 | 17455 | SLSC | 57 | 1.5 |
| 17-Aug-21 | Mammoth | 17530 | NSSB | 45 | 0.5 |
| 17-Aug-21 | Mammoth | 17531 | NSSB | 64 | 1.4 |
| 17-Aug-21 | Mammoth | 17532 | NSSB | 60 | 1.2 |
| 17-Aug-21 | Mammoth | 17533 | NSSB | 55 | 0.8 |
| 17-Aug-21 | Mammoth | 17534 | NSSB | 54 | 0.9 |
| 17-Aug-21 | Mammoth | 17535 | NSSB | 52 | 0.8 |
| 17-Aug-21 | Mammoth | 17536 | NSSB | 65 | 1.6 |
| 17-Aug-21 | Mammoth | 17537 | NSSB | 53 | 0.9 |
| 17-Aug-21 | Mammoth | 17538 | NSSB | 52 | 0.8 |
| 17-Aug-21 | Mammoth | 17539 | NSSB | 56 | 1.0 |
| 17-Aug-21 | Mammoth | 17540 | NSSB | 52 | 0.8 |
| 17-Aug-21 | Mammoth | 17541 | NSSB | 45 | 0.6 |
| 17-Aug-21 | Mammoth | 17542 | NSSB | 62 | 1.3 |
| 17-Aug-21 | Mammoth | 17543 | NSSB | 58 | 1.2 |
| 17-Aug-21 | Mammoth | 17544 | NSSB | 54 | 0.9 |
| 17-Aug-21 | Mammoth | 17545 | NSSB | 48 | 0.6 |
| 17-Aug-21 | Mammoth | 17546 | NSSB | 54 | 1.0 |
| 17-Aug-21 | Mammoth | 17547 | NSSB | 57 | 1.1 |
| 17-Aug-21 | Mammoth | 17548 | NSSB | 53 | 0.9 |
| 17-Aug-21 | Mammoth | 17549 | NSSB | 58 | 1.1 |
| 17-Aug-21 | Mammoth | 17550 | NSSB | 53 | 0.9 |
| 17-Aug-21 | Mammoth | 17551 | NSSB | 63 | 1.5 |
| 17-Aug-21 | Mammoth | 17552 | NSSB | 52 | 0.7 |
| 17-Aug-21 | Mammoth | 17553 | NSSB | 57 | 1.0 |
| 17-Aug-21 | Mammoth | 17554 | NSSB | 75 | 2.2 |
| 17-Aug-21 | Mammoth | 17555 | NSSB | 61 | 1.5 |
| 17-Aug-21 | Mammoth | 17556 | NSSB | 55 | 1.0 |
| 17-Aug-21 | Mammoth | 17557 | NSSB | 51 | 0.8 |
| 17-Aug-21 | Mammoth | 17558 | NSSB | 70 | 2.0 |
| 17-Aug-21 | Mammoth | 17559 | NSSB | 46 | 0.7 |
| 17-Aug-21 | Mammoth | 17560 | NSSB | 54 | 0.9 |
| 17-Aug-21 | Mammoth | 17561 | NSSB | 54 | 1.0 |
| 17-Aug-21 | Mammoth | 17562 | SLSC | 53 | 1.0 |
| 17-Aug-21 | Mammoth | 17563 | SLSC | 49 | 0.8 |
| 17-Aug-21 | Mammoth | 17564 | SLSC | 65 | 1.8 |
| 17-Aug-21 | Mammoth | 17565 | SLSC | 50 | 0.8 |
| 17-Aug-21 | Mammoth | 17566 | SLSC | 34 | 0.3 |
| 17-Aug-21 | Mammoth | 17567 | SLSC | 53 | 1.1 |
| 17-Aug-21 | Mammoth | 17568 | SLSC | 42 | 0.5 |
| 17-Aug-21 | Mammoth | 17569 | SLSC | 65 | 2.0 |
| 17-Aug-21 | Mammoth | 17570 | SLSC | 59 | 1.5 |
| 17-Aug-21 | Mammoth | 17571 | SLSC | 61 | 1.6 |
| 17-Aug-21 | Mammoth | 17572 | SLSC | 57 | 1.4 |
| 17-Aug-21 | Mammoth | 17573 | SLSC | 65 | 2.2 |
| 17-Aug-21 | Mammoth | 17574 | SLSC | 64 | 2.0 |
| 17-Aug-21 | Mammoth | 17575 | SLSC | 38 | 0.4 |
| 17-Aug-21 | Mammoth | 17576 | SLSC | 50 | 0.9 |
| 17-Aug-21 | Mammoth | 17577 | SLSC | 62 | 2.1 |
| 17-Aug-21 | Mammoth | 17578 | SLSC | 36 | 0.4 |
| 17-Aug-21 | Mammoth | 17579 | SLSC | 39 | 0.5 |
| 17-Aug-21 | Mammoth | 17580 | SLSC | 74 | 2.9 |
| 17-Aug-21 | Mammoth | 17581 | SLSC | 40 | 0.5 |
| 17-Aug-21 | Mammoth | 17582 | SLSC | 52 | 1.1 |
| 17-Aug-21 | Mammoth | 17583 | SLSC | 39 | 0.4 |
| 17-Aug-21 | Mammoth | 17584 | SLSC | 63 | 2.1 |
| 17-Aug-21 | Mammoth | 17585 | SLSC | 60 | 1.6 |
| 17-Aug-21 | Mammoth | 17586 | SLSC | 61 | 1.9 |
| 17-Aug-21 | Mammoth | 17587 | SLSC | 58 | 1.5 |
| 17-Aug-21 | Mammoth | 17588 | SLSC | 39 | 0.5 |

**Table C-1: Length and weight data for slimy sculpin (SLSC) and ninespine stickleback (NSSB) retained for measurement after capture through electrofishing in FHOMP study lakes in 2021 (total counts may be higher).**

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 16-Aug-21 | A63 | 17471 | SLSC | 43 | 0.7 |
| 16-Aug-21 | A63 | 17472 | SLSC | 53 | 1.1 |
| 16-Aug-21 | A63 | 17473 | SLSC | 48 | 0.8 |
| 16-Aug-21 | A63 | 17474 | SLSC | 45 | 0.7 |
| 16-Aug-21 | A63 | 17475 | SLSC | 41 | 0.5 |
| 16-Aug-21 | A63 | 17476 | SLSC | 45 | 0.7 |
| 16-Aug-21 | A63 | 17477 | SLSC | 43 | 0.5 |
| 16-Aug-21 | A63 | 17478 | SLSC | 44 | 0.7 |
| 16-Aug-21 | A63 | 17479 | SLSC | 44 | 0.7 |
| 16-Aug-21 | A63 | 17480 | SLSC | 46 | 0.7 |
| 16-Aug-21 | A63 | 17481 | SLSC | 45 | 0.6 |
| 16-Aug-21 | A63 | 17482 | SLSC | 52 | 1.0 |
| 16-Aug-21 | A63 | 17483 | SLSC | 47 | 0.8 |
| 16-Aug-21 | A63 | 17484 | SLSC | 48 | 0.7 |
| 12-Aug-21 | A65 | 17406 | NSSB | 59 | 1.2 |
| 12-Aug-21 | A65 | 17407 | NSSB | 60 | 1.2 |
| 12-Aug-21 | A65 | 17394 | SLSC | 71 | 3.3 |
| 12-Aug-21 | A65 | 17395 | SLSC | 45 | 0.6 |
| 12-Aug-21 | A65 | 17396 | SLSC | 63 | 1.8 |
| 12-Aug-21 | A65 | 17397 | SLSC | 77 | 3.8 |
| 12-Aug-21 | A65 | 17398 | SLSC | 74 | 3.6 |
| 12-Aug-21 | A65 | 17399 | SLSC | 82 | 4.2 |
| 12-Aug-21 | A65 | 17400 | SLSC | 45 | 0.7 |
| 12-Aug-21 | A65 | 17401 | SLSC | 40 | 0.6 |
| 12-Aug-21 | A65 | 17402 | SLSC | 61 | 1.6 |
| 12-Aug-21 | A65 | 17403 | SLSC | 47 | 0.7 |
| 12-Aug-21 | A65 | 17404 | SLSC | 53 | 1.1 |
| 12-Aug-21 | A65 | 17405 | SLSC | 42 | 0.6 |
| 14-Aug-21 | B03 | 17443 | NSSB | 56 | 1.0 |
| 14-Aug-21 | B03 | 17444 | NSSB | 53 | 0.8 |
| 18-Aug-21 | B03 | 17616 | NSSB | 56 | 1.2 |
| 18-Aug-21 | B03 | 17617 | NSSB | 53 | 0.9 |
| 18-Aug-21 | B03 | 17618 | NSSB | 58 | 1.3 |
| 18-Aug-21 | B03 | 17619 | NSSB | 53 | 0.9 |
| 18-Aug-21 | B03 | 17620 | NSSB | 57 | 1.2 |
| 18-Aug-21 | B03 | 17621 | NSSB | 56 | 1.0 |
| 18-Aug-21 | B03 | 17622 | NSSB | 57 | 1.2 |
| 14-Aug-21 | B03 | 17436 | SLSC | 71 | 2.7 |
| 14-Aug-21 | B03 | 17437 | SLSC | 51 | 0.9 |
| 14-Aug-21 | B03 | 17438 | SLSC | 56 | 1.2 |
| 14-Aug-21 | B03 | 17439 | SLSC | 51 | 0.8 |
| 14-Aug-21 | B03 | 17440 | SLSC | 51 | 1.0 |
| 14-Aug-21 | B03 | 17441 | SLSC | 54 | 1.1 |
| 14-Aug-21 | B03 | 17442 | SLSC | 34 | 0.2 |
| 18-Aug-21 | B03 | 17593 | SLSC | 56 | 1.5 |
| 18-Aug-21 | B03 | 17594 | SLSC | 60 | 1.7 |
| 18-Aug-21 | B03 | 17595 | SLSC | 39 | 0.5 |
| 18-Aug-21 | B03 | 17596 | SLSC | 84 | 4.8 |
| 18-Aug-21 | B03 | 17597 | SLSC | 44 | 0.6 |
| 18-Aug-21 | B03 | 17598 | SLSC | 41 | 0.5 |
| 18-Aug-21 | B03 | 17599 | SLSC | 39 | 0.4 |
| 18-Aug-21 | B03 | 17600 | SLSC | 42 | 0.5 |
| 18-Aug-21 | B03 | 17601 | SLSC | 63 | 2.3 |
| 18-Aug-21 | B03 | 17602 | SLSC | 40 | 0.4 |
| 18-Aug-21 | B03 | 17603 | SLSC | 69 | 2.9 |
| 18-Aug-21 | B03 | 17604 | SLSC | 72 | 2.6 |
| 18-Aug-21 | B03 | 17605 | SLSC | 61 | 1.7 |
| 18-Aug-21 | B03 | 17606 | SLSC | 44 | 0.6 |
| 18-Aug-21 | B03 | 17607 | SLSC | 40 | 0.4 |
| 18-Aug-21 | B03 | 17608 | SLSC | 49 | 0.9 |
| 18-Aug-21 | B03 | 17609 | SLSC | 45 | 0.6 |
| 18-Aug-21 | B03 | 17610 | SLSC | 43 | 0.5 |
| 18-Aug-21 | B03 | 17611 | SLSC | 51 | 1.1 |
| 18-Aug-21 | B03 | 17612 | SLSC | 58 | 1.6 |
| 18-Aug-21 | B03 | 17613 | SLSC | 53 | 1.0 |
| 18-Aug-21 | B03 | 17614 | SLSC | 51 | 0.9 |
| 18-Aug-21 | B03 | 17615 | SLSC | 63 | 2.1 |

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 17-Aug-21 | Mammoth | 17589 | SLSC | 40 | 0.5 |
| 17-Aug-21 | Mammoth | 17590 | SLSC | 36 | 0.4 |
| 17-Aug-21 | Mammoth | 17591 | SLSC | 40 | 0.4 |
| 17-Aug-21 | Mammoth | 17592 | SLSC | 37 | 0.4 |
| 14-Aug-21 | WTS | 17435 | LKTR | 47 | 0.7 |
| 16-Aug-21 | WTS | 17528 | LKTR | 54 | 0.9 |
| 16-Aug-21 | WTS | 17529 | LKTR | 50 | 1.0 |
| 14-Aug-21 | WTS | 17430 | NSSB | 55 | 0.9 |
| 14-Aug-21 | WTS | 17431 | NSSB | 55 | 1.2 |
| 14-Aug-21 | WTS | 17432 | NSSB | 58 | 1.0 |
| 14-Aug-21 | WTS | 17433 | NSSB | 57 | 0.8 |
| 14-Aug-21 | WTS | 17434 | NSSB | 55 | 1.0 |
| 16-Aug-21 | WTS | 17518 | NSSB | 53 | 1.0 |
| 16-Aug-21 | WTS | 17519 | NSSB | 57 | 1.3 |
| 16-Aug-21 | WTS | 17520 | NSSB | 53 | 0.8 |
| 16-Aug-21 | WTS | 17521 | NSSB | 62 | 1.4 |
| 16-Aug-21 | WTS | 17522 | NSSB | 44 | 0.7 |
| 16-Aug-21 | WTS | 17523 | NSSB | 60 | 1.3 |
| 16-Aug-21 | WTS | 17524 | NSSB | 52 | 1.0 |
| 16-Aug-21 | WTS | 17525 | NSSB | 56 | 0.9 |
| 16-Aug-21 | WTS | 17526 | NSSB | 58 | 1.2 |
| 16-Aug-21 | WTS | 17527 | NSSB | 75 | 2.5 |
| 14-Aug-21 | WTS | 17415 | SLSC | 81 | 5.0 |
| 14-Aug-21 | WTS | 17416 | SLSC | 90 | 6.8 |
| 14-Aug-21 | WTS | 17417 | SLSC | 65 | 2.3 |
| 14-Aug-21 | WTS | 17418 | SLSC | 81 | 3.3 |
| 14-Aug-21 | WTS | 17419 | SLSC | 60 | 1.6 |
| 14-Aug-21 | WTS | 17420 | SLSC | 88 | 4.6 |
| 14-Aug-21 | WTS | 17421 | SLSC | 63 | 1.7 |
| 14-Aug-21 | WTS | 17422 | SLSC | 66 | 2.3 |
| 14-Aug-21 | WTS | 17423 | SLSC | 59 | 1.8 |
| 14-Aug-21 | WTS | 17424 | SLSC | 60 | 1.7 |
| 14-Aug-21 | WTS | 17425 | SLSC | 52 | 1.0 |
| 14-Aug-21 | WTS | 17426 | SLSC | 39 | 0.4 |
| 14-Aug-21 | WTS | 17427 | SLSC | 41 | 0.6 |
| 14-Aug-21 | WTS | 17428 | SLSC | 47 | 0.7 |
| 14-Aug-21 | WTS | 17429 | SLSC | 110 | 14.2 |
| 16-Aug-21 | WTS | 17501 | SLSC | 68 | 3.3 |
| 16-Aug-21 | WTS | 17502 | SLSC | 73 | 3.2 |
| 16-Aug-21 | WTS | 17503 | SLSC | 75 | 2.8 |
| 16-Aug-21 | WTS | 17504 | SLSC | 80 | 3.9 |
| 16-Aug-21 | WTS | 17505 | SLSC | 63 | 2.9 |
| 16-Aug-21 | WTS | 17506 | SLSC | 83 | 3.8 |
| 16-Aug-21 | WTS | 17507 | SLSC | 68 | 2.7 |
| 16-Aug-21 | WTS | 17508 | SLSC | 39 | 0.5 |
| 16-Aug-21 | WTS | 17509 | SLSC | 64 | 2.0 |
| 16-Aug-21 | WTS | 17510 | SLSC | 70 | 3.0 |
| 16-Aug-21 | WTS | 17511 | SLSC | 69 | 3.3 |
| 16-Aug-21 | WTS | 17512 | SLSC | 63 | 2.1 |
| 16-Aug-21 | WTS | 17513 | SLSC | 47 | 0.9 |
| 16-Aug-21 | WTS | 17514 | SLSC | 45 | 0.7 |
| 16-Aug-21 | WTS | 17515 | SLSC | 64 | 1.9 |
| 16-Aug-21 | WTS | 17516 | SLSC | 42 | 0.6 |
| 16-Aug-21 | WTS | 17517 | SLSC | 50 | 1.0 |

**Table C-2: Length and weight data for slimy sculpin (SLSC) and ninespine stickleback (NSSB) retained for measurement after capture through electrofishing in FHOMP study lakes in 2022 (total counts may be higher).**

*Note: In 2022, a number of fish were measured but were too light for the scale used, so weight is blank.*

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 21-Aug-22 | A20 | 36 | NSSB | 67 | 2.3 |
| 21-Aug-22 | A20 | 37 | NSSB | 66 | 1.8 |
| 21-Aug-22 | A20 | 38 | NSSB | 65 | 1.7 |
| 21-Aug-22 | A20 | 39 | NSSB | 59 | 0.9 |
| 21-Aug-22 | A20 | 40 | NSSB | 33 | |
| 21-Aug-22 | A20 | 41 | NSSB | 32 | |
| 21-Aug-22 | A20 | 42 | NSSB | 38 | |
| 21-Aug-22 | A20 | 43 | NSSB | 41 | |
| 21-Aug-22 | A20 | 44 | NSSB | 42 | |
| 21-Aug-22 | A20 | 45 | NSSB | 32 | |
| 21-Aug-22 | A20 | 46 | NSSB | 42 | |
| 21-Aug-22 | A20 | 47 | NSSB | 30 | |
| 21-Aug-22 | A20 | 1 | SLSC | 76 | 4 |
| 21-Aug-22 | A20 | 2 | SLSC | 48 | 0.9 |
| 21-Aug-22 | A20 | 3 | SLSC | 56 | 1.1 |
| 21-Aug-22 | A20 | 4 | SLSC | 52 | 1.1 |
| 21-Aug-22 | A20 | 5 | SLSC | 80 | 4.3 |
| 21-Aug-22 | A20 | 6 | SLSC | 55 | 1.2 |
| 21-Aug-22 | A20 | 7 | SLSC | 75 | 3.6 |
| 21-Aug-22 | A20 | 8 | SLSC | 50 | 1 |
| 21-Aug-22 | A20 | 9 | SLSC | 42 | 0.5 |
| 21-Aug-22 | A20 | 10 | SLSC | 45 | 0.8 |
| 21-Aug-22 | A20 | 11 | SLSC | 38 | |
| 21-Aug-22 | A20 | 12 | SLSC | 60 | 1.3 |
| 21-Aug-22 | A20 | 14 | SLSC | 46 | 0.7 |
| 21-Aug-22 | A20 | 15 | SLSC | 49 | 0.9 |
| 21-Aug-22 | A20 | 16 | SLSC | 49 | 0.9 |
| 21-Aug-22 | A20 | 17 | SLSC | 50 | 1 |
| 21-Aug-22 | A20 | 18 | SLSC | 42 | 0.6 |
| 21-Aug-22 | A20 | 19 | SLSC | 51 | 1.1 |
| 21-Aug-22 | A20 | 20 | SLSC | 50 | 1 |
| 21-Aug-22 | A20 | 21 | SLSC | 50 | 1.1 |
| 21-Aug-22 | A20 | 22 | SLSC | 48 | 0.6 |
| 21-Aug-22 | A20 | 23 | SLSC | 47 | 0.9 |
| 21-Aug-22 | A20 | 24 | SLSC | 49 | 1 |
| 21-Aug-22 | A20 | 25 | SLSC | 40 | 0.5 |
| 21-Aug-22 | A20 | 26 | SLSC | 46 | 0.7 |
| 21-Aug-22 | A20 | 27 | SLSC | 44 | 0.6 |
| 21-Aug-22 | A20 | 28 | SLSC | 43 | 0.6 |
| 21-Aug-22 | A20 | 29 | SLSC | 57 | 1.6 |
| 21-Aug-22 | A20 | 30 | SLSC | 50 | 0.9 |
| 21-Aug-22 | A20 | 31 | SLSC | 36 | |
| 21-Aug-22 | A20 | 32 | SLSC | 35 | |
| 21-Aug-22 | A20 | 33 | SLSC | 37 | |
| 21-Aug-22 | A20 | 34 | SLSC | 35 | |
| 21-Aug-22 | A20 | 35 | SLSC | 36 | |
| 19-Aug-22 | A44 | 9 | NSSB | 33 | |
| 19-Aug-22 | A44 | 10 | NSSB | 41 | |
| 19-Aug-22 | A44 | 11 | NSSB | 42 | |
| 19-Aug-22 | A44 | 12 | NSSB | 32 | |
| 19-Aug-22 | A44 | 13 | NSSB | 35 | |
| 19-Aug-22 | A44 | 14 | NSSB | 37 | |
| 19-Aug-22 | A44 | 15 | NSSB | 34 | |
| 19-Aug-22 | A44 | 16 | NSSB | 34 | |
| 19-Aug-22 | A44 | 17 | NSSB | 34 | |
| 19-Aug-22 | A44 | 18 | NSSB | 43 | 0.6 |
| 19-Aug-22 | A44 | 19 | NSSB | 32 | |
| 19-Aug-22 | A44 | 20 | NSSB | 34 | |
| 19-Aug-22 | A44 | 24 | NSSB | 40 | |
| 19-Aug-22 | A44 | 27 | NSSB | 65 | 1.9 |
| 19-Aug-22 | A44 | 28 | NSSB | 72 | 2.4 |
| 19-Aug-22 | A44 | 30 | NSSB | 32 | |
| 19-Aug-22 | A44 | 31 | NSSB | 46 | 0.8 |
| 19-Aug-22 | A44 | 32 | NSSB | 37 | |
| 19-Aug-22 | A44 | 33 | NSSB | 37 | |
| 19-Aug-22 | A44 | 34 | NSSB | 32 | |
| 19-Aug-22 | A44 | 35 | NSSB | 39 | |
| 19-Aug-22 | A44 | 36 | NSSB | 39 | |
| 19-Aug-22 | A44 | 37 | NSSB | 44 | |

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 22-Aug-22 | B03 | 1 | NSSB | 33 | |
| 22-Aug-22 | B03 | 1 | SLSC | 51 | 0.5 |
| 22-Aug-22 | B03 | 2 | SLSC | 56 | 1 |
| 22-Aug-22 | B03 | 3 | SLSC | 67 | 1.9 |
| 22-Aug-22 | B03 | 4 | SLSC | 52 | 1.2 |
| 22-Aug-22 | B03 | 5 | SLSC | 37 | |
| 22-Aug-22 | B03 | 6 | SLSC | 63 | 1.4 |
| 22-Aug-22 | B03 | 7 | SLSC | 57 | 0.8 |
| 22-Aug-22 | B03 | 8 | SLSC | 46 | 0.7 |
| 22-Aug-22 | B03 | 9 | SLSC | 61 | 1.4 |
| 22-Aug-22 | B03 | 10 | SLSC | 61 | 1.8 |
| 22-Aug-22 | B03 | 11 | SLSC | 46 | 0.6 |
| 22-Aug-22 | B03 | 12 | SLSC | 50 | 0.7 |
| 22-Aug-22 | B03 | 13 | SLSC | 57 | 1.9 |
| 22-Aug-22 | B03 | 14 | SLSC | 72 | 3.4 |
| 22-Aug-22 | B03 | 15 | SLSC | 67 | 1.5 |
| 22-Aug-22 | B03 | 16 | SLSC | 50 | 0.7 |
| 22-Aug-22 | B03 | 17 | SLSC | 55 | 1.1 |
| 22-Aug-22 | B03 | 18 | SLSC | 54 | 1 |
| 22-Aug-22 | B03 | 19 | SLSC | 47 | 0.6 |
| 22-Aug-22 | B03 | 20 | SLSC | 51 | 0.9 |
| 22-Aug-22 | B03 | 21 | SLSC | 42 | 0.6 |
| 22-Aug-22 | B03 | 22 | SLSC | 52 | 0.7 |
| 22-Aug-22 | B03 | 23 | SLSC | 45 | 0.7 |
| 22-Aug-22 | B03 | 24 | SLSC | 77 | 3 |
| 22-Aug-22 | B03 | 25 | SLSC | 55 | 1.1 |
| 22-Aug-22 | B03 | 26 | SLSC | 67 | 2.5 |
| 22-Aug-22 | B03 | 27 | SLSC | 63 | 1.8 |
| 22-Aug-22 | B03 | 28 | SLSC | 50 | 0.7 |
| 22-Aug-22 | B03 | 29 | SLSC | 63 | 2 |
| 22-Aug-22 | B03 | 30 | SLSC | 65 | 2.3 |
| 22-Aug-22 | B03 | 31 | SLSC | 74 | 3 |
| 22-Aug-22 | B03 | 32 | SLSC | 46 | 0.6 |
| 22-Aug-22 | B03 | 33 | SLSC | 56 | 1.3 |
| 22-Aug-22 | B03 | 34 | SLSC | 65 | 1.8 |
| 22-Aug-22 | B03 | 35 | SLSC | 66 | 2.1 |
| 22-Aug-22 | B03 | 36 | SLSC | 50 | 1 |
| 22-Aug-22 | B03 | 37 | SLSC | 54 | 1.5 |
| 22-Aug-22 | B03 | 38 | SLSC | 46 | 0.6 |
| 20-Aug-22 | Lake 8 | 4 | SLSC | 47 | 0.7 |
| 20-Aug-22 | Lake 8 | 5 | SLSC | 53 | 1 |
| 20-Aug-22 | Lake 8 | 6 | SLSC | 43 | 0.6 |
| 20-Aug-22 | Lake 8 | 7 | SLSC | 67 | 2.4 |
| 20-Aug-22 | Lake 8 | 8 | SLSC | 51 | 0.9 |
| 20-Aug-22 | Lake 8 | 9 | SLSC | 52 | 0.8 |
| 20-Aug-22 | Lake 8 | 10 | SLSC | 61 | 1.6 |
| 20-Aug-22 | Lake 8 | 11 | SLSC | 43 | 0.8 |
| 20-Aug-22 | Lake 8 | 12 | SLSC | 47 | 0.8 |
| 20-Aug-22 | Lake 8 | 13 | SLSC | 65 | 2.1 |
| 20-Aug-22 | Lake 8 | 14 | SLSC | 59 | 1.7 |
| 20-Aug-22 | Lake 8 | 15 | SLSC | 51 | 0.9 |
| 20-Aug-22 | Lake 8 | 16 | SLSC | 35 | 0.8 |
| 20-Aug-22 | Lake 8 | 17 | SLSC | 45 | 1 |
| 20-Aug-22 | Lake 8 | 18 | SLSC | 41 | 0.6 |
| 20-Aug-22 | Lake 8 | 1 | SLSC | 70 | 2.8 |
| 20-Aug-22 | Lake 8 | 2 | SLSC | 53 | 1.3 |
| 20-Aug-22 | Lake 8 | 3 | SLSC | 55 | 1.5 |
| 20-Aug-22 | Lake 8 | 4 | SLSC | 66 | 2.6 |
| 20-Aug-22 | Lake 8 | 5 | SLSC | 45 | 0.5 |
| 20-Aug-22 | Lake 8 | 6 | SLSC | 46 | 0.9 |
| 20-Aug-22 | Lake 8 | 7 | SLSC | 46 | 0.7 |
| 20-Aug-22 | Lake 8 | 8 | SLSC | 44 | 0.6 |
| 20-Aug-22 | Lake 8 | 9 | SLSC | 44 | 0.6 |
| 20-Aug-22 | Lake 8 | 10 | SLSC | 32 | |
| 20-Aug-22 | Lake 8 | 1 | SLSC | 60 | 1.8 |
| 20-Aug-22 | Lake 8 | 2 | SLSC | 61 | 1.9 |
| 20-Aug-22 | Lake 8 | 3 | SLSC | 65 | 2.1 |
| 20-Aug-22 | Lake 8 | 4 | SLSC | 65 | 2.7 |
| 20-Aug-22 | Lake 8 | 5 | SLSC | 42 | 0.6 |

**Table C-2: Length and weight data for slimy sculpin (SLSC) and ninespine stickleback (NSSB) retained for measurement after capture through electrofishing in FHOMP study lakes in 2022 (total counts may be higher).**

*Note: In 2022, a number of fish were measured but were too light for the scale used, so weight is blank.*

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 19-Aug-22 | A44 | 38 | NSSB | 41 | |
| 19-Aug-22 | A44 | 39 | NSSB | 31 | |
| 19-Aug-22 | A44 | 40 | NSSB | 39 | |
| 19-Aug-22 | A44 | 41 | NSSB | 41 | |
| 19-Aug-22 | A44 | 42 | NSSB | 32 | |
| 19-Aug-22 | A44 | 43 | NSSB | 26 | |
| 19-Aug-22 | A44 | 44 | NSSB | 27 | |
| 19-Aug-22 | A44 | 45 | NSSB | 31 | |
| 19-Aug-22 | A44 | 46 | NSSB | 32 | |
| 19-Aug-22 | A44 | 47 | NSSB | 33 | |
| 19-Aug-22 | A44 | 2 | SLSC | 52 | 0.6 |
| 19-Aug-22 | A44 | 3 | SLSC | 47 | 0.6 |
| 19-Aug-22 | A44 | 1 | SLSC | 75 | 3.7 |
| 19-Aug-22 | A44 | 2 | SLSC | 57 | 1.2 |
| 19-Aug-22 | A44 | 4 | SLSC | 56 | 1.1 |
| 19-Aug-22 | A44 | 5 | SLSC | 67 | 2.4 |
| 19-Aug-22 | A44 | 6 | SLSC | 60 | 1.3 |
| 19-Aug-22 | A44 | 7 | SLSC | 56 | 1.4 |
| 19-Aug-22 | A44 | 8 | SLSC | 57 | 1 |
| 19-Aug-22 | A44 | 21 | SLSC | 45 | 0.7 |
| 19-Aug-22 | A44 | 22 | SLSC | 57 | 1.1 |
| 19-Aug-22 | A44 | 23 | SLSC | 56 | 1.3 |
| 19-Aug-22 | A44 | 25 | SLSC | 51 | 0.9 |
| 19-Aug-22 | A44 | 26 | SLSC | 55 | 1.2 |
| 23-Aug-22 | A63 | 1 | NSSB | 31 | |
| 23-Aug-22 | A63 | 2 | NSSB | 28 | |
| 23-Aug-22 | A63 | 3 | NSSB | 27 | |
| 23-Aug-22 | A63 | 4 | NSSB | 33 | |
| 23-Aug-22 | A63 | 5 | NSSB | 35 | |
| 23-Aug-22 | A63 | 6 | NSSB | 30 | |
| 23-Aug-22 | A63 | 7 | NSSB | 62 | 1.8 |
| 23-Aug-22 | A63 | 8 | NSSB | 28 | |
| 23-Aug-22 | A63 | 9 | NSSB | 42 | 0.6 |
| 23-Aug-22 | A63 | 10 | NSSB | 31 | |
| 23-Aug-22 | A63 | 11 | NSSB | 38 | 0.6 |
| 23-Aug-22 | A63 | 12 | NSSB | 27 | |
| 23-Aug-22 | A63 | 13 | NSSB | 40 | |
| 23-Aug-22 | A63 | 14 | NSSB | 27 | |
| 23-Aug-22 | A63 | 15 | NSSB | 29 | |
| 23-Aug-22 | A63 | 16 | NSSB | 76 | 2.1 |
| 23-Aug-22 | A63 | 18 | NSSB | 60 | 1.3 |
| 23-Aug-22 | A63 | 19 | NSSB | 42 | 0.6 |
| 23-Aug-22 | A63 | 20 | NSSB | 27 | |
| 23-Aug-22 | A63 | 21 | NSSB | 23 | |
| 23-Aug-22 | A63 | 25 | NSSB | 29 | |
| 23-Aug-22 | A63 | 26 | NSSB | 41 | 0.7 |
| 23-Aug-22 | A63 | 27 | NSSB | 30 | |
| 23-Aug-22 | A63 | 28 | NSSB | 31 | |
| 23-Aug-22 | A63 | 29 | NSSB | 31 | |
| 23-Aug-22 | A63 | 30 | NSSB | 26 | |
| 23-Aug-22 | A63 | 31 | NSSB | 20 | |
| 23-Aug-22 | A63 | 34 | NSSB | 30 | |
| 23-Aug-22 | A63 | 35 | NSSB | 34 | |
| 23-Aug-22 | A63 | 36 | NSSB | 41 | |
| 23-Aug-22 | A63 | 37 | NSSB | 39 | |
| 23-Aug-22 | A63 | 38 | NSSB | 27 | |
| 23-Aug-22 | A63 | 39 | NSSB | 37 | |
| 23-Aug-22 | A63 | 40 | NSSB | 37 | |
| 23-Aug-22 | A63 | 44 | NSSB | 22 | |
| 23-Aug-22 | A63 | 45 | NSSB | 27 | |
| 23-Aug-22 | A63 | 54 | NSSB | 37 | |
| 23-Aug-22 | A63 | 56 | NSSB | 27 | |
| 23-Aug-22 | A63 | 57 | NSSB | 28 | |
| 23-Aug-22 | A63 | 58 | NSSB | 29 | |
| 23-Aug-22 | A63 | 59 | NSSB | 32 | |
| 23-Aug-22 | A63 | 60 | NSSB | 30 | |
| 23-Aug-22 | A63 | 61 | NSSB | 47 | 0.5 |
| 23-Aug-22 | A63 | 63 | NSSB | 40 | |
| 23-Aug-22 | A63 | 64 | NSSB | 28 | |
| 20-Aug-22 | Lake 8 | 6 | SLSC | 67 | 2.7 |
| 20-Aug-22 | Lake 8 | 7 | SLSC | 43 | 0.6 |
| 20-Aug-22 | Lake 8 | 8 | SLSC | 30 | |
| 20-Aug-22 | Lake 8 | 9 | SLSC | 40 | 0.6 |
| 18-Aug-22 | Mammoth | 6 | NSSB | 57 | 1.3 |
| 18-Aug-22 | Mammoth | 7 | NSSB | 61 | 2 |
| 18-Aug-22 | Mammoth | 8 | NSSB | 74 | 3.1 |
| 18-Aug-22 | Mammoth | 9 | NSSB | 65 | 2.9 |
| 18-Aug-22 | Mammoth | 10 | NSSB | 69 | 2.6 |
| 18-Aug-22 | Mammoth | 11 | NSSB | 56 | 2 |
| 18-Aug-22 | Mammoth | 14 | NSSB | 40 | 0.5 |
| 18-Aug-22 | Mammoth | 29 | NSSB | 42 | 0.7 |
| 18-Aug-22 | Mammoth | 45 | NSSB | 56 | 1.8 |
| 18-Aug-22 | Mammoth | 46 | NSSB | 60 | 2 |
| 18-Aug-22 | Mammoth | 49 | NSSB | 35 | 0.2 |
| 18-Aug-22 | Mammoth | 50 | NSSB | 32 | 0.2 |
| 18-Aug-22 | Mammoth | 51 | NSSB | 36 | 0.2 |
| 18-Aug-22 | Mammoth | 1 | SLSC | 57 | 1.4 |
| 18-Aug-22 | Mammoth | 2 | SLSC | 67 | 2.1 |
| 18-Aug-22 | Mammoth | 3 | SLSC | 60 | 2.4 |
| 18-Aug-22 | Mammoth | 4 | SLSC | 53 | 1.4 |
| 18-Aug-22 | Mammoth | 5 | SLSC | 41 | 0.8 |
| 18-Aug-22 | Mammoth | 15 | SLSC | 60 | 1.8 |
| 18-Aug-22 | Mammoth | 16 | SLSC | 63 | 1.9 |
| 18-Aug-22 | Mammoth | 17 | SLSC | 66 | 2.7 |
| 18-Aug-22 | Mammoth | 18 | SLSC | 62 | 2.1 |
| 18-Aug-22 | Mammoth | 19 | SLSC | 49 | 0.7 |
| 18-Aug-22 | Mammoth | 20 | SLSC | 63 | 2.7 |
| 18-Aug-22 | Mammoth | 21 | SLSC | 62 | 1.9 |
| 18-Aug-22 | Mammoth | 22 | SLSC | 44 | 0.5 |
| 18-Aug-22 | Mammoth | 23 | SLSC | 54 | 0.9 |
| 18-Aug-22 | Mammoth | 24 | SLSC | 40 | 0.5 |
| 18-Aug-22 | Mammoth | 25 | SLSC | 51 | 1.2 |
| 18-Aug-22 | Mammoth | 26 | SLSC | 46 | 0.6 |
| 18-Aug-22 | Mammoth | 27 | SLSC | 45 | 0.8 |
| 18-Aug-22 | Mammoth | 28 | SLSC | 37 | 0.6 |
| 18-Aug-22 | Mammoth | 30 | SLSC | 36 | 0.6 |
| 18-Aug-22 | Mammoth | 31 | SLSC | 46 | 0.7 |
| 18-Aug-22 | Mammoth | 32 | SLSC | 39 | 0.2 |
| 18-Aug-22 | Mammoth | 33 | SLSC | 37 | 0.6 |
| 18-Aug-22 | Mammoth | 34 | SLSC | 42 | 0.6 |
| 18-Aug-22 | Mammoth | 35 | SLSC | 40 | 0.5 |
| 18-Aug-22 | Mammoth | 36 | SLSC | 38 | 0.2 |
| 18-Aug-22 | Mammoth | 37 | SLSC | 38 | 0.6 |
| 18-Aug-22 | Mammoth | 38 | SLSC | 40 | 0.7 |
| 18-Aug-22 | Mammoth | 39 | SLSC | 38 | 0.2 |
| 18-Aug-22 | Mammoth | 40 | SLSC | 40 | 0.6 |
| 18-Aug-22 | Mammoth | 41 | SLSC | 41 | 0.6 |
| 18-Aug-22 | Mammoth | 42 | SLSC | 36 | 0.2 |
| 18-Aug-22 | Mammoth | 43 | SLSC | 37 | 0.2 |
| 18-Aug-22 | Mammoth | 44 | SLSC | 35 | 0.2 |
| 18-Aug-22 | Mammoth | 48 | SLSC | 41 | 0.2 |
| 21-Aug-22 | WTS | 20 | NSSB | 50 | 0.7 |
| 21-Aug-22 | WTS | 22 | NSSB | 30 | |
| 21-Aug-22 | WTS | 23 | NSSB | 42 | |
| 21-Aug-22 | WTS | 24 | NSSB | 56 | 1.1 |
| 21-Aug-22 | WTS | 25 | NSSB | 60 | 1.5 |
| 21-Aug-22 | WTS | 26 | NSSB | 37 | |
| 21-Aug-22 | WTS | 27 | NSSB | 37 | |
| 21-Aug-22 | WTS | 28 | NSSB | 35 | |
| 21-Aug-22 | WTS | 29 | NSSB | 33 | |
| 21-Aug-22 | WTS | 30 | NSSB | 32 | |
| 21-Aug-22 | WTS | 31 | NSSB | 34 | |
| 21-Aug-22 | WTS | 32 | NSSB | 30 | |
| 21-Aug-22 | WTS | 33 | NSSB | 36 | |
| 21-Aug-22 | WTS | 34 | NSSB | 30 | |
| 21-Aug-22 | WTS | 35 | NSSB | 39 | |
| 21-Aug-22 | WTS | 36 | NSSB | 45 | 0.6 |
| 21-Aug-22 | WTS | 37 | NSSB | 41 | |

**Table C-2: Length and weight data for slimy sculpin (SLSC) and ninespine stickleback (NSSB) retained for measurement after capture through electrofishing in FHOMP study lakes in 2022 (total counts may be higher).**

*Note: In 2022, a number of fish were measured but were too light for the scale used, so weight is blank.*

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 23-Aug-22 | A63 | 65 | NSSB | 28 | |
| 23-Aug-22 | A63 | 66 | NSSB | 47 | 0.5 |
| 23-Aug-22 | A63 | 67 | NSSB | 28 | |
| 23-Aug-22 | A63 | 70 | NSSB | 30 | |
| 23-Aug-22 | A63 | 71 | NSSB | 27 | |
| 23-Aug-22 | A63 | 72 | NSSB | 40 | |
| 23-Aug-22 | A63 | 73 | NSSB | 37 | |
| 23-Aug-22 | A63 | 74 | NSSB | 32 | |
| 23-Aug-22 | A63 | 75 | NSSB | 43 | |
| 23-Aug-22 | A63 | 76 | NSSB | 26 | |
| 23-Aug-22 | A63 | 77 | NSSB | 32 | |
| 23-Aug-22 | A63 | 78 | NSSB | 35 | |
| 23-Aug-22 | A63 | 79 | NSSB | 32 | |
| 23-Aug-22 | A63 | 80 | NSSB | 34 | |
| 23-Aug-22 | A63 | 81 | NSSB | 31 | |
| 23-Aug-22 | A63 | 82 | NSSB | 34 | |
| 23-Aug-22 | A63 | 83 | NSSB | 33 | |
| 23-Aug-22 | A63 | 84 | NSSB | 35 | |
| 23-Aug-22 | A63 | 85 | NSSB | 32 | |
| 23-Aug-22 | A63 | 86 | NSSB | 30 | |
| 23-Aug-22 | A63 | 87 | NSSB | 29 | |
| 23-Aug-22 | A63 | 17 | SLSC | 46 | |
| 23-Aug-22 | A63 | 22 | SLSC | 56 | 1.1 |
| 23-Aug-22 | A63 | 23 | SLSC | 46 | 0.9 |
| 23-Aug-22 | A63 | 24 | SLSC | 45 | |
| 23-Aug-22 | A63 | 32 | SLSC | 42 | 0.7 |
| 23-Aug-22 | A63 | 33 | SLSC | 75 | 3.2 |
| 23-Aug-22 | A63 | 41 | SLSC | 48 | 1 |
| 23-Aug-22 | A63 | 42 | SLSC | 45 | 1 |
| 23-Aug-22 | A63 | 43 | SLSC | 40 | 0.7 |
| 23-Aug-22 | A63 | 46 | SLSC | 46 | 0.7 |
| 23-Aug-22 | A63 | 47 | SLSC | 42 | 0.5 |
| 23-Aug-22 | A63 | 48 | SLSC | 50 | 1.1 |
| 23-Aug-22 | A63 | 49 | SLSC | 59 | 1.6 |
| 23-Aug-22 | A63 | 50 | SLSC | 56 | 0.9 |
| 23-Aug-22 | A63 | 51 | SLSC | 46 | 0.7 |
| 23-Aug-22 | A63 | 52 | SLSC | 44 | |
| 23-Aug-22 | A63 | 53 | SLSC | 46 | |
| 23-Aug-22 | A63 | 56 | SLSC | 62 | 1.6 |
| 23-Aug-22 | A63 | 62 | SLSC | 46 | 0.7 |
| 23-Aug-22 | A63 | 68 | SLSC | 45 | 0.6 |
| 23-Aug-22 | A63 | 69 | SLSC | 46 | 0.7 |
| 23-Aug-22 | A63 | 88 | SLSC | 77 | 4.7 |
| 23-Aug-22 | A63 | 89 | SLSC | 71 | 3.4 |
| 23-Aug-22 | A63 | 90 | SLSC | 45 | 0.7 |
| 23-Aug-22 | A63 | 91 | SLSC | 58 | 2 |
| 23-Aug-22 | A63 | 92 | SLSC | 47 | 0.7 |
| 23-Aug-22 | A63 | 93 | SLSC | 45 | 0.6 |
| 23-Aug-22 | A63 | 94 | SLSC | 43 | 0.6 |
| 23-Aug-22 | A63 | 95 | SLSC | 42 | 0.6 |
| 23-Aug-22 | A63 | 96 | SLSC | 58 | 1.9 |
| 23-Aug-22 | A63 | 97 | SLSC | 44 | 0.6 |
| 23-Aug-22 | A63 | 98 | SLSC | 42 | 0.7 |
| 23-Aug-22 | A63 | 99 | SLSC | 44 | 0.7 |
| 23-Aug-22 | A63 | 100 | SLSC | 49 | 1 |

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 21-Aug-22 | WTS | 38 | NSSB | 31 | |
| 21-Aug-22 | WTS | 39 | NSSB | 39 | |
| 21-Aug-22 | WTS | 40 | NSSB | 42 | 0.5 |
| 21-Aug-22 | WTS | 41 | NSSB | 40 | |
| 21-Aug-22 | WTS | 42 | NSSB | 39 | |
| 21-Aug-22 | WTS | 43 | NSSB | 40 | |
| 21-Aug-22 | WTS | 44 | NSSB | 32 | |
| 21-Aug-22 | WTS | 45 | NSSB | 33 | |
| 21-Aug-22 | WTS | 46 | NSSB | 37 | |
| 21-Aug-22 | WTS | 47 | NSSB | 32 | |
| 21-Aug-22 | WTS | 48 | NSSB | 0 | |
| 21-Aug-22 | WTS | 55 | NSSB | 31 | |
| 21-Aug-22 | WTS | 1 | SLSC | 52 | 1.1 |
| 21-Aug-22 | WTS | 2 | SLSC | 65 | 2 |
| 21-Aug-22 | WTS | 3 | SLSC | 99 | 8.2 |
| 21-Aug-22 | WTS | 4 | SLSC | 60 | 1.7 |
| 21-Aug-22 | WTS | 4 | SLSC | 43 | |
| 21-Aug-22 | WTS | 6 | SLSC | 60 | 1.5 |
| 21-Aug-22 | WTS | 7 | SLSC | 53 | 1.1 |
| 21-Aug-22 | WTS | 8 | SLSC | 66 | 2.4 |
| 21-Aug-22 | WTS | 9 | SLSC | 40 | 0.6 |
| 21-Aug-22 | WTS | 10 | SLSC | 44 | 0.7 |
| 21-Aug-22 | WTS | 11 | SLSC | 65 | 2.4 |
| 21-Aug-22 | WTS | 12 | SLSC | 24 | 0.6 |
| 21-Aug-22 | WTS | 13 | SLSC | 68 | 2.7 |
| 21-Aug-22 | WTS | 14 | SLSC | 46 | 0.7 |
| 21-Aug-22 | WTS | 15 | SLSC | 46 | 0.7 |
| 21-Aug-22 | WTS | 16 | SLSC | 39 | 0.5 |
| 21-Aug-22 | WTS | 17 | SLSC | 46 | 0.7 |
| 21-Aug-22 | WTS | 18 | SLSC | 37 | 0.5 |
| 21-Aug-22 | WTS | 19 | SLSC | 40 | 0.6 |
| 21-Aug-22 | WTS | 21 | SLSC | 40 | 0.5 |
| 21-Aug-22 | WTS | 50 | SLSC | 76 | 3.2 |
| 21-Aug-22 | WTS | 51 | SLSC | 65 | 2.4 |
| 21-Aug-22 | WTS | 53 | SLSC | 44 | 0.5 |
| 21-Aug-22 | WTS | 53 | SLSC | 30 | |
| 21-Aug-22 | WTS | 54 | SLSC | 35 | |

**Table C-3: Length and weight data for slimy sculpin (SLSC) and ninespine stickleback (NSSB) retained for measurement after capture through electrofishing in FHOMP study lakes in 2023 (total counts may be higher).**

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 23-Aug-23 | A20 | NS-2 | NSSB | 55 | 1.1206 |
| 23-Aug-23 | A20 | NS-3 | NSSB | 65 | 1.6952 |
| 23-Aug-23 | A20 | NS-4 | NSSB | 52 | 0.8706 |
| 23-Aug-23 | A20 | NS-5 | NSSB | 55 | 1.0791 |
| 23-Aug-23 | A20 | NS-6 | NSSB | 59 | 1.602 |
| 23-Aug-23 | A20 | NS-7 | NSSB | 52 | 1.1507 |
| 23-Aug-23 | A20 | NS-8 | NSSB | 59 | 1.58 |
| 23-Aug-23 | A20 | NS-9 | NSSB | 49 | 0.7053 |
| 23-Aug-23 | A20 | NS-10 | NSSB | 42 | 0.4036 |
| 23-Aug-23 | A20 | NS-11 | NSSB | 49 | 0.6849 |
| 23-Aug-23 | A20 | NS-12 | NSSB | 39 | 0.2908 |
| 23-Aug-23 | A20 | NS-13 | NSSB | 49 | 0.735 |
| 23-Aug-23 | A20 | NS-14 | NSSB | 60 | 1.5391 |
| 23-Aug-23 | A20 | NS-15 | NSSB | 58 | 1.4692 |
| 23-Aug-23 | A20 | NS-16 | NSSB | 58 | 1.1613 |
| 23-Aug-23 | A20 | NS-17 | NSSB | 42 | 0.5209 |
| 23-Aug-23 | A20 | SC-138 | SLSC | 78 | 3.6383 |
| 23-Aug-23 | A20 | SC-139 | SLSC | 76 | 4.1456 |
| 23-Aug-23 | A20 | SC-140 | SLSC | 66 | 2.6544 |
| 23-Aug-23 | A20 | SC-141 | SLSC | 51 | 1.213 |
| 23-Aug-23 | A20 | SC-142 | SLSC | 49 | 1.1025 |
| 23-Aug-23 | A20 | SC-143 | SLSC | 50 | 1.2417 |
| 23-Aug-23 | A20 | SC-144 | SLSC | 49 | 1.0129 |
| 23-Aug-23 | A20 | SC-145 | SLSC | 47 | 0.8074 |
| 23-Aug-23 | A20 | SC-146 | SLSC | 44 | 0.7607 |
| 23-Aug-23 | A20 | SC-147 | SLSC | 42 | 0.6253 |
| 23-Aug-23 | A20 | SC-148 | SLSC | 46 | 0.861 |
| 23-Aug-23 | A20 | SC-149 | SLSC | 40 | 0.6077 |
| 23-Aug-23 | A20 | SC-150 | SLSC | 40 | 0.589 |
| 23-Aug-23 | A20 | SC-151 | SLSC | 41 | 0.5737 |
| 23-Aug-23 | A20 | SC-152 | SLSC | 42 | 0.6802 |
| 23-Aug-23 | A20 | SC-153 | SLSC | 38 | 0.4884 |
| 23-Aug-23 | A20 | SC-154 | SLSC | 40 | 0.6227 |
| 23-Aug-23 | A20 | SC-155 | SLSC | 45 | 0.7672 |
| 23-Aug-23 | A20 | SC-156 | SLSC | 39 | 0.6051 |
| 23-Aug-23 | A20 | SC-157 | SLSC | 45 | 0.7838 |
| 23-Aug-23 | A20 | SC-158 | SLSC | 67 | 2.3176 |
| 23-Aug-23 | A20 | SC-159 | SLSC | 46 | 1.0174 |
| 23-Aug-23 | A20 | SC-160 | SLSC | 64 | 2.3236 |
| 23-Aug-23 | A20 | SC-161 | SLSC | 50 | 1.2473 |
| 23-Aug-23 | A20 | SC-162 | SLSC | 47 | 0.8565 |
| 23-Aug-23 | A20 | SC-163 | SLSC | 47 | 0.9078 |
| 23-Aug-23 | A20 | SC-164 | SLSC | 41 | 0.5666 |
| 23-Aug-23 | A20 | SC-165 | SLSC | 51 | 0.9592 |
| 23-Aug-23 | A20 | SC-166 | SLSC | 45 | 0.7362 |
| 23-Aug-23 | A20 | SC-167 | SLSC | 55 | 1.4671 |
| 23-Aug-23 | A20 | SC-168 | SLSC | 54 | 1.3281 |
| 23-Aug-23 | A20 | SC-169 | SLSC | 44 | 0.6381 |
| 27-Aug-23 | A44 | NS-86 | NSSB | 68 | 1.7625 |
| 27-Aug-23 | A44 | NS-87 | NSSB | 60 | 1.4625 |
| 27-Aug-23 | A44 | NS-88 | NSSB | 57 | 1.491 |
| 27-Aug-23 | A44 | NS-89 | NSSB | 40 | 0.4316 |
| 27-Aug-23 | A44 | NS-90 | NSSB | 39 | 0.4352 |
| 27-Aug-23 | A44 | NS-91 | NSSB | 49 | 0.6634 |
| 27-Aug-23 | A44 | NS-92 | NSSB | 39 | 0.3772 |
| 27-Aug-23 | A44 | SC-256 | SLSC | 54 | 1.8978 |
| 27-Aug-23 | A44 | SC-257 | SLSC | 46 | 1.0413 |
| 27-Aug-23 | A44 | SC-258 | SLSC | 68 | 2.5404 |
| 27-Aug-23 | A44 | SC-259 | SLSC | 60 | 1.9315 |
| 27-Aug-23 | A44 | SC-260 | SLSC | 70 | 2.8996 |
| 27-Aug-23 | A44 | SC-261 | SLSC | 81 | 5.0669 |
| 27-Aug-23 | A44 | SC-262 | SLSC | 61 | 2.0432 |
| 27-Aug-23 | A44 | SC-263 | SLSC | 66 | 3.1169 |
| 27-Aug-23 | A44 | SC-264 | SLSC | 81 | 5.3467 |
| 27-Aug-23 | A44 | SC-265 | SLSC | 42 | 0.5804 |
| 27-Aug-23 | A44 | SC-266 | SLSC | 60 | 2.1173 |
| 27-Aug-23 | A44 | SC-267 | SLSC | 55 | 1.2778 |
| 27-Aug-23 | A44 | SC-268 | SLSC | 53 | 1.474 |
| 27-Aug-23 | A44 | SC-269 | SLSC | 53 | 1.2442 |
| 27-Aug-23 | A44 | SC-270 | SLSC | 61 | 1.9006 |
| 27-Aug-23 | A44 | SC-271 | SLSC | 55 | 1.3565 |
| 27-Aug-23 | A44 | SC-272 | SLSC | 72 | 3.5037 |

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 21-Aug-23 | Lake 8 | SC-205 | SLSC | 43 | 0.6176 |
| 21-Aug-23 | Lake 8 | SC-206 | SLSC | 48 | 0.8472 |
| 21-Aug-23 | Lake 8 | SC-207 | SLSC | 43 | 0.5831 |
| 21-Aug-23 | Lake 8 | SC-208 | SLSC | 42 | 0.6078 |
| 21-Aug-23 | Lake 8 | SC-209 | SLSC | 49 | 0.8622 |
| 21-Aug-23 | Lake 8 | SC-210 | SLSC | 39 | 0.4339 |
| 21-Aug-23 | Lake 8 | SC-211 | SLSC | 42 | 0.5167 |
| 21-Aug-23 | Lake 8 | SC-212 | SLSC | 40 | 0.4885 |
| 21-Aug-23 | Lake 8 | SC-213 | SLSC | 41 | 0.5092 |
| 21-Aug-23 | Lake 8 | SC-214 | SLSC | 50 | 1.012 |
| 21-Aug-23 | Lake 8 | SC-215 | SLSC | 62 | 2.1593 |
| 21-Aug-23 | Lake 8 | SC-216 | SLSC | 52 | 1.2629 |
| 21-Aug-23 | Lake 8 | SC-217 | SLSC | 39 | 0.43332 |
| 21-Aug-23 | Lake 8 | SC-218 | SLSC | 41 | 0.4672 |
| 21-Aug-23 | Lake 8 | SC-219 | SLSC | 36 | 0.2872 |
| 21-Aug-23 | Lake 8 | SC-220 | SLSC | 42 | 0.5532 |
| 21-Aug-23 | Lake 8 | SC-221 | SLSC | 50 | 0.8834 |
| 21-Aug-23 | Lake 8 | SC-222 | SLSC | 58 | 1.7798 |
| 21-Aug-23 | Lake 8 | SC-223 | SLSC | 55 | 1.2924 |
| 21-Aug-23 | Lake 8 | SC-224 | SLSC | 63 | 1.8474 |
| 21-Aug-23 | Lake 8 | SC-225 | SLSC | 56 | 1.3683 |
| 21-Aug-23 | Lake 8 | SC-226 | SLSC | 60 | 1.9464 |
| 21-Aug-23 | Lake 8 | SC-227 | SLSC | 45 | 0.6638 |
| 21-Aug-23 | Lake 8 | SC-228 | SLSC | 41 | 0.4816 |
| 21-Aug-23 | Lake 8 | SC-229 | SLSC | 51 | 0.8335 |
| 21-Aug-23 | Lake 8 | SC-230 | SLSC | 67 | 2.1017 |
| 21-Aug-23 | Lake 8 | SC-231 | SLSC | 42 | 0.5502 |
| 21-Aug-23 | Lake 8 | SC-232 | SLSC | 44 | 0.6387 |
| 21-Aug-23 | Lake 8 | SC-233 | SLSC | 50 | 0.9417 |
| 21-Aug-23 | Lake 8 | SC-234 | SLSC | 45 | 0.7039 |
| 21-Aug-23 | Lake 8 | SC-235 | SLSC | 53 | 1.3564 |
| 21-Aug-23 | Lake 8 | SC-236 | SLSC | 41 | 0.5254 |
| 21-Aug-23 | Lake 8 | SC-237 | SLSC | 61 | 1.974 |
| 21-Aug-23 | Lake 8 | SC-238 | SLSC | 45 | 0.5948 |
| 21-Aug-23 | Lake 8 | SC-239 | SLSC | 56 | 1.4733 |
| 21-Aug-23 | Lake 8 | SC-240 | SLSC | 44 | 0.648 |
| 21-Aug-23 | Lake 8 | SC-241 | SLSC | 42 | 0.5147 |
| 21-Aug-23 | Lake 8 | SC-242 | SLSC | 41 | 0.4755 |
| 21-Aug-23 | Lake 8 | SC-243 | SLSC | 40 | 0.4704 |
| 21-Aug-23 | Lake 8 | SC-244 | SLSC | 42 | 0.5807 |
| 21-Aug-23 | Lake 8 | SC-245 | SLSC | 56 | 1.4204 |
| 21-Aug-23 | Lake 8 | SC-246 | SLSC | 54 | 1.1278 |
| 21-Aug-23 | Lake 8 | SC-247 | SLSC | 35 | 0.3546 |
| 21-Aug-23 | Lake 8 | SC-248 | SLSC | 39 | 0.4638 |
| 21-Aug-23 | Lake 8 | SC-249 | SLSC | 40 | 0.5426 |
| 21-Aug-23 | Lake 8 | SC-250 | SLSC | 34 | 0.2839 |
| 21-Aug-23 | Lake 8 | SC-251 | SLSC | 37 | 0.4188 |
| 21-Aug-23 | Lake 8 | SC-252 | SLSC | 37 | 0.5081 |
| 21-Aug-23 | Lake 8 | SC-253 | SLSC | 44 | 0.629 |
| 21-Aug-23 | Lake 8 | SC-254 | SLSC | 46 | 0.8358 |
| 21-Aug-23 | Lake 8 | SC-255 | SLSC | 42 | 0.5991 |
| 20-Aug-23 | Mammoth | SC-1 | SLSC | 55 | 1.27 |
| 20-Aug-23 | Mammoth | SC-2 | SLSC | 50 | 1.07 |
| 20-Aug-23 | Mammoth | SC-3 | SLSC | 41 | 0.5 |
| 20-Aug-23 | Mammoth | SC-4 | SLSC | 42 | 0.51 |
| 20-Aug-23 | Mammoth | SC-5 | SLSC | 44 | 0.58 |
| 20-Aug-23 | Mammoth | SC-6 | SLSC | 44 | 0.7 |
| 20-Aug-23 | Mammoth | SC-7 | SLSC | 46 | 0.69 |
| 20-Aug-23 | Mammoth | SC-8 | SLSC | 47 | 0.76 |
| 20-Aug-23 | Mammoth | SC-9 | SLSC | 39 | 0.4 |
| 20-Aug-23 | Mammoth | SC-10 | SLSC | 37 | 0.3621 |
| 20-Aug-23 | Mammoth | SC-11 | SLSC | 37 | 0.41 |
| 20-Aug-23 | Mammoth | SC-12 | SLSC | 47 | 0.8207 |
| 20-Aug-23 | Mammoth | SC-13 | SLSC | 54 | 1.2879 |
| 20-Aug-23 | Mammoth | SC-14 | SLSC | 56 | 1.3781 |
| 20-Aug-23 | Mammoth | SC-15 | SLSC | 65 | 2.0485 |
| 20-Aug-23 | Mammoth | SC-16 | SLSC | 58 | 1.4814 |
| 20-Aug-23 | Mammoth | SC-17 | SLSC | 52 | 1.0641 |
| 20-Aug-23 | Mammoth | SC-18 | SLSC | 49 | 0.9406 |
| 20-Aug-23 | Mammoth | SC-19 | SLSC | 40 | 0.4908 |
| 20-Aug-23 | Mammoth | SC-20 | SLSC | 37 | 0.3913 |
| 20-Aug-23 | Mammoth | SC-21 | SLSC | 53 | 1.3314 |

**Table C-3: Length and weight data for slimy sculpin (SLSC) and ninespine stickleback (NSSB) retained for measurement after capture through electrofishing in FHOMP study lakes in 2023 (total counts may be higher).**

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 27-Aug-23 | A44 | SC-273 | SLSC | 59 | 2.2165 |
| 27-Aug-23 | A44 | SC-274 | SLSC | 57 | 1.579 |
| 27-Aug-23 | A44 | SC-275 | SLSC | 60 | 2.5773 |
| 27-Aug-23 | A44 | SC-276 | SLSC | 60 | 1.9864 |
| 27-Aug-23 | A44 | SC-277 | SLSC | 52 | 1.2572 |
| 27-Aug-23 | A44 | SC-278 | SLSC | 54 | 1.2822 |
| 27-Aug-23 | A44 | SC-279 | SLSC | 61 | 2.2033 |
| 27-Aug-23 | A44 | SC-280 | SLSC | 44 | 0.7786 |
| 27-Aug-23 | A44 | SC-281 | SLSC | 59 | 1.5399 |
| 27-Aug-23 | A44 | SC-282 | SLSC | 55 | 1.4249 |
| 27-Aug-23 | A44 | SC-283 | SLSC | 46 | 0.791 |
| 27-Aug-23 | A44 | SC-284 | SLSC | 41 | 0.6321 |
| 23-Aug-23 | A63 | NS-38 | NSSB | 49 | 0.6751 |
| 27-Aug-23 | A63 | NS-39 | NSSB | 65 | 1.6069 |
| 23-Aug-23 | A63 | NS-40 | NSSB | 38 | 0.3349 |
| 23-Aug-23 | A63 | NS-41 | NSSB | 39 | 0.359 |
| 27-Aug-23 | A63 | NS-42 | NSSB | 46 | 0.6037 |
| 27-Aug-23 | A63 | NS-18 | NSSB | 52 | 0.8432 |
| 23-Aug-23 | A63 | NS-19 | NSSB | 48 | 0.6776 |
| 23-Aug-23 | A63 | NS-20 | NSSB | 43 | 0.4156 |
| 23-Aug-23 | A63 | NS-21 | NSSB | 37 | 0.3617 |
| 23-Aug-23 | A63 | NS-22 | NSSB | 40 | 0.4483 |
| 23-Aug-23 | A63 | NS-23 | NSSB | 36 | 0.3075 |
| 23-Aug-23 | A63 | NS-24 | NSSB | 32 | 0.2105 |
| 23-Aug-23 | A63 | NS-25 | NSSB | 33 | 0.2195 |
| 23-Aug-23 | A63 | NS-26 | NSSB | 43 | 0.486 |
| 23-Aug-23 | A63 | NS-27 | NSSB | 30 | 0.1878 |
| 23-Aug-23 | A63 | NS-28 | NSSB | 35 | 0.2671 |
| 23-Aug-23 | A63 | NS-29 | NSSB | 36 | 0.3109 |
| 23-Aug-23 | A63 | NS-30 | NSSB | 41 | 0.427 |
| 23-Aug-23 | A63 | NS-31 | NSSB | 39 | 0.3799 |
| 23-Aug-23 | A63 | NS-32 | NSSB | 45 | 0.6031 |
| 23-Aug-23 | A63 | NS-33 | NSSB | 40 | 0.3646 |
| 23-Aug-23 | A63 | NS-34 | NSSB | 46 | 0.5598 |
| 23-Aug-23 | A63 | NS-35 | NSSB | 47 | 0.6532 |
| 23-Aug-23 | A63 | NS-36 | NSSB | 45 | 0.5928 |
| 23-Aug-23 | A63 | NS-37 | NSSB | 48 | 0.6942 |
| 27-Aug-23 | A63 | SC-170 | SLSC | 58 | 1.5704 |
| 27-Aug-23 | A63 | SC-171 | SLSC | 62 | 1.7738 |
| 27-Aug-23 | A63 | SC-172 | SLSC | 66 | 2.7775 |
| 27-Aug-23 | A63 | SC-173 | SLSC | 57 | 1.5686 |
| 27-Aug-23 | A63 | SC-174 | SLSC | 66 | 2.6538 |
| 27-Aug-23 | A63 | SC-175 | SLSC | 76 | 3.9529 |
| 27-Aug-23 | A63 | SC-176 | SLSC | 68 | 2.8981 |
| 27-Aug-23 | A63 | SC-177 | SLSC | 88 | 5.5509 |
| 27-Aug-23 | A63 | SC-178 | SLSC | 84 | 4.1806 |
| 27-Aug-23 | A63 | SC-179 | SLSC | 63 | 2.4291 |
| 27-Aug-23 | A63 | SC-180 | SLSC | 67 | 2.1976 |
| 27-Aug-23 | A63 | SC-181 | SLSC | 62 | 1.8567 |
| 27-Aug-23 | A63 | SC-182 | SLSC | 21 | 0.1046 |
| 27-Aug-23 | A63 | SC-183 | SLSC | 27 | 0.157 |
| 27-Aug-23 | A63 | SC-184a | SLSC | 27 | 0.1634 |
| 27-Aug-23 | A63 | SC-184b | SLSC | 91 | 6.9248 |
| 27-Aug-23 | A63 | SC-185 | SLSC | 81 | 5.1156 |
| 27-Aug-23 | A63 | SC-186 | SLSC | 87 | 6.3156 |
| 27-Aug-23 | A63 | SC-187 | SLSC | 71 | 3.3139 |
| 27-Aug-23 | A63 | SC-188 | SLSC | 66 | 2.5218 |
| 27-Aug-23 | A63 | SC-189 | SLSC | 65 | 2.2046 |
| 27-Aug-23 | A63 | SC-190 | SLSC | 65 | 2.4981 |
| 27-Aug-23 | A63 | SC-191 | SLSC | 51 | 1.1282 |
| 27-Aug-23 | A63 | SC-192 | SLSC | 67 | 2.3425 |
| 27-Aug-23 | A63 | SC-193 | SLSC | 56 | 1.444 |
| 27-Aug-23 | A63 | SC-194 | SLSC | 50 | 0.9559 |
| 27-Aug-23 | A63 | SC-195 | SLSC | 49 | 0.9563 |
| 27-Aug-23 | A63 | SC-196 | SLSC | 27 | 0.256 |
| 27-Aug-23 | A63 | SC-197 | SLSC | 25 | 0.1444 |
| 27-Aug-23 | A63 | SC-198 | SLSC | 27 | 0.2236 |
| 30-Aug-23 | B03 | NS-93 | NSSB | 55 | 1.1047 |
| 30-Aug-23 | B03 | NS-94 | NSSB | 57 | 1.0731 |
| 30-Aug-23 | B03 | SC-285 | SLSC | 51 | 0.9744 |
| 30-Aug-23 | B03 | SC-286 | SLSC | 74 | 3.439 |
| 30-Aug-23 | B03 | SC-287 | SLSC | 72 | 3.1987 |

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 20-Aug-23 | Mammoth | SC-22 | SLSC | 50 | 0.964 |
| 20-Aug-23 | Mammoth | SC-23 | SLSC | 50 | 0.9218 |
| 20-Aug-23 | Mammoth | SC-24 | SLSC | 48 | 0.8358 |
| 20-Aug-23 | Mammoth | SC-25 | SLSC | 42 | 0.5961 |
| 20-Aug-23 | Mammoth | SC-26 | SLSC | 41 | 0.5554 |
| 20-Aug-23 | Mammoth | SC-27 | SLSC | 40 | 0.4921 |
| 20-Aug-23 | Mammoth | SC-28 | SLSC | 41 | 0.5535 |
| 20-Aug-23 | Mammoth | SC-29 | SLSC | 47 | 0.7939 |
| 20-Aug-23 | Mammoth | SC-30 | SLSC | 41 | 0.5406 |
| 20-Aug-23 | Mammoth | SC-31 | SLSC | 49 | 0.8912 |
| 20-Aug-23 | Mammoth | SC-32 | SLSC | 54 | 1.29 |
| 20-Aug-23 | Mammoth | SC-33 | SLSC | 53 | 1.303 |
| 20-Aug-23 | Mammoth | SC-34 | SLSC | 42 | 0.5983 |
| 20-Aug-23 | Mammoth | SC-35 | SLSC | 46 | 0.7365 |
| 20-Aug-23 | Mammoth | SC-36 | SLSC | 39 | 0.4006 |
| 20-Aug-23 | Mammoth | SC-37 | SLSC | 39 | 0.4533 |
| 20-Aug-23 | Mammoth | SC-38 | SLSC | 39 | 0.4925 |
| 20-Aug-23 | Mammoth | SC-39 | SLSC | 38 | 0.447 |
| 20-Aug-23 | Mammoth | SC-40 | SLSC | 39 | 0.4552 |
| 20-Aug-23 | Mammoth | SC-41 | SLSC | 36 | 0.4284 |
| 20-Aug-23 | Mammoth | SC-42 | SLSC | 41 | 0.5327 |
| 20-Aug-23 | Mammoth | SC-43 | SLSC | 38 | 0.4259 |
| 20-Aug-23 | Mammoth | SC-44 | SLSC | 58 | 1.2631 |
| 20-Aug-23 | Mammoth | SC-45 | SLSC | 44 | 0.6793 |
| 20-Aug-23 | Mammoth | SC-46 | SLSC | 51 | 1.0361 |
| 20-Aug-23 | Mammoth | SC-47 | SLSC | 47 | 0.8347 |
| 20-Aug-23 | Mammoth | SC-48 | SLSC | 43 | 0.6601 |
| 20-Aug-23 | Mammoth | SC-49 | SLSC | 37 | 0.3883 |
| 20-Aug-23 | Mammoth | SC-50 | SLSC | 41 | 0.5653 |
| 20-Aug-23 | Mammoth | SC-51 | SLSC | 37 | 0.4126 |
| 20-Aug-23 | Mammoth | SC-52 | SLSC | 39 | 0.5129 |
| 20-Aug-23 | Mammoth | SC-53 | SLSC | 21 | 0.0883 |
| 20-Aug-23 | Mammoth | SC-54 | SLSC | 38 | 0.4282 |
| 20-Aug-23 | WTS | NS-1 | NSSB | 43 | 0.4292 |
| 25-Aug-23 | WTS | NS-43 | NSSB | 42 | 0.4559 |
| 25-Aug-23 | WTS | NS-44 | NSSB | 37 | 0.325 |
| 25-Aug-23 | WTS | NS-45 | NSSB | 44 | 0.567 |
| 25-Aug-23 | WTS | NS-46 | NSSB | 34 | 0.2739 |
| 25-Aug-23 | WTS | NS-47 | NSSB | 45 | 0.6647 |
| 25-Aug-23 | WTS | NS-48 | NSSB | 43 | 0.5696 |
| 25-Aug-23 | WTS | NS-49 | NSSB | 49 | 0.716 |
| 25-Aug-23 | WTS | NS-50 | NSSB | 52 | 1.0272 |
| 25-Aug-23 | WTS | NS-51 | NSSB | 35 | 0.2773 |
| 25-Aug-23 | WTS | NS-52 | NSSB | 47 | 0.7564 |
| 25-Aug-23 | WTS | NS-53 | NSSB | 47 | 0.6705 |
| 25-Aug-23 | WTS | NS-54 | NSSB | 39 | 0.3894 |
| 25-Aug-23 | WTS | NS-55 | NSSB | 36 | 0.2866 |
| 25-Aug-23 | WTS | NS-56 | NSSB | 57 | 1.5451 |
| 26-Aug-23 | WTS | NS-57 | NSSB | 40 | 0.4504 |
| 26-Aug-23 | WTS | NS-58 | NSSB | 39 | 0.4173 |
| 26-Aug-23 | WTS | NS-59 | NSSB | 37 | 0.3535 |
| 26-Aug-23 | WTS | NS-60 | NSSB | 35 | 0.2748 |
| 26-Aug-23 | WTS | NS-61 | NSSB | 41 | 0.4228 |
| 26-Aug-23 | WTS | NS-62 | NSSB | 37 | 0.369 |
| 26-Aug-23 | WTS | NS-63 | NSSB | 35 | 0.2495 |
| 26-Aug-23 | WTS | NS-64 | NSSB | 41 | 0.2419 |
| 26-Aug-23 | WTS | NS-65 | NSSB | 61 | 1.3628 |
| 26-Aug-23 | WTS | NS-66 | NSSB | 54 | 1.0507 |
| 26-Aug-23 | WTS | NS-67 | NSSB | 53 | 0.879 |
| 26-Aug-23 | WTS | NS-68 | NSSB | 58 | 1.1288 |
| 26-Aug-23 | WTS | NS-69 | NSSB | 49 | 0.8157 |
| 26-Aug-23 | WTS | NS-70 | NSSB | 41 | 0.4611 |
| 26-Aug-23 | WTS | NS-71 | NSSB | 64 | 1.5905 |
| 26-Aug-23 | WTS | NS-72 | NSSB | 35 | 0.2789 |
| 26-Aug-23 | WTS | NS-73 | NSSB | 41 | 0.4703 |
| 26-Aug-23 | WTS | NS-74 | NSSB | 66 | 1.7856 |
| 26-Aug-23 | WTS | NS-75 | NSSB | 43 | 0.4918 |
| 26-Aug-23 | WTS | NS-76 | NSSB | 49 | 0.7411 |
| 26-Aug-23 | WTS | NS-77 | NSSB | 30 | 0.2178 |
| 26-Aug-23 | WTS | NS-78 | NSSB | 45 | 0.6194 |
| 26-Aug-23 | WTS | NS-79 | NSSB | 43 | 0.5189 |
| 26-Aug-23 | WTS | NS-80 | NSSB | 31 | 0.2025 |

**Table C-3: Length and weight data for slimy sculpin (SLSC) and ninespine stickleback (NSSB) retained for measurement after capture through electrofishing in FHOMP study lakes in 2023 (total counts may be higher).**

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 30-Aug-23 | B03 | SC-288 | SLSC | 56 | 1.528 |
| 30-Aug-23 | B03 | SC-289 | SLSC | 61 | 1.9417 |
| 30-Aug-23 | B03 | SC-290 | SLSC | 45 | 0.7941 |
| 30-Aug-23 | B03 | SC-291 | SLSC | 44 | 0.7821 |
| 30-Aug-23 | B03 | SC-292 | SLSC | 62 | 2.2225 |
| 30-Aug-23 | B03 | SC-293 | SLSC | 54 | 1.2311 |
| 30-Aug-23 | B03 | SC-294 | SLSC | 57 | 1.7333 |
| 30-Aug-23 | B03 | SC-295 | SLSC | 67 | 2.7794 |
| 30-Aug-23 | B03 | SC-296 | SLSC | 39 | 0.4608 |
| 30-Aug-23 | B03 | SC-297 | SLSC | 40 | 0.4912 |
| 30-Aug-23 | B03 | SC-298 | SLSC | 41 | 0.7055 |
| 30-Aug-23 | B03 | SC-299 | SLSC | 45 | 0.8217 |
| 30-Aug-23 | B03 | SC-300 | SLSC | 46 | 0.875 |
| 30-Aug-23 | B03 | SC-301 | SLSC | 65 | 2.9392 |
| 30-Aug-23 | B03 | SC-302 | SLSC | 42 | 0.6557 |
| 30-Aug-23 | B03 | SC-303 | SLSC | 42 | 0.6885 |
| 30-Aug-23 | B03 | SC-304 | SLSC | 60 | 1.8652 |
| 30-Aug-23 | B03 | SC-305 | SLSC | 52 | 1.4039 |
| 30-Aug-23 | B03 | SC-306 | SLSC | 49 | 1.0199 |
| 30-Aug-23 | B03 | SC-307 | SLSC | 55 | 1.3031 |
| 30-Aug-23 | B03 | SC-308 | SLSC | 66 | 2.3577 |
| 30-Aug-23 | B03 | SC-309 | SLSC | 41 | 0.5342 |
| 30-Aug-23 | B03 | SC-310 | SLSC | 50 | 1.1516 |
| 30-Aug-23 | B03 | SC-311 | SLSC | 64 | 2.3754 |
| 30-Aug-23 | B03 | SC-312 | SLSC | 42 | 0.6276 |
| 30-Aug-23 | B03 | SC-313 | SLSC | 39 | 0.5506 |
| 30-Aug-23 | B03 | SC-314 | SLSC | 46 | 0.7818 |
| 30-Aug-23 | B03 | SC-315 | SLSC | 42 | 0.5014 |

| Date | Lake | Fish ID | Species | Total Length (mm) | Weight (g) |
|---|---|---|---|---|---|
| 26-Aug-23 | WTS | NS-81 | NSSB | 47 | 0.7151 |
| 26-Aug-23 | WTS | NS-82 | NSSB | 31 | 0.1882 |
| 26-Aug-23 | WTS | NS-83 | NSSB | 29 | 0.1541 |
| 26-Aug-23 | WTS | NS-84 | NSSB | 39 | 0.3668 |
| 23-Aug-23 | WTS | NS-85 | NSSB | 29 | 0.1963 |
| 20-Aug-23 | WTS | SC-55 | SLSC | 40 | 0.5763 |
| 20-Aug-23 | WTS | SC-56 | SLSC | 46 | 0.8078 |
| 20-Aug-23 | WTS | SC-57 | SLSC | 49 | 0.9535 |
| 20-Aug-23 | WTS | SC-58 | SLSC | 51 | 1.131 |
| 20-Aug-23 | WTS | SC-59 | SLSC | 48 | 0.9452 |
| 20-Aug-23 | WTS | SC-60 | SLSC | 42 | 0.4896 |
| 20-Aug-23 | WTS | SC-61 | SLSC | 46 | 0.9196 |
| 20-Aug-23 | WTS | SC-62 | SLSC | 40 | 0.5798 |
| 20-Aug-23 | WTS | SC-63 | SLSC | 47 | 0.8603 |
| 20-Aug-23 | WTS | SC-64 | SLSC | 44 | 0.7398 |
| 20-Aug-23 | WTS | SC-65 | SLSC | 82 | 4.3482 |
| 20-Aug-23 | WTS | SC-66 | SLSC | 62 | 1.8559 |
| 20-Aug-23 | WTS | SC-67 | SLSC | 73 | 2.8399 |
| 20-Aug-23 | WTS | SC-68 | SLSC | 56 | 1.4178 |
| 20-Aug-23 | WTS | SC-69 | SLSC | 53 | 1.127 |
| 20-Aug-23 | WTS | SC-70 | SLSC | 67 | 2.9832 |
| 20-Aug-23 | WTS | SC-71 | SLSC | 60 | 1.9424 |
| 20-Aug-23 | WTS | SC-72 | SLSC | 41 | 0.6105 |
| 20-Aug-23 | WTS | SC-73 | SLSC | 60 | 1.7969 |
| 20-Aug-23 | WTS | SC-74 | SLSC | 56 | 1.457 |
| 20-Aug-23 | WTS | SC-75 | SLSC | 54 | 1.3272 |
| 20-Aug-23 | WTS | SC-76 | SLSC | 49 | 0.9735 |
| 20-Aug-23 | WTS | SC-78 | SLSC | 39 | 0.4743 |
| 20-Aug-23 | WTS | SC-79 | SLSC | 52 | 1.2888 |
| 20-Aug-23 | WTS | SC-80 | SLSC | 55 | 1.4832 |
| 20-Aug-23 | WTS | SC-81 | SLSC | 46 | 0.8014 |
| 20-Aug-23 | WTS | SC-82 | SLSC | 50 | 1.0642 |
| 20-Aug-23 | WTS | SC-83 | SLSC | 32 | 0.3152 |
| 25-Aug-23 | WTS | SC-199 | SLSC | 44 | 0.6538 |
| 25-Aug-23 | WTS | SC-200 | SLSC | 37 | 0.3718 |
| 25-Aug-23 | WTS | SC-201 | SLSC | 41 | 0.5083 |
| 25-Aug-23 | WTS | SC-202 | SLSC | 57 | 1.3831 |
| 25-Aug-23 | WTS | SC-203 | SLSC | 71 | 2.9431 |
| 25-Aug-23 | WTS | SC-204 | SLSC | 28 | 0.2589 |

**Table C-4: Individual fish characteristics for lake trout captured through gillnetting in 2023. [1]See codes at bottom of table.**

| FISH ID | Date | Lake | Net Set | Length (mm) | Weight (g) | Liver weight (g) | Gonad weight (g) | Sex[1] | Maturity[1] | Gonad condition[1] | Egg Sample Weight (g) | Egg Count | Stomach contents[1] | DELTs and parasites |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LT-1 | 2023-08-21 | Lake 1 | Gill net 2 | 505 | 1360 | 15.01 | 14.19 | F | I | U | | | Z | EC |
| LT-2 | 2023-08-21 | Lake 1 | Gill net 2 | 611 | 2365 | 29.66 | 2.49 | M | I | U | | | UNIDENTIFIED FISH | EC |
| LT-3 | 2023-08-21 | Lake 1 | Gill net 2 | 480 | 638 | 9.57 | 1.87 | F | I | U | | | RW | EC |
| LT-4 | 2023-08-21 | Lake 1 | Gill net 2 | 398 | 741 | 8.07 | 0.25 | F | I | U | | | E | EC |
| LT-5 | 2023-08-21 | Lake 1 | Gill net 2 | 450 | 1079 | 12.28 | 6.61 | F | I | U | | | E | EC |
| LT-6 | 2023-08-21 | Lake 1 | Gill net 2 | 422 | 809 | 8.29 | 3.12 | F | I | U | | | E | EC |
| LT-7 | 2023-08-21 | Lake 1 | Gill net 2 | 326 | 332 | 3.96 | 0.18 | U | I | U | | | 6 NS | |
| LT-8 | 2023-08-21 | Lake 1 | Gill net 2 | 193 | 80.76 | 0.9 | | U | I | U | | | E | EC |
| LT-9 | 2023-08-21 | Lake 1 | Gill net 2 | 180 | 64.33 | 0.74 | | U | I | U | | | E | EC |
| LT-10 | 2023-08-21 | Lake 1 | Gill net 2 | 184 | 66.08 | 0.57 | | U | I | U | | | E | EC |
| LT-11 | 2023-08-21 | Lake 1 | Gill net 2 | 791 | 6580 | 98.28 | 76.65 | F | M | U | | | RW | EC |
| LT-12 | 2023-08-21 | Lake 1 | Gill net 1 | 510 | 1253 | 10.28 | 0.61 | M | I | U | | | E | EC |
| LT-13 | 2023-08-21 | Lake 1 | Gill net 1 | 435 | 789 | 7.38 | 0.1 | U | I | U | | | E | EC |
| LT-14 | 2023-08-21 | Lake 1 | Gill net 1 | 457 | 1034 | 7.57 | 6.65 | F | I | RST | | | E | EC |
| LT-15 | 2023-08-21 | Lake 1 | Gill net 1 | 429 | 958 | 8.14 | 23.03 | M | M | RST | | | E | EC |
| LT-16 | 2023-08-21 | Lake 1 | Gill net 1 | 379 | 534 | 5.48 | 0.8 | F | I | U | | | Z | EC |
| LT-17 | 2023-08-21 | Lake 1 | Gill net 1 | 543 | 1702 | 19.39 | 1.94 | M | I | U | | | E | EC |
| LT-18 | 2023-08-21 | Lake 1 | Gill net 1 | 563 | 1732 | 13.42 | 19.4 | F | I | RST | | | E | EC |
| LT-19 | 2023-08-21 | Lake 1 | Gill net 1 | 586 | 2102 | 15.7 | 49.23 | M | M | RST | | | E | EC |
| LT-20 | 2023-08-21 | Lake 1 | Gill net 1 | 563 | 1758 | 16.5 | 10.67 | F | I | U | | | E | EC |
| LT-21 | 2023-08-21 | Lake 1 | Gill net 1 | 459 | 1055 | 21.26 | 114.47 | F | M | R | 68.69 | 495 | Z | EC |
| LT-22 | 2023-08-21 | Lake 1 | Gill net 1 | 454 | 974 | 10.36 | 7.23 | F | I | RST | | | E | EC |
| LT-23 | 2023-08-21 | Lake 1 | Gill net 1 | 644 | 2925 | 27.11 | 34.25 | F | M | RST | | | E | EC |
| LT-24 | 2023-08-21 | Lake 1 | Gill net 1 | 360 | 504 | 4.88 | 0.92 | F | I | U | | | E | EC |
| LT-25 | 2023-08-21 | Lake 1 | Gill net 1 | 602 | 2249 | 16.23 | 18.74 | F | M | RST | | | E | EC |
| LT-26 | 2023-08-21 | Lake 1 | Gill net 1 | 637 | 2738 | 17.39 | 30.92 | M | M | RST | | | E | EC |
| LT-27 | 2023-08-21 | Lake 1 | Gill net 1 | 447 | 865 | 7.11 | 4.21 | F | I | U | | | E | EC |
| LT-28 | 2023-08-21 | Lake 1 | Gill net 1 | 861 | 8660 | 118.58 | 134.39 | F | M | RST | | | LT | EC |
| LT-29 | 2023-08-21 | Lake 1 | Gill net 1 | 800 | 6600 | 78.6 | 203 | M | M | RST | | | NS AND UNIDENTIFIED FISH | |
| LT-30 | 2023-08-21 | Lake 1 | Gill net 1 | 629 | 5920 | 43.43 | 55.17 | M | M | RST | | | E | |
| LT-31 | 2023-08-21 | Lake 1 | Gill net 1 | 774 | 5570 | 56.76 | 69.38 | F | M | RST | | | E | EC |
| LT-32 | 2023-08-21 | Lake 1 | Gill net 1 | 645 | 3339 | 35.26 | 3.36 | M | I | U | | | E | |
| LT-33 | 2023-08-21 | Lake 1 | Gill net 1 | 709 | 4116 | 51.27 | 48.5 | F | M | RST | | | E | EC |
| LT-34 | 2023-08-19 | Mammoth | Gill net 2 | 396 | 655 | 4.99 | 21.74 | M | M | RST | | | I | EC |
| LT-35 | 2023-08-19 | Mammoth | Gill net 2 | 296 | 292 | 2.68 | 0.25 | F | I | U | | | Z | |
| LT-36 | 2023-08-19 | Mammoth | Gill net 2 | 254 | 196 | 2.47 | 0.17 | M | I | U | | | E | EC |
| LT-37 | 2023-08-19 | Mammoth | Gill net 2 | 243 | 179 | 1.53 | 0.02 | U | I | U | | | Z | EC |
| LT-38 | 2023-08-19 | Mammoth | Gill net 2 | 222 | 111 | 1.24 | 0.03 | U | I | U | | | E | |
| LT-39 | 2023-08-19 | Mammoth | Gill net 2 | 187 | 62.25 | 0.46 | | U | I | U | | | E | EC |
| LT-40 | 2023-08-19 | Mammoth | Gill net 2 | 876 | 8430 | 126.81 | 993 | F | M | R | 57.79 | 512 | E | |
| LT-41 | 2023-08-19 | Mammoth | Gill net 1 | 564 | 2085 | 27.09 | 22.94 | F | M | RST | | | E | |
| LT-42 | 2023-08-19 | Mammoth | Gill net 1 | 382 | 550 | 4.15 | 0.26 | M | I | U | | | E | EC |
| LT-43 | 2023-08-19 | Mammoth | Gill net 1 | 390 | 608 | 3.3 | 0.39 | M | I | U | | | I | EC |
| LT-44 | 2023-08-19 | Mammoth | Gill net 1 | 393 | 637 | 4.01 | 14.73 | M | M | RST | | | I | EC |
| LT-45 | 2023-08-19 | Mammoth | Gill net 1 | 370 | 562 | 4.25 | 20.63 | M | M | RST | | | I | EC |
| LT-46 | 2023-08-19 | Mammoth | Gill net 1 | 378 | 558 | 3.13 | 9.96 | F | M | RST | | | I | EC |
| LT-47 | 2023-08-19 | Mammoth | Gill net 1 | 383 | 584 | 3.75 | 17.7 | M | M | RST | | | I,Z | EC |
| LT-48 | 2023-08-19 | Mammoth | Gill net 1 | 478 | 1144 | 7.23 | 0.98 | M | I | U | | | E | EC |
| LT-49 | 2023-08-19 | Mammoth | Gill net 1 | 415 | 710 | 4.63 | 6.99 | F | I | U | | | E | EC |
| LT-50 | 2023-08-19 | Mammoth | Gill net 1 | 348 | 510 | 3.08 | 11.85 | M | M | RST | | | Z | EC |
| LT-51 | 2023-08-19 | Mammoth | Gill net 1 | 550 | 1504 | 9.72 | 10.79 | F | I | U | | | E | EC |
| LT-52 | 2023-08-19 | Mammoth | Gill net 1 | 415 | 680 | 7.6 | 0.2 | M | I | U | | | 1 SCULPIN | EC |

**Table C-4: Individual fish characteristics for lake trout captured through gillnetting in 2023. [1]See codes at bottom of table.**

| FISH ID | Date | Lake | Net Set | Length (mm) | Weight (g) | Liver weight (g) | Gonad weight (g) | Sex[1] | Maturity[1] | Gonad condition[1] | Egg Sample Weight (g) | Egg Count | Stomach contents[1] | DELTs and parasites |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LT-53 | 2023-08-19 | Mammoth | Gill net 1 | 426 | 732 | 4.93 | 3.35 | F | I | U | | | E | EC |
| LT-54 | 2023-08-19 | Mammoth | Gill net 1 | 435 | 826 | 6.81 | 8.55 | F | I | U | | | E | EC |
| LT-55 | 2023-08-19 | Mammoth | Gill net 1 | 338 | 472 | 2.97 | 1.75 | F | I | U | | | Z | EC |
| LT-56 | 2023-08-19 | Mammoth | Gill net 1 | 355 | 520 | 2.94 | 10.64 | M | M | RST | | | I | EC |
| LT-57 | 2023-08-19 | Mammoth | Gill net 1 | 340 | 484 | 3.41 | 2.08 | F | I | U | | | I, 1 SCULPIN | EC |
| LT-58 | 2023-08-19 | Mammoth | Gill net 1 | 374 | 534 | 3.38 | 10.64 | F | M | RST | | | Z | EC |
| LT-59 | 2023-08-19 | Mammoth | Gill net 1 | 299 | 258 | 2.12 | 0.43 | F | I | U | | | E | EC |
| LT-60 | 2023-08-19 | Mammoth | Gill net 1 | 286 | 290 | 2.83 | 0.13 | F | I | U | | | Z | EC |
| LT-61 | 2023-08-19 | Mammoth | Gill net 1 | 210 | 96.86 | 0.93 | 0.13 | F | I | U | | | E | EC |
| LT-62 | 2023-08-19 | Mammoth | Gill net 1 | 231 | 125.77 | 0.75 | | U | I | U | | | JUVENILE BURBOT REMAINS | EC |
| LT-63 | 2023-08-19 | Mammoth | Gill net 1 | 146 | 32.97 | 0.22 | | U | I | U | | | E | EC |
| LT-64 | 2023-08-19 | Mammoth | Gill net 1 | 159 | 43.99 | 0.49 | | U | I | U | | | E | EC |
| LT-65 | 2023-08-21 | Lake 8 | Gill net 1 | 464 | 1025 | 6.81 | 21.13 | M | M | RST | | | Z,I | EC |
| LT-66 | 2023-08-21 | Lake 8 | Gill net 1 | 498 | 1167 | 10.34 | 14.69 | F | M | RST | | | Z,I | EC |
| LT-67 | 2023-08-21 | Lake 8 | Gill net 1 | 500 | 1046 | 8.24 | 13.75 | F | M | RST | | | Z,I | EC |
| LT-68 | 2023-08-21 | Lake 8 | Gill net 1 | 407 | 845 | 9.55 | 5.93 | F | I | U | | | Z | EC |
| LT-69 | 2023-08-21 | Lake 8 | Gill net 1 | 405 | 768 | 9.36 | 3.36 | F | I | U | | | Z | EC |
| LT-70 | 2023-08-21 | Lake 8 | Gill net 1 | 439 | 893 | 5.5 | 23.65 | M | M | RST | | | 1 SC | EC |
| LT-71 | 2023-08-21 | Lake 8 | Gill net 1 | 392 | 664 | 6.14 | 0.45 | M | I | U | | | Z,I | EC |
| LT-72 | 2023-08-21 | Lake 8 | Gill net 1 | 261 | 173.18 | 1.52 | 0.05 | U | I | U | | | E | EC |
| LT-73 | 2023-08-21 | Lake 8 | Gill net 1 | 233 | 127.38 | 0.66 | | U | I | U | | | Z | EC |
| LT-74 | 2023-08-21 | Lake 8 | Gill net 1 | 241 | 147.99 | 1.2 | 0.31 | M | I | U | | | Z | EC |
| LT-75 | 2023-08-21 | Lake 8 | Gill net 1 | 190 | 66.63 | 0.57 | 0.07 | F | I | U | | | Z | |
| LT-76 | 2023-08-21 | Lake 8 | Gill net 1 | 200 | 83.45 | 0.74 | | U | I | U | | | Z | EC |
| LT-77 | 2023-08-21 | Lake 8 | Gill net 1 | 181 | 63.62 | 0.83 | | U | I | U | | | Z | EC |
| LT-78 | 2023-08-21 | Lake 8 | Gill net 1 | 188 | 65.3 | 0.64 | | U | I | U | | | Z,1 | |
| LT-79 | 2023-08-21 | Lake 8 | Gill net 1 | 178 | 57.07 | 0.44 | | U | I | U | | | Z | |
| LT-80 | 2023-08-21 | Lake 8 | Gill net 1 | 179 | 60.3 | 0.7 | | U | I | U | | | Z | EC |
| LT-81 | 2023-08-21 | Lake 8 | Gill net 2 | 486 | 1170 | 7.34 | 23.46 | M | M | RST | | | I | |
| LT-82 | 2023-08-21 | Lake 8 | Gill net 2 | 501 | 1416 | 14.55 | 23.25 | F | M | RST | | | Z,I | |
| LT-83 | 2023-08-21 | Lake 8 | Gill net 2 | 439 | 977 | 7.85 | 6.62 | F | I | U | | | Z,I | EC |
| LT-84 | 2023-08-21 | Lake 8 | Gill net 2 | 496 | 1233 | 11.69 | 15.83 | F | M | RST | | | Z,I | EC |
| LT-85 | 2023-08-21 | Lake 8 | Gill net 2 | 423 | 880 | 12.7 | 2.83 | F | I | U | | | Z,I | EC |
| LT-86 | 2023-08-21 | Lake 8 | Gill net 2 | 454 | 1052 | 10.02 | 1.27 | M | I | U | | | Z,I | |
| LT-87 | 2023-08-21 | Lake 8 | Gill net 2 | 461 | 1070 | 8.72 | 24.46 | M | M | RST | | | Z,I | EC |
| LT-88 | 2023-08-21 | Lake 8 | Gill net 2 | 479 | 1170 | 9.63 | 28.97 | M | M | RST | | | Z,I | |
| LT-89 | 2023-08-21 | Lake 8 | Gill net 2 | 487 | 1095 | 9.93 | 14.42 | F | M | RST | | | Z,I | EC |
| LT-90 | 2023-08-21 | Lake 8 | Gill net 2 | 512 | 1510 | 13.75 | 16.15 | F | M | RST | | | LAKE TROUT AND UNIDENTIFIED SMALL FISH | EC |
| LT-91 | 2023-08-21 | Lake 8 | Gill net 2 | 377 | 565 | 8.54 | 0.41 | M | I | U | | | Z | EC |
| LT-92 | 2023-08-21 | Lake 8 | Gill net 2 | 520 | 1304 | 12.54 | 7.84 | F | M | RST | | | Z | EC |
| LT-93 | 2023-08-21 | Lake 8 | Gill net 2 | 240 | 140.27 | 1.31 | | U | I | U | | | E | |
| LT-94 | 2023-08-21 | Lake 8 | Gill net 2 | 190 | 71.93 | 0.73 | | U | I | U | | | Z | |
| LT-95 | 2023-08-21 | Lake 8 | Gill net 2 | 134 | 23.61 | 0.27 | | U | I | U | | | E | |
| LT-96 | 2023-08-24 | Whale Tail South | Gill net 2 | 635 | 2334 | 24.49 | 18.81 | F | M | RST | | | E | |
| LT-97 | 2023-08-24 | Whale Tail South | Gill net 2 | 440 | 962 | 14.37 | 118.12 | F | M | R | 40.31 | 407 | E | EC |
| LT-98 | 2023-08-24 | Whale Tail South | Gill net 2 | 445 | 1058 | 9.78 | 41.87 | M | M | RST | | | Z | EC |
| LT-99 | 2023-08-24 | Whale Tail South | Gill net 2 | 393 | 762 | 7.08 | 12.34 | M | M | RST | | | Z | EC |
| LT-100 | 2023-08-24 | Whale Tail South | Gill net 2 | 443 | 1035 | 9.31 | 28.53 | M | M | RST | | | Z | EC |
| LT-101 | 2023-08-24 | Whale Tail South | Gill net 2 | 425 | 1035 | 18.66 | 118.61 | F | M | R | 39.98 | 337 | FINGERNAIL CLAMS AND Z | EC |
| LT-102 | 2023-08-24 | Whale Tail South | Gill net 2 | 424 | 897 | 9.14 | 25.13 | M | M | RST | | | Z | EC |

Table C-4: Individual fish characteristics for lake trout captured through gillnetting in 2023. [1]See codes at bottom of table.

| FISH ID | Date | Lake | Net Set | Length (mm) | Weight (g) | Liver weight (g) | Gonad weight (g) | Sex[1] | Maturity[1] | Gonad condition[1] | Egg Sample Weight (g) | Egg Count | Stomach contents[1] | DELTs and parasites |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LT-103 | 2023-08-24 | Whale Tail South | Gill net 2 | 456 | 1143 | 12.04 | 30.11 | M | M | RST | | | FINGERNAIL CLAMS AND Z | EC |
| LT-104 | 2023-08-24 | Whale Tail South | Gill net 2 | 403 | 753 | 7.09 | 11.58 | M | M | RST | | | Z | EC |
| LT-105 | 2023-08-24 | Whale Tail South | Gill net 2 | 350 | 486 | 4.75 | 0.86 | F | I | U | | | E | |
| LT-106 | 2023-08-24 | Whale Tail South | Gill net 2 | 333 | 430 | 3.49 | 0.55 | F | I | U | | | Z AND 1 NINESPINE | EC |
| LT-107 | 2023-08-24 | Whale Tail South | Gill net 2 | 267 | 251 | 3.14 | 0.25 | F | I | U | | | Z | EC |
| LT-108 | 2023-08-24 | Whale Tail South | Gill net 2 | 282 | 264 | 2.28 | 0.09 | M | I | U | | | E | EC |
| LT-109 | 2023-08-24 | Whale Tail South | Gill net 2 | 264 | 240 | 3 | 0.02 | M | I | U | | | Z | |
| LT-110 | 2023-08-24 | Whale Tail South | Gill net 2 | 250 | 192 | 1.89 | 0.21 | F | I | U | | | Z | EC |
| LT-111 | 2023-08-24 | Whale Tail South | Gill net 2 | 241 | 146 | 0.94 | | U | I | U | | | E | EC |
| LT-112 | 2023-08-24 | Whale Tail South | Gill net 2 | 131 | 20.6 | 0.22 | | U | I | U | | | E | EC |
| LT-113 | 2023-08-24 | Whale Tail South | Gill net 2 | 750 | 5130 | 55.1 | 126.62 | M | M | R | | | E | EC |
| LT-114 | 2023-08-24 | Whale Tail South | Gill net 1 | 469 | 1057 | 9.57 | 3.41 | F | I | U | | | E | EC |
| LT-115 | 2023-08-24 | Whale Tail South | Gill net 1 | 420 | 943 | 8.2 | 23.52 | M | M | R | | | Z | EC |
| LT-116 | 2023-08-24 | Whale Tail South | Gill net 1 | 392 | 689 | 5.32 | 3.63 | F | I | U | | | Z | EC |
| LT-117 | 2023-08-24 | Whale Tail South | Gill net 1 | 561 | 2245 | 35.63 | 306 | F | M | R | 51.6 | 388 | E | |
| LT-118 | 2023-08-24 | Whale Tail South | Gill net 1 | 426 | 883 | 5.83 | 24.87 | M | M | RST | | | UNIDENTIFIED FISH EMAINS | EC |
| LT-119 | 2023-08-24 | Whale Tail South | Gill net 1 | 347 | 498 | 3.74 | 0.88 | F | I | U | | | E | EC |
| LT-120 | 2023-08-24 | Whale Tail South | Gill net 1 | 435 | 975 | 11.66 | 136.82 | F | M | R | 50.37 | 514 | I | EC |
| LT-121 | 2023-08-24 | Whale Tail South | Gill net 1 | 385 | 569 | 4.09 | 0.45 | M | I | U | | | 1 NINESPINE | EC |
| LT-122 | 2023-08-24 | Whale Tail South | Gill net 1 | 243 | 155 | 1.78 | | U | I | U | | | E | EC |
| LT-123 | 2023-08-24 | Whale Tail South | Gill net 1 | 214 | 104 | 1.33 | | U | I | U | | | I | EC |
| LT-124 | 2023-08-24 | Whale Tail South | Gill net 1 | 255 | 186 | 1.82 | | U | I | U | | | Z | EC |
| LT-125 | 2023-08-24 | Whale Tail South | Gill net 1 | 246 | 149 | 1.36 | | U | I | U | | | E | EC |
| LT-126 | 2023-08-24 | Whale Tail South | Gill net 1 | 221 | 139 | 2 | 0.18 | F | I | U | | | Z | |
| LT-127 | 2023-08-24 | Whale Tail South | Gill net 1 | 236 | 169 | 1.68 | | U | I | U | | | Z | |
| LT-128 | 2023-08-24 | Whale Tail South | Gill net 1 | 878 | 8760 | 57.16 | 286 | M | M | RST | | | E | EC |
| LT-129 | 2023-08-24 | Whale Tail South | Gill net 1 | 731 | 5210 | 61.91 | 70.04 | F | M | RST | | | E | EC |
| LT-130 | 2023-08-24 | Whale Tail South | Gill net 1 | 305 | 318 | 2.96 | | U | I | U | | | Z | EC |
| LT-131 | 2023-08-24 | Whale Tail South | Gill net 1 | 284 | 256 | 2.29 | 0.36 | M | I | U | | | Z | EC |
| LT-132 | 2023-08-24 | Whale Tail South | Gill net 1 | 282 | 218 | 2.28 | | U | I | U | | | Z | EC |
| LT-133 | 2023-08-24 | Whale Tail South | Gill net 1 | 241 | 175 | 2.06 | | U | I | U | | | UNIDENTIFIED FISH REMAINS AND Z | EC |
| LT-134 | 2023-08-24 | Whale Tail South | Gill net 1 | 212 | 108 | 1.26 | | U | I | U | | | Z | |
| LT-135 | 2023-08-24 | Whale Tail South | Gill net 1 | 225 | 117 | 1.26 | | U | I | U | | | Z | EC |
| LT-136 | 2023-08-24 | Whale Tail South | Gill net 1 | 206 | 108 | 1.58 | | U | I | U | | | Z | EC |
| LT-137 | 2023-08-24 | Whale Tail South | Gill net 1 | 177 | 64 | 0.55 | | U | I | U | | | Z,I | EC |
| LT-138 | 2023-08-24 | Whale Tail South | Gill net 1 | 193 | 80 | 0.72 | | U | I | U | | | E | |
| LT-139 | 2023-08-24 | Whale Tail South | Gill net 1 | 193 | 76 | 0.57 | | U | I | U | | | E | EC |
| LT-140 | 2023-08-24 | Whale Tail South | Gill net 1 | 172 | 57 | 0.46 | | U | I | U | | | 3 NINESPINE | EC |
| LT-141 | 2023-08-25 | A-20 | Gill net 1 | 358 | 530 | 5.99 | 2.21 | F | I | U | | | Z | EC |
| LT-142 | 2023-08-25 | A-20 | Gill net 1 | 344 | 434 | 4.5 | 0.76 | F | I | U | | | 2 NINESPINE | EC |
| LT-143 | 2023-08-25 | A-20 | Gill net 1 | 370 | 552 | 4.3 | 1.69 | F | I | U | | | E | |
| LT-144 | 2023-08-25 | A-20 | Gill net 1 | 375 | 631 | 6.26 | 4.91 | F | I | U | | | E | EC |
| LT-145 | 2023-08-25 | A-20 | Gill net 1 | 473 | 1194 | 9.79 | 19.03 | M | M | RST | | | E | EC |
| LT-146 | 2023-08-25 | A-20 | Gill net 1 | 559 | 1852 | 20.47 | 38.57 | M | M | R | | | E | EC |
| LT-147 | 2023-08-25 | A-20 | Gill net 1 | 372 | 583 | 5.32 | 0.36 | M | I | U | | | Z | |
| LT-148 | 2023-08-25 | A-20 | Gill net 1 | 470 | 1305 | 18.19 | 9.92 | F | I | U | | | 1 ROUND WHITEFISH | EC |
| LT-149 | 2023-08-25 | A-20 | Gill net 1 | 467 | 1178 | 7.19 | 21.01 | M | M | RST | | | E | EC |
| LT-150 | 2023-08-25 | A-20 | Gill net 1 | 425 | 785 | 5.18 | 4.04 | F | I | U | | | E | EC |
| LT-151 | 2023-08-25 | A-20 | Gill net 1 | 425 | 802 | 5.7 | 0.8 | M | I | U | | | 1 NINESPINE | EC |

**Table C-4: Individual fish characteristics for lake trout captured through gillnetting in 2023. [1]See codes at bottom of table.**

| FISH ID | Date | Lake | Net Set | Length (mm) | Weight (g) | Liver weight (g) | Gonad weight (g) | Sex[1] | Maturity[1] | Gonad condition[1] | Egg Sample Weight (g) | Egg Count | Stomach contents[1] | DELTs and parasites |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LT-152 | 2023-08-25 | A-20 | Gill net 1 | 323 | 418 | 3.88 | 0.25 | M | I | U | | | Z | EC |
| LT-153 | 2023-08-25 | A-20 | Gill net 1 | 375 | 611 | 5.49 | 3.7 | F | I | U | | | E | EC |
| LT-154 | 2023-08-25 | A-20 | Gill net 1 | 413 | 832 | 5.56 | 20.24 | M | M | R | | | E | EC |
| LT-155 | 2023-08-25 | A-20 | Gill net 1 | 400 | 737 | 5.87 | 13.45 | F | I | U | | | UNIDENTIFIED FISH REMAINS | EC |
| LT-156 | 2023-08-25 | A-20 | Gill net 1 | 415 | 839 | 5.65 | 20.36 | M | M | R | | | Z | EC |
| LT-157 | 2023-08-25 | A-20 | Gill net 1 | 337 | 468 | 3.02 | 0.15 | M | I | U | | | Z | EC |
| LT-158 | 2023-08-25 | A-20 | Gill net 1 | 238 | 155 | 1.72 | 0.28 | F | I | U | | | E | EC |
| LT-159 | 2023-08-25 | A-20 | Gill net 1 | 256 | 126 | 1.06 | | U | I | U | | | E | EC |
| LT-160 | 2023-08-25 | A-20 | Gill net 1 | 236 | 142 | 1.07 | | U | I | U | | | UNIDENTIFIED FISH REMAINS | |
| LT-161 | 2023-08-25 | A-20 | Gill net 1 | 749 | 4731 | 36.73 | 41.99 | M | M | RST | | | E | EC |
| LT-162 | 2023-08-25 | A-20 | Gill net 1 | 652 | 3928 | 39.46 | 122.45 | M | M | R | | | E | EC |
| LT-163 | 2023-08-25 | A-20 | Gill net 1 | 647 | 2711 | 31.97 | 43.15 | M | M | R | | | E | |
| LT-164 | 2023-08-25 | A-20 | Gill net 2 | 494 | 1286 | 13.77 | 12.36 | F | I | U | | | E | |
| LT-165 | 2023-08-25 | A-20 | Gill net 2 | 507 | 1362 | 19.13 | 1.06 | M | I | U | | | 1 ROUND WHITEFISH | EC |
| LT-166 | 2023-08-25 | A-20 | Gill net 2 | 415 | 719 | 6.44 | 12.49 | M | M | R | | | E | |
| LT-167 | 2023-08-25 | A-20 | Gill net 2 | 261 | 182 | 1.36 | | U | I | U | | | E | EC |
| Codes: | | | | | | | | F = female<br>M = male<br>U = unidentified | I = immature<br>M = mature | U = unidentified<br>RST = resting<br>R = ripe | | | Z = zooplankton<br>I = invertebrates<br>E = empty<br>RW = round whitefish<br>NS = ninespine stickleback<br>LT = lake trout | |