AGNICO EAGLE

Meliadine Extension

Fish and Fish Habitat Field Program, 2020 to 2021

December 2021

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The business of sustainability

ERM

December 2021

Meliadine Extension

Fish and Fish Habitat Field Program, 2020 to 2021

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EXECUTIVE SUMMARY

ERM Consultants Canada Ltd. (ERM) was retained by Agnico Eagle Mines Limited (Agnico Eagle) to collect fisheries data to support planning for the proposed Meliadine Extension. As part of the pre-development studies for the Meliadine Project, fish and fish habitat resources within the proposed boundary of the Project were characterized between 1997 and 2012 in Agnico Eagle's Final Environmental Impact Statement for the Meliadine Gold Mine Project (Agnico Eagle 2014). The majority of available data have not been updated since that time. In a gap analysis completed by ERM in March 2020, it was recommended that existing conditions be updated for waterbodies in and adjacent to the Meliadine Extension to inform avoidance, mitigation and assessment of unavoidable impacts to fish habitat (ERM 2020).

The objectives of the 2020 and 2021 fisheries assessment were to characterize fish habitat and fish communities in local lakes, ponds, and streams (collectively referred to as waterbodies) that may be affected by the Meliadine Extension. Field work conducted in 2020 included fish community assessments to validate and augment existing baseline datasets, fish habitat assessments at waterbodies with limited data, and Arctic Grayling spawning assessments in A-Chain streams to identify potential critical habitat. Fisheries field work in 2021 focused exclusively on fish community and fish habitat assessments at waterbodies with limited or no historical data.

The program study area included 64 lakes and ponds and their connecting channels in and around the Meliadine Extension. Waterbodies included in the field program were selected based on the Meliadine Extension general site layout, and prioritized based on the availability of existing baseline data from the approved FEIS. The focus was on areas with potential gaps or where data would be considered insufficient to understand existing conditions.

Visual Arctic Grayling spawner surveys were conducted along A-Chain streams from Meliadine Lake to Lake A6. Spawners were observed in five of the ten stream sections surveyed. The results of the spawning assessment suggests that A-Chain streams provide important spawning, rearing and migratory habitat for Arctic Grayling. Suitable spawning habitat is more limited in the smaller tributaries (i.e., A5-A19, A51-A52, and A50-A51) compared to the larger tributaries (i.e., A1-A2, A2-A3, A4-A5, A50-A6).

Fish habitat assessments were conducted at nine streams within the B-Chain, and three streams along the H-Chain using the methods in the Fish Habitat Assessment Procedures (FHAP; Johnston and Slaney 1996). Four sites had overall high habitat quality, four had moderate habitat quality, three had low habitat quality, and one had no fish habitat at the time of the survey.

Littoral fish habitat assessments were conducted at 26 ponds and one lake (i.e., E5). Fines were the predominant substrate type in all waterbodies surveyed, with the exception of A20, A32, A33, A34, J6, I1, and E5. In these waterbodies, cobble comprised the largest percentage of the littoral substrate. When ice-free, all surveyed waterbodies provide seasonal fish habitat. E5 may provide perennial fish habitat depending on the duration and extent of ice cover in a given year. Seasonal fish use of J6 and J7 is restricted by mine infrastructure which overprints J6, and the stream (J5-J6) that would connect J6 and J7 to downstream waterbodies.

The fish communities of 52 lakes, ponds, and streams were assessed. Large-bodied fish communities were assessed using sinking-gillnets and angling. A total of 66 gillnet sets were conducted at nine lakes and one pond, amounting to a total of 58.7 h of gillnetting effort. Small-bodied fish communities were assessed using a backpack electrofisher, minnow traps, and drift nets. A total of 660 minnow traps were deployed at 43 lakes and ponds, resulting in a total of 14,699 h of minnow trapping effort. A total of 40,541 seconds of electrofishing effort was exerted at 44 lakes and ponds. Thirteen drift nets were deployed at eight streams sites, amounting to a total of 229.7 h of drift netting effort. This fishing effort resulted in the capture of 2,917 fish (not including fish captured by drift netting) from surveyed lakes and ponds.

Seven species were identified within the waterbodies surveyed, including Arctic Char, Arctic Grayling, Cisco, Ninespine Stickleback, Threespine Stickleback, Slimy Sculpin, and Burbot. Ninespine Stickleback were the most widespread species, followed by Arctic Grayling. Ninespine Stickleback were the most prevalent species (95.6%) followed by Threespine Stickleback (2.3%), and Arctic Grayling (1.5%). Slimy Sculpin, Burbot, Cisco, and Arctic Char each comprised < 1% of the total catch (not including fish captured by drift netting). Species diversity was highest in A1 where five species were captured, followed by A6 and B7, where four species were captured. Arctic Char distribution was limited and mainly confined to areas close to Meliadine Lake (i.e., A1). However, one Arctic Char was captured at A6, suggesting that given suitable conditions, Arctic Char may periodically migrate further upstream than previously identified in the FEIS baseline studies.

Approximately 35,604 fish were captured across eight streams sampled using drift nets. Ninespine Stickleback made up approximately 99% of the catch. Threespine Stickleback and Arctic Grayling each comprised < 1% of the total catch. Arctic Grayling captured in drift nets deployed at A50-A5, A1-MEL, and B4-B2 indicates that juvenile Arctic Grayling utilize these stream sections as rearing and migratory habitats. The high abundance and wide distribution of Ninespine Stickleback in stream sections within the A-Chain and B-Chain suggests that small, ephemeral streams provide important migratory habitat for all life stages of Ninespine Stickleback, which may have a large contribution to downstream productivity for larger-bodied species.

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ACRONYMS AND ABBREVIATIONS

Agnico Eagle	Agnico Eagle Mines Limited
AIC	Akaike Information Criterion
AWAR	All Weather Access Road
CPUE	Catch-per-unit-effort
DELT	Deformities, erosions, lesions, and tumors
EPSC	Erosion Prevention and Sediment Control
ERM	ERM Consultants Canada Ltd.
FEIS	Final Environmental Impact Statement
FHAP	Fish Habitat Assessment Procedures
h	Hour
K	Fulton’s Condition Factor
km	Kilometre
LFSP	Licence to Fish for Scientific Purposes
m	Metre
NIRB	Nunavut Impact Review Board
NWB	Nunavut Water Board
QA/QC	Quality Assurance / Quality Control
YOY	Young-of-the-year

1. PROJECT OVERVIEW

The Meliadine Mine (the Project), owned and operated by Agnico Eagle Mines Limited (Agnico Eagle), is located on Inuit Owned Land (IOL) approximately 25 km north of Rankin Inlet, Nunavut. A 34 km All Season Access Road (AWAR) connects the Project to Rankin Inlet. (Figure 1-1). The Nunavut Impact Review Board (NIRB) issued Project Certificate No.006 for the Meliadine Gold Mine Project in 2015. The NIRB approval consists of mining at five gold deposits (Tiriganiaq, Wesmeg, F Zone, Pump and Discovery) and on-site ore processing, and transportation of gold bullion. On May 19, 2016, the Minister approved the Type A Water Licence 2AM-MEL1631 to begin construction and operation of the Meliadine Mine. At that time, Agnico Eagle only applied for the Type A Water Licence required to proceed with the Tiriganiaq deposit. As indicated at that time, amendments would be required to proceed with the other deposits (F Zone, Wesmeg, Pump, and Discovery) included in Project Certificate No.006. Development of the Tiriganiaq deposit began in 2019 and it includes two open pits, underground mining, ore processing, waste management, and ancillary infrastructure operation.

For the Meliadine Extension, Agnico Eagle are seeking approvals and permits required to proceed with mining of the deposits that were not included in the Water Licence and associated approved activities.

A conceptual offsetting plan for the Meliadine Mine was consulted on, and reviewed as part of the approved 2014 FEIS. The Meliadine Mine plan was reviewed by DFO and a Letter of Advice was issued advising that no serious harm was predicted from the works, undertakings, and activities proposed at that time. In 2019, the *Fisheries Act* was revised to prohibit “harmful alteration, disruption, or destruction” (HADD) of fish habitat or death of fish. As a result, the Meliadine Extension is likely to require an Authorization under S.35 and S.36 of the Act for unavoidable impacts, in line with those impacts outlined in the approved 2014 FEIS for the now-operating Meliadine Mine. As part of the application for *Issuance of an Authorization under Paragraphs 34.4(2)(b) and 35(2)(b) of the Fisheries Act*, an updated Offsetting Plan/Fish Habitat Compensation Plan is required to counterbalance losses from mine infrastructure and deposition of deleterious waste into fish-frequented waterbodies.

This report presents the results of the 2020-2021 Fish and Fish Habitat Field Program, which included fish habitat and fish community composition surveys in waterbodies that may be affected by the Meliadine Extension. This report also presents a summary of information collected to support the selection of offsetting sites.

Figure 1-1: Location of Meliadine Gold Mine

2. HISTORICAL BASELINE AND AQUATIC RESOURCES STUDIES

Comprehensive baseline studies were completed from 1997 to 2012 to characterize fish habitat and fish communities in potentially affected waterbodies in the Meliadine Gold Mine Project area. The studies focused on determining the distribution of fish species throughout watersheds, assessing movements of Arctic Char (*Salvelinus alpinus*), Lake Trout (*Salvelinus namaycush*), and Arctic Grayling (*Thymallus arcticus*) using radio telemetry, and determining the timing and size of the Arctic Char run in the Meliadine River. Habitat assessments were also conducted to characterize habitat features with regard to their suitability for spawning, rearing, migration, and overwintering. The studies informed the aquatic resources effects assessment in Agnico Eagle's Final Environmental Impact Assessment (FEIS; Agnico Eagle 2014) for the Meliadine Gold Mine Project.

Table 2-1 summarizes the 1997 to 2012 sampling effort and Figure 2-1 presents sampling locations in lakes and ponds.

Table 2-1: Summary of Fish and Fish Habitat Sampling Effort, 1997 to 2012

Waterbody Name	Waterbody Type	Fish Species Captured	Habitat Assessments and Water Quality	Bathymetry	Electrofishing	Gillnetting	Fish Fence	Fyke Nets	Angling	Minnow Trapping	Fish Tissues	Radio Telemetry and Mark-Recapture Studies
A0-1	Stream	ARCH LKTR ARGR BURB SLSC NSSB TSSB	1997, 1998	-	1997, 1998	-	-	-	-	-	-	-
A1	Lake	ARCH LKTR ARGR RDWH CISC NSSB TSSB	1997, 2011	2011	-	1997, 2011	-	2011	1997	2011	-	-
A10	Pond	NSSB	2008	-	2008	-	-	-	-	-	-	-
A12	Pond	NSSB	2008	-	2008	-	-	-	-	2008	-	-
A1-2	Stream	ARCH LKTR ARGR NSSB TSSB	1997, 1998	-	1997, 1998	-	-	-	-	-	-	-
A13	Pond	NSSB	2008	-	2008	-	-	-	-	2008	-	-
A17	Pond	NSSB	1998	-	1998	-	-	-	-	-	-	-
A18	Pond	NSSB	-	-	-	-	-	-	-	-	-	-
A19	Pond		2012	-	-	-	-	-	-	2012	-	-
A2	Pond	NSSB TSSB	1997, 2011	-	-	-	-	2011	1997	2011	-	-
A2-3	Stream	ARCH LKTR ARGR SLSC NSSB TSSB	1997, 1998	-	1997, 1998	-	-	-	-	-	-	-
A3	Pond		2012	-	-	-	-	-	-	2012	-	-
A3-4	Stream	ARGR NSSB	1997, 1998	-	1997, 1998	-	-	-	-	-	-	-
A30	Pond	NSSB	-	-	-	-	-	-	-	-	-	-
A31	Pond	NSSB	-	-	-	-	-	-	-	-	-	-
A35	Pond		2008	-	2008	-	-	-	-	-	-	-
A37	Pond	NSSB	2008	-	2008	-	-	-	-	-	-	-
A38	Pond		2008	-	2008	-	-	-	-	-	-	-
A39	Pond	NSSB	2008	-	2008	-	-	-	-	-	-	-
A39-54	Stream	NSSB	2000	-	2000	-	-	-	-	-	-	-
A4	Pond		2012	-	-	-	-	-	-	2012	-	-
A40	Pond	NSSB	2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
A44	Pond	NSSB	2011	-	-	-	-	-	-	2011	-	-
A44-45	Stream	NSSB	1998, 2000	-	1998, 2000	-	-	-	-	-	-	-
A45	Pond	NSSB	2011	-	-	-	-	-	-	2011	-	-
A4-5	Stream	ARGR NSSB	1997, 1998	-	1997, 1998	-	-	-	-	-	-	-
A45-46	Stream	NSSB	2008	-	2008	-	-	-	-	-	-	-
A46	Lake	NSSB	2011	2011	-	2011	-	2011	-	2011	-	-
A49	Pond	NSSB	2011	-	-	-	-	-	-	2011	-	-
A5	Pond	NSSB	1997, 2009	-	2009	-	-	-	1997	2009	-	-

Waterbody Name	Waterbody Type	Fish Species Captured	Habitat Assessments and Water Quality	Bathymetry	Electrofishing	Gillnetting	Fish Fence	Fyke Nets	Angling	Minnow Trapping	Fish Tissues	Radio Telemetry and Mark-Recapture Studies
A50	Pond		2009	-	2009	-	-	-	-	2009	-	-
A51	Pond	NSSB	2009	-	2009	-	-	-	-	2009	-	-
A52	Pond	NSSB	2008	-	-	2008	-	2008	-	2008	-	-
A53	Pond	NSSB	2009	-	2009	-	-	-	-	2009	-	-
A54	Pond	NSSB	1998, 2008	1998	2008	1998	-	-	-	-	-	-
A5-6	Stream	ARCH LKTR ARGR SLSC NSSB TSSB	1997, 1998, 2009	-	1997, 1998, 2009	-	-	-	-	-	-	-
A58	Pond	NSSB	1998	-	1998	-	-	-	-	-	-	-
A6	Lake	ARGR CISC NSSB TSSB	1997, 1998, 2009	1998	-	1997, 1998, 2009	-	2009	-	2009	-	1997, 1998, 1999
A6-7	Stream	ARGR SLSC NSSB	1997, 1998, 2000, 2008	-	1997, 1998, 2000, 2008	-	-	-	-	-	-	-
A7	Pond	NSSB	2011	2011	-	-	-	-	-	2011	-	-
A7-8	Stream	ARGR SLSC NSSB	1997, 1998	-	1997, 1998	-	-	-	-	-	-	-
A8	Lake	ARGR	1997, 1998	1998	-	1997, 1998	-	-	-	-	-	1997, 1998, 1999
A8-37	Stream	NSSB	1998	-	1998	-	-	-	-	-	-	-
A8-40	Stream	NSSB	1998, 2000	-	1998, 2000	-	-	-	-	-	-	-
A8-9	Stream	NSSB	1998	-	1998	-	-	-	-	-	-	-
A9	Pond		2008	-	2008	-	-	-	-	-	-	-
D1.2	Stream	NSSB	2008	-	2008	-	-	-	-	-	-	-
D5.4	Stream		2012	-	2012	-	-	-	-	2012	-	-
D5.8	Stream		2008	-	-	-	-	-	-	-	-	-
D5.9	Stream	NSSB	-	-	-	-	-	-	-	-	-	-
D8.8	Stream	ARGR	2012	-	2012	-	-	-	-	2012	-	-
M11.5	Stream	ARGR NSSB	2008	-	2008	-	-	-	-	-	-	-
M11.6	Stream		2008	-	-	-	-	-	-	-	-	-
M13.3	Stream	NSSB	2008	-	2008	-	-	-	-	-	-	-
M2.1	Stream	ARGR NSSB	2008	-	2008	-	-	-	-	-	-	-
M22.6	Stream	NSSB	2008	-	2008	-	-	-	-	-	-	-
M23.7	Stream	ARGR SLSC NSSB	2008	-	2008	-	-	-	-	-	-	-
M3.0	Stream	NSSB	2008	-	2008	-	-	-	-	-	-	-
M3.9	Stream		2008	-	2008	-	-	-	-	-	-	-
M5.0	Stream	NSSB	2008	-	2008	-	-	-	-	-	-	-
M8.6	Stream		2008	-	2008	-	-	-	-	-	-	-

Waterbody Name	Waterbody Type	Fish Species Captured	Habitat Assessments and Water Quality	Bathymetry	Electrofishing	Gillnetting	Fish Fence	Fyke Nets	Angling	Minnow Trapping	Fish Tissues	Radio Telemetry and Mark-Recapture Studies
B0-1	Stream	ARCH LKTR ARGR CISC BURB SLSC NSSB TSSB	1997, 1998	-	1997, 1998	-	-	-	-	-	-	-
B10	Pond		1998, 2008, 2009	1998	2008, 2009	1998	-	-	-	2008, 2009	-	-
B18	Pond	NSSB	-	-	-	-	-	-	-	-	-	-
B19	Pond	NSSB	-	-	-	-	-	-	-	-	-	-
B1-2	Stream	ARCH LKTR ARGR BURB SLSC NSSB TSSB	1997, 1998	-	1997, 1998	-	-	-	-	-	-	-
B2	Lake	LKTR ARGR CISC	1997, 1998	1998	-	1997, 1998	-	-	1997	-	-	1997, 1998, 1999
B25	Pond	NSSB	2009	-	2009	-	-	-	-	2009	-	-
B28	Pond	NSSB	2009	-	2009	-	-	-	-	2009	-	-
B30	Pond	NSSB	2008, 2011	-	2008, 2011	-	-	-	-	2008, 2011	-	-
B30-6	Stream	SLSC NSSB	2011	-	2011	-	-	-	-	2011	-	-
B31	Pond	NSSB	2008	-	2008	-	-	-	-	2008	-	-
B31-30	Stream	ARGR NSSB	2011	-	2011	-	-	-	-	2011	-	-
B31-32	Stream		2011	-	-	-	-	-	-	-	-	-
B32	Pond	NSSB	2008, 2011	-	2008, 2011	-	-	-	-	2008	-	-
B33	Pond		2008	-	2008	-	-	-	-	2008	-	-
B33a	Pond		2009	-	2009	-	-	-	-	2009	-	-
B34	Lake	NSSB	2011	-	-	2011	-	2011	-	2011	-	-
B3-4	Stream	ARCH LKTR ARGR BURB SLSC NSSB	1997, 1998	-	1997, 1998	-	-	-	-	-	-	-
B36	Pond	NSSB	2011	-	2011	-	-	-	-	2011	-	-
B37	Pond	NSSB	-	-	-	-	-	-	-	-	-	-
B38	Pond	NSSB	-	-	-	-	-	-	-	-	-	-
B4	Lake	ARGR NSSB	1997, 1998, 2011	1998	-	1997, 1998	-	2011	1997	2011	-	-
B4-36	Stream	SLSC	1997	-	1997	-	-	-	-	-	-	-
B4-45	Stream	NSSB	1997, 2011	-	1997, 2011	-	-	-	-	-	-	-
B45	Lake	ARGR NSSB	1997, 2011	2011	-	2011	-	2011	1997	2011	-	-
B4-5	Stream	ARGR BURB SLSC NSSB	1997, 1998	-	1997, 1998	-	-	-	-	-	-	-
B45-46	Stream	ARGR NSSB	1997	-	1997	-	-	-	-	-	-	-
B46	Lake	ARGR NSSB	1997, 2011	2011	-	2011	-	2011	1997	2011	-	-
B46-66	Stream	ARGR BURB NSSB	1998, 2000	-	1998, 2000	-	-	-	-	-	-	-
B5	Lake	ARGR BURB	1997, 1998	1998	-	1997, 1998	-	-	1997	-	1998	1997, 1998, 1999
B51	Pond		1997	-	-	-	-	-	1997	-	-	-

Waterbody Name	Waterbody Type	Fish Species Captured	Habitat Assessments and Water Quality	Bathymetry	Electrofishing	Gillnetting	Fish Fence	Fyke Nets	Angling	Minnow Trapping	Fish Tissues	Radio Telemetry and Mark-Recapture Studies
B51-52	Stream	ARGR NSSB	1997	-	1997	-	-	-	-	-	-	-
B52	Lake	NSSB	1997, 2011	2011	-	2011	-	2011	1997	2011	-	-
B52-53	Stream	NSSB	1997	-	1997	-	-	-	-	-	-	-
B52-75	Stream	NSSB	2000	-	2000	-	-	-	-	-	-	-
B53	Lake	ARGR NSSB	2011	2011	-	2011	-	2011	-	2011	-	-
B5-31	Stream	ARGR SLSC NSSB	2011	-	2011	-	-	-	-	-	-	-
B53-54	Stream	NSSB	1998, 2000	-	1998, 2000	-	-	-	-	-	-	-
B5-6	Stream	ARGR SLSC NSSB	1997, 1998	-	1997, 1998	-	-	-	-	-	-	-
B59	Lake	ARGR	2012	-	-	-	-	-	-	-	-	-
B6	Lake	ARGR CISC NSSB	1997, 2008	1998	-	-	-	2008	1997	-	-	-
B60	Lake		2012	-	-	-	-	-	-	2012	-	-
B61	Pond		2012	-	-	-	-	-	-	2012	-	-
B62	Pond	NSSB	2012	-	-	-	-	-	-	2012	-	-
B6-7	Stream	ARGR BURB SLSC NSSB	1997, 1998	-	1997, 1998	-	-	-	-	-	-	-
B68-69	Stream	ARGR SLSC NSSB	1997, 1998, 2000	-	1997, 1998, 2000	-	-	-	-	-	-	-
B69	Lake	LKTR ARGR SLSC NSSB	2011	2011	-	2011	-	2011	-	2011	-	-
B7	Lake	ARGR CISC BURB NSSB	1997, 1998, 2008	1998	-	1997, 1998, 2008	-	2008	1997, 1998	-	-	1997, 1998, 1999, 2008, 2009
B75-80	Stream	NSSB	2000	-	2000	-	-	-	-	-	-	-
B7-8	Stream	NSSB	1998	-	1998	-	-	-	-	-	-	-
B8	Pond	NSSB	2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
B9	Pond		1998, 2008, 2009	1998	2008, 2009	1998	-	-	-	2008, 2009	-	-
C10	Lake	NSSB	2011	2011	-	2011	-	2011	-	-	-	-
C6	Pond	NSSB	2011	2011	-	-	-	2011	-	-	-	-
C7	Pond	NSSB TSSB	2011	2011	-	2011	-	2011	-	-	-	-
C9	Pond	NSSB	-	-	-	-	-	-	-	-	-	-
CH6	Lake	LKTR ARGR BURB	2008	2008, 2011	-	2008	-	2008	-	2008	-	-
CH1	Lake		-	2011	-	-	-	-	-	-	-	-
D0-1	Stream	ARCH LKTR ARGR RDWH CISC BURB SLSC NSSB TSSB	1997, 1998, 2000	-	1997, 1998	-	-	2000	-	-	-	-
D1	Lake	ARCH LKTR ARGR RDWH CISC BURB NSSB TSSB	1997, 1998, 1999, 2000, 2009, 2011	1998	-	1997, 1998, 1999, 2000, 2009, 2011	-	2000, 2009	1997, 2000, 2011	-	-	1997, 1998, 1999
D1-2	Stream	ARGR SLSC NSSB TSSB	1997	-	1997	-	-	-	-	-	-	-
D2	Pond		1997	-	-	-	-	-	1997	-	-	-

Waterbody Name	Waterbody Type	Fish Species Captured	Habitat Assessments and Water Quality	Bathymetry	Electrofishing	Gillnetting	Fish Fence	Fyke Nets	Angling	Minnow Trapping	Fish Tissues	Radio Telemetry and Mark-Recapture Studies
D23	Lake	NSSB	2011	2011	-	2011	-	2011	-	2011	-	-
D3	Lake	ARCH ARGR	1997, 2011	2011	-	1997, 2011	-	-	2011	-	-	-
D3-4	Stream	NSSB	1997	-	1997	-	-	-	-	-	-	-
D4	Pond	NSSB	1997, 2011	2011	-	1997, 2011	-	2011	1997	2011	-	-
D4-5	Stream	NSSB	1997	-	1997	-	-	-	-	-	-	-
D5	Lake	NSSB	1997, 2011	2011	-	1997, 2011	-	2011	-	2011	-	-
D5-6	Stream	NSSB	1997	-	1997	-	-	-	-	-	-	-
D6	Pond	NSSB	2011	2011	2011	-	-	-	-	-	-	-
D6-7	Stream	NSSB	1997	-	1997	-	-	-	-	-	-	-
D7	Lake	ARGR	1997	1998	-	1997	-	-	1997	-	-	1997, 1998, 1999
D8	Lake	NSSB	2011	2011	-	2011	-	2011	-	2011	-	-
E3	Lake	LKTR RDWH NSSB	2011	2011	-	2011	-	2011	-	2011	-	-
E4	Lake	ARGR NSSB	2011	2011	-	2011	-	2011	-	2011	-	-
E5	Lake		-	2011	-	-	-	-	-	-	-	-
E4-5	Stream	NSSB	2011	-	2011	-	-	-	-	2011	-	-
F0-1	Stream	LKTR ARGR SLSC NSSB TSSB	1997	-	1997	-	-	-	-	-	-	-
F5-6	Stream	NSSB	1997	-	1997	-	-	-	-	-	-	-
G0-1	Stream	LKTR NSSB TSSB	1997, 2009	-	1997, 2009	-	-	-	-	-	-	-
G1	Pond	NSSB	2009	-	2009	2009	-	-	-	2009	-	-
G1-2	Stream	NSSB	1997	-	1997	-	-	-	-	-	-	-
G2	Lake	NSSB	1997, 2009	-	-	1997	-	2009	1997	2009	-	-
H0-1	Stream	ARGR NSSB	2009, 2012	-	2009, 2012	-	-	-	-	-	-	-
H1	Pond		2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H10	Pond	NSSB	2008, 2009	-	2008, 2009	-	-	-	-	2009	-	-
H11	Pond		2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H12	Pond		2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H1-2	Stream	NSSB	2012	-	2012	-	-	-	-	-	-	-
H13	Pond	NSSB	2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H14	Pond		2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H14a	Pond		2009	-	2009	-	-	-	-	2009	-	-
H15	Pond	NSSB	2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H15d	Pond		2009	-	2009	-	-	-	-	2009	-	-

Waterbody Name	Waterbody Type	Fish Species Captured	Habitat Assessments and Water Quality	Bathymetry	Electrofishing	Gillnetting	Fish Fence	Fyke Nets	Angling	Minnow Trapping	Fish Tissues	Radio Telemetry and Mark-Recapture Studies
H15e	Pond		2009	-	2009	-	-	-	-	2009	-	-
H15g	Pond	NSSB	2009	-	2009	-	-	-	-	2009	-	-
H16	Pond		2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H17	Pond	NSSB	2008, 2009, 2011	2011	2008, 2009	2008, 2009, 2011	-	2009	-	2008, 2009	-	-
H18	Pond		2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H19	Pond		2008	-	2008	2008	-	-	-	2008	-	-
H2	Pond	ARGR	2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H20	Pond		2008, 2011	2011	2008	2008, 2011	-	-	-	2008	-	-
H2-3	Stream		2012	-	2012	-	-	-	-	-	-	-
H2a	Pond		2009	-	2009	-	-	-	-	-	-	-
H3	Pond		2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H3-4	Stream		2012	-	2012	-	-	-	-	-	-	-
H4	Pond	NSSB	2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H4-5	Stream		2012	-	2012	-	-	-	-	-	-	-
H5	Pond	NSSB	2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H5-17	Stream	NSSB	2009, 2012	-	2009, 2012	-	-	-	-	-	-	-
H6	Pond	NSSB	2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H7	Pond	NSSB	2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H8	Pond	NSSB	2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
H9	Pond		2008, 2009	-	2008, 2009	-	-	-	-	2008, 2009	-	-
I1	Pond		2012	-	-	-	-	2012	-	-	-	-
J0-1	Stream	NSSB	2004	-	2004	-	-	-	-	-	-	-
J1	Lake	NSSB	2009, 2012	2009	-	2009	-	2012	-	2009	-	-
J2	Pond	NSSB	2012	-	-	-	-	-	-	2012	-	-
J3	Pond		2012	-	-	-	-	-	-	2012	-	-
J4	Pond	NSSB	2012	-	-	-	-	-	-	2012	-	-
J5	Pond		2012	-	-	-	-	-	-	2012	-	-
J6	Pond		2012	-	-	-	-	-	-	2012	-	-
J7	Pond	NSSB	2012	-	-	-	-	-	-	2012	-	-
J8	Pond	NSSB	2012	-	-	-	-	-	-	2012	-	-
ML-E	Lake	ARCH LKTR ARGR RDWH CISC BURB SLSC TSSB	1997	1997	-	1997	-	1997, 1998	1997	-	-	1997, 1998, 1999, 2000

Waterbody Name	Waterbody Type	Fish Species Captured	Habitat Assessments and Water Quality	Bathymetry	Electrofishing	Gillnetting	Fish Fence	Fyke Nets	Angling	Minnow Trapping	Fish Tissues	Radio Telemetry and Mark-Recapture Studies
ML-S	Lake	ARCH LKTR ARGR RDWH CISC BURB TSSB	1997, 1998	1998	-	1997, 1998	-	1998	1997	-	1998	1997, 1998, 1999, 2000
ML-W	Lake	ARCH LKTR ARGR RDWH CISC	1999, 2000	-	-	1999, 2000	-	-	2000	-	-	1997, 1998, 1999, 2000
P2	Pond	NSSB	2011	-	-	-	-	2011	-	-	-	-
Control	Lake	LKTR ARGR RDWH BURB SLSC NSSB	2011	2011	-	2011	-	2011	2011	2011	-	-
HSL	Lake	LKTR CISC	2000	-	-	2000	-	-	2000	-	-	-
HSL-W	Stream	LKTR ARGR BURB SLSC NSSB	1998, 2000	-	1998, 2000	-	-	-	-	-	-	-
LML	Lake	ARCH LKTR ARGR RDWH CISC	1997, 1998, 1999, 2000	-	-	1997, 1998, 1999, 2000	-	-	2000	-	-	1997, 1998, 1999
W	Lake	LKTR CISC	2000	-	-	2000	-	-	2000	-	-	-
W-LML	Stream	ARCH LKTR ARGR SLSC	2000	-	2000	-	-	-	-	-	-	-
ML-PL	Stream	ARCH LKTR ARGR RDWH CISC BURB SLSC TSSB	1998, 1999, 2000	-	1998	1999	-	2000	1998	-	-	1997, 1998, 1999, 2000
LML-MR	Stream	ARCH ARGR BURB NSSB	1998	-	1998	-	-	-	-	-	-	-
ML-MR	Stream	ARCH LKTR ARGR SLSC NSSB TSSB	1997, 1998	-	1997, 1998	-	-	-	1998	-	-	-
MR-L	Stream	ARCH LKTR ARGR RDWH CISC	1997, 1998, 1999	-	-	-	1997, 1998, 1999	-	-	-	1997	1997, 1998, 1999, 2000
MR-U	Stream	LKTR ARGR	1997, 1999	-	-	1999	-	-	1997	-	-	1997, 1998, 1999
O2	Pond	ARCHNSSB	2011	2011	-	2011	-	2011	-	-	-	-
O4	Pond	NSSB	2011	2011	-	2011	-	2011	-	-	-	-
PAR	Lake	LKTR RDWH CISC	-	-	-	-	-	-	-	-	1998	-

Notes:
Adapted from Table 7.5-3 and Appendix 7.5-D (Agnico Eagle 2014).
Waterbody Type: Pond= waterbodies less than 2 m in maximum depth; Lake= waterbodies greater than 2 m deep.
NSSB= Ninespine Stickleback; TSSB= Threespine Stickleback; SLSC= Slimy Sculpin; BURB= Burbot; ARCH= Arctic Char; ARGR= Arctic Grayling; CISC= Cisco; RDWH= Round Whitefish; LKTR= Lake Trout.

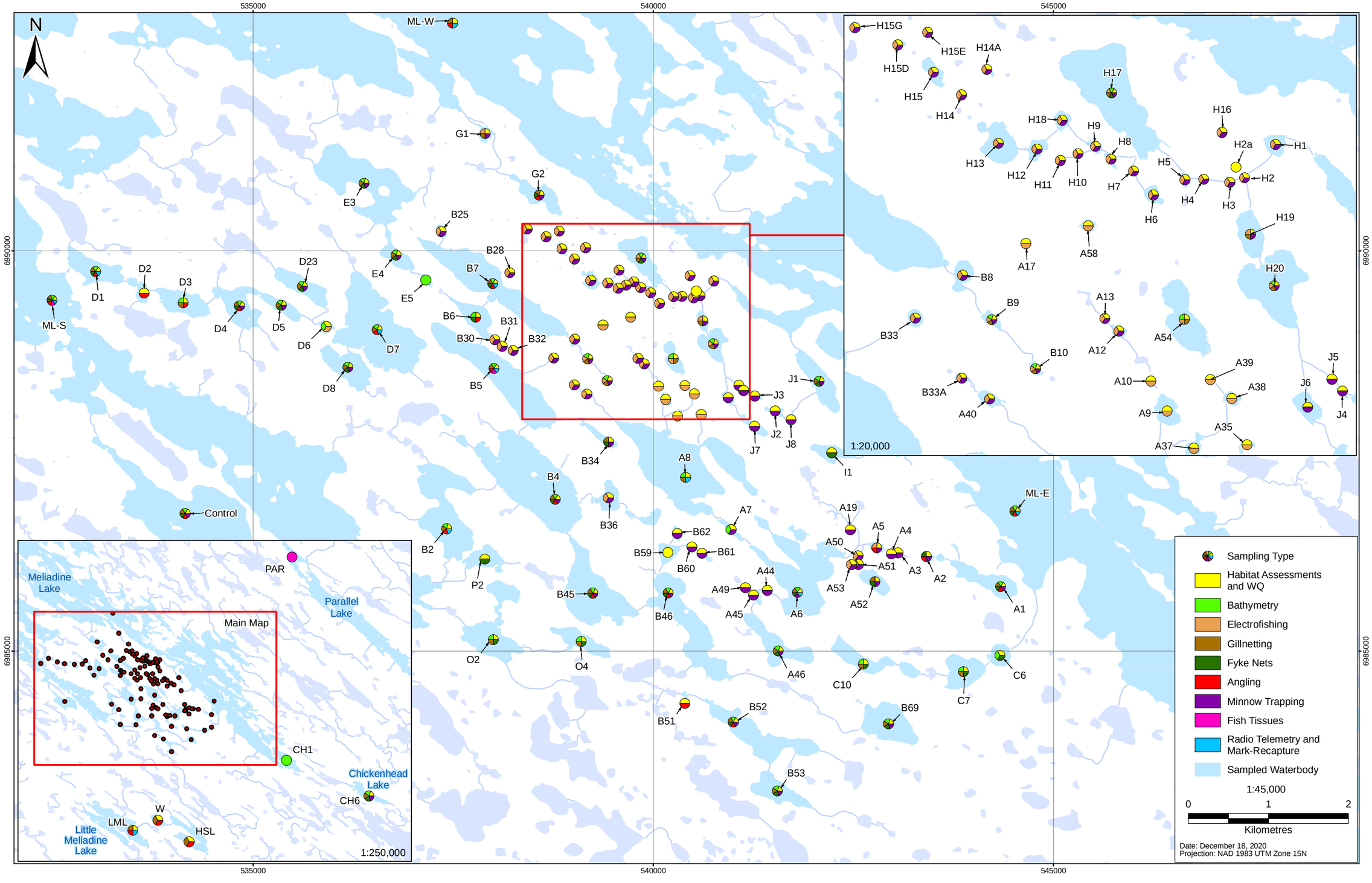


Figure 2-1: Fish and Fish Habitat Sampling in Lakes and Ponds, 1997-2012

3. STUDY OBJECTIVES

The objectives of the 2020-2021 fish habitat and fish community assessments were to identify critical habitat features, that may be affected by water quantity loss downstream of the mine infrastructure, validate and augment historical baseline data through sampling of Project area waterbodies, and collect data to inform measures to avoid or mitigate potential impacts.

To meet these objectives, the field work included:

- fish community assessments to augment existing baseline datasets and provide an understanding of existing conditions around the Meliadine Extension area;
- Arctic Grayling spawning assessments in A-Chain streams;
- fish habitat assessments at waterbodies with limited data; and
- aerial surveys and hydrological data collection to support potential offsetting sites selection.

4. STUDY AREA

The approved Meliadine Mine and additional area that forms the Meliadine Extension are located on Inuit owned lands, approximately 25 km north from Rankin Inlet, and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut. Situated on the western shore of Hudson Bay, the Meliadine Extension is located on a peninsula (the Peninsula) between the east, south, and west basins of Meliadine Lake. Several small watersheds drain into Meliadine Lake from the Peninsula, which are made up of a series of lakes, ponds, and interconnecting streams (Figure 4-1). Lakes within the Peninsula are generally small (< 90 ha in area), shallow (< 5 m in maximum depth), and are connected through short stream sections (Golder 2012). These lakes can be isolated due to lower stream flows during the summer/fall and frozen conditions during the winter (Golder 2012).

The study area for the 2020-2021 program included 64 lakes and ponds and their connecting channels in and around the Meliadine Extension area. Waterbodies were selected based on the Meliadine Extension general site layout, and prioritized based on the availability of existing baseline data from the FEIS (Agnico Eagle 2014), or where data would be considered insufficient to understand existing conditions.

Sub-watersheds within the Meliadine Lake watershed were designated by letter codes defined by Golder (2012). Waterbodies and watercourses within the sub-watersheds (A – J) were numbered relative to their position in the drainage, with numbers increasing in the upstream direction within a chain of waterbodies. All tributary chains within the watershed were numbered beginning with the lowermost waterbody on the north side of a basin's outlet and continuing along the periphery of the main waterbody chain. Streams were designated using the corresponding waterbody number/letter codes (e.g., Stream A1-A2 connects waterbodies A1 and A2 in Basin A). In this report 'Chain' is used to refer to a series of waterbodies within the same basin/drainage (e.g., A-Chain, refers to waterbodies within Basin A).

Table 4-1 identifies the sampling locations and Figure 4-2 shows the fish habitat and community sampling locations.

Table 4-1: Fish Habitat and Community Sampling Conducted, 2020-2021

Waterbody Name	Waterbody Type	Easting	Northing	Fish Species Captured	Fish Habitat		Fish Community					Arctic Grayling Spawner Survey
					Stream Habitat	Lake/Pond Habitat	Minnow Trapping	Electrofishing	Drift Netting	Gillnetting	Angling	
A1	Lake	544337	6985805	NSSB, TSSB, ARGR, ARCH, CISC	-	-	2020	2020	-	2020	2020	-
A19	Pond	542462	6986490	NSSB	-	-	2020	2020	-	-	-	-
A19-A5	Stream	542652	6986333		-	-	-	-	-	-	-	2020
A1-MEL	Stream	544306	6986035	NSSB, TSSB, ARGR	-	-	-	-	2020	-	-	2020
A2	Pond	543409	6986180	NSSB, TSSB	-	-	2020	2020	-	-	-	-
A20	Pond	542573	6986791		-	2021	-	-	-	-	-	-
A21	Pond	542292	6986549		-	2020, 2021	-	-	-	-	-	-
A22	Pond	542271	6986636		-	2021	-	-	-	-	-	-
A23	Pond	542172	6986694		-	2021	-	-	-	-	-	-
A24	Pond	542196	6986776		-	2021	-	-	-	-	-	-
A25	Pond	542074	6986793		-	2021	-	-	-	-	-	-
A26	Pond	542042	6986874		-	2021	-	-	-	-	-	-
A27	Pond	542003	6986981		-	2021	-	-	-	-	-	-
A28	Pond	541922	6987195		-	2021	-	-	-	-	-	-
A2-A1	Stream	543663	6986127		-	-	-	-	-	-	-	2020
A3	Pond	543055	6986225	NSSB	-	-	2020	2020	-	-	-	-
A31	Pond	541354	6986602	NSSB	-	-	2020	2020	-	-	-	-
A32	Pond	541230	6986695		-	2021	-	-	-	-	-	-

Waterbody Name	Waterbody Type	Easting	Northing	Fish Species Captured	Fish Habitat		Fish Community					Arctic Grayling Spawner Survey
					Stream Habitat	Lake/Pond Habitat	Minnow Trapping	Electrofishing	Drift Netting	Gillnetting	Angling	
A33	Pond	541522	6986716		-	2021	-	-	-	-	-	-
A34	Pond	541389	6986827		-	2021	-	-	-	-	-	-
A3-A2	Stream	543121	6986171		-	-	-	-	-	-	-	2020
A4	Pond	542972	6986211	NSSB	-	-	2020	2020	-	-	-	-
A40	Pond	539168	6988209	NSSB	-	-	2020	2020	-	-	-	-
A4-A3	Stream	542999	6986218		-	-	-	-	-	-	-	2020
A5	Pond	542790	6986288	NSSB	-	-	2020	2020	-	-	-	-
A50	Pond	542558	6986190	NSSB	-	-	2020	2020	-	-	-	-
A50-A5	Stream	542601	6986210	NSSB, TSSB, ARGR	-	-	-	-	2020	-	-	2020
A51	Pond	542561	6986081	NSSB	-	-	2020	2020	-	-	-	-
A51-A50	Stream	542559	6986157		-	-	-	-	-	-	-	2020
A52	Pond	542766	6985866	NSSB	-	-	2020	2020	-	-	-	-
A52-A51	Stream	542611	6986047	NSSB, TSSB	-	-	-	-	2020	-	-	2020
A5-A4	Stream	542904	6986230		-	-	-	-	-	-	-	2020
A6	Lake	541797	6985731	NSSB, SLSC, ARGR, ARCH	-	-	2020	2020	-	2020	2020	-
A6-A50	Stream	542430	6986157		-	-	-	-	-	-	-	2020
A8	Lake	540402	6987170	NSSB, SLSC, ARGR	-	-	2020	2020	-	2020	2020	-
A9	Pond	540152	6988141	NSSB	-	-	2021	2021	-	-	-	-

Waterbody Name	Waterbody Type	Easting	Northing	Fish Species Captured	Fish Habitat		Fish Community					Arctic Grayling Spawner Survey
					Stream Habitat	Lake/Pond Habitat	Minnow Trapping	Electrofishing	Drift Netting	Gillnetting	Angling	
B25	Pond	537347	6990239	NSSB	-	-	2020	2020	-	-	-	-
B25-B7	Stream	537360	6990119		2020	-	-	-	-	-	-	-
B26	Pond	537256	6990403		-	2020	-	-	-	-	-	-
B26-B25	Stream	537252	6990346		2020	-	-	-	-	-	-	-
B30	Pond	538020	6988887	NSSB	-	-	2020	2020	-	-	-	-
B30-B31	Stream	538053	6988846		2020	-	-	-	-	-	-	-
B31	Pond	538109	6988805	NSSB	-	-	2020	2020	-	-	-	-
B31-B5	Stream	538114	6988734	NSSB	2020	-	-	-	2020	-	-	-
B32	Pond	538247	6988753	NSSB	-	-	2020	2020	-	-	-	-
B33	Pond	538755	6988657		-	-	2020	2020	-	-	-	-
B33-B5	Stream	538543	6988553		2020	-	-	-	-	-	-	-
B34	Lake	539440	6987610	NSSB	-	-	2020	2020	-	2020	2020	-
B34-B5	Stream	538966	6987928		2020	-	-	-	-	-	-	-
B36	Pond	539438	6986913	NSSB	-	-	2020	2020	-	-	-	-
B37	Pond	539709	6986708	NSSB	-	2020	2020	2020	-	-	-	-
B38	Pond	539968	6986670	NSSB	-	2020	2020	2020	-	-	-	-
B4	Lake	538772	6986895	NSSB, ARGR	-	-	2020	2020	-	2020	2020	-
B4-B2	Stream	537951	6986999	NSSB, TSSB, ARGR	-	-	-	-	2020	-	-	-
B5	Lake	538007	6988529	NSSB, ARGR	-	-	2020	2020	-	2020	2020	-
B5-B4	Stream	538298	6987794		-	-	-	-	2020	-	-	-

Waterbody Name	Waterbody Type	Easting	Northing	Fish Species Captured	Fish Habitat		Fish Community					Arctic Grayling Spawner Survey
					Stream Habitat	Lake/Pond Habitat	Minnow Trapping	Electrofishing	Drift Netting	Gillnetting	Angling	
B6	Lake	537779	6989168	NSSB, SLSC, ARGR	-	-	2020	2020	-	-	2020	-
B60	Lake	540479	6986300		-	-	2020	2020	-	-	-	-
B61	Pond	540605	6986220	NSSB	-	-	2020	2020	-	-	-	-
B61-B60	Stream	540557	6986253		2020	-	-	-	-	-	-	-
B62	Pond	540297	6986468	NSSB	-	-	2020	2020	-	-	-	-
B63	Pond	540420	6986380	NSSB	-	2020	-	2020	-	-	-	-
B6-B30	Stream	538012	6988900		2020	-	-	-	2020	-	-	-
B7	Lake	537992	6989589	NSSB, BURB, ARGR, CISC	-	-	2020	2020	-	2020	2020	-
B7-B6	Stream	537904	6989338		2020	-	-	-	2020	-	-	-
D31	Pond	535265	6988777	NSSB	-	2021	2021	2021	-	-	-	-
D33	Pond	535090	6988572	NSSB	-	2021	2021	2021	-	-	-	-
E10	Pond	536299	6990174	NSSB	-	2020	2020	2020	-	-	-	-
E11	Pond	536975	6990248	NSSB	-	2020	2020	2020	-	-	-	-
E12	Pond	537214	6991000	NSSB	-	2020	2020	2020	-	-	-	-
E4	Lake	536785	6989945	NSSB, CISC	-	-	2020	2020	-	2020	2020	-
E5	Lake	537156	6989633	NSSB	-	2020	2020	2020	-	2020	-	-
H2	Pond	540582	6989435		-	-	2020	2020	-	-	-	-
H3	Pond	540501	6989411		-	-	2020	2020	-	-	-	-
H3-H2	Stream	540545	6989443		2020	-	-	-	-	-	-	-

Waterbody Name	Waterbody Type	Easting	Northing	Fish Species Captured	Fish Habitat		Fish Community					Arctic Grayling Spawner Survey
					Stream Habitat	Lake/Pond Habitat	Minnow Trapping	Electrofishing	Drift Netting	Gillnetting	Angling	
H4	Pond	540356	6989428		-	-	2020	2020	-	-	-	-
H4-H3	Stream	540448	6989467		2020	-	-	-	-	-	-	-
H5	Pond	540252	6989425		-	-	2020	2020	-	-	-	-
H5-H4	Stream	540311	6989418		2020	-	-	-	-	-	-	-
I1	Pond	542227	6987476		-	2020	-	-	-	-	-	-
J4	Pond	541126	6988253		-	2020	-	-	-	-	-	-
J6	Pond	540933	6988163		-	2020	2021	2021	-	-	-	-
J7	Pond	541263	6987807		-	2020	-	-	-	-	-	-
W1	Pond	554442	6982858	NSSB, BURB	-	2021	2021	2021	-	2021	-	-

Notes:

Waterbody Type: Pond= waterbodies less than 2 m in maximum depth; Lake= waterbodies greater than 2 m deep

NSSB= Ninespine Stickleback; TSSB= Threespine Stickleback; SLSC= Slimy Sculpin; BURB= Burbot; ARCH= Arctic Char; ARGR= Arctic Grayling; CISC= Cisco; RDWH= Round Whitefish; LKTR= Lake Trout

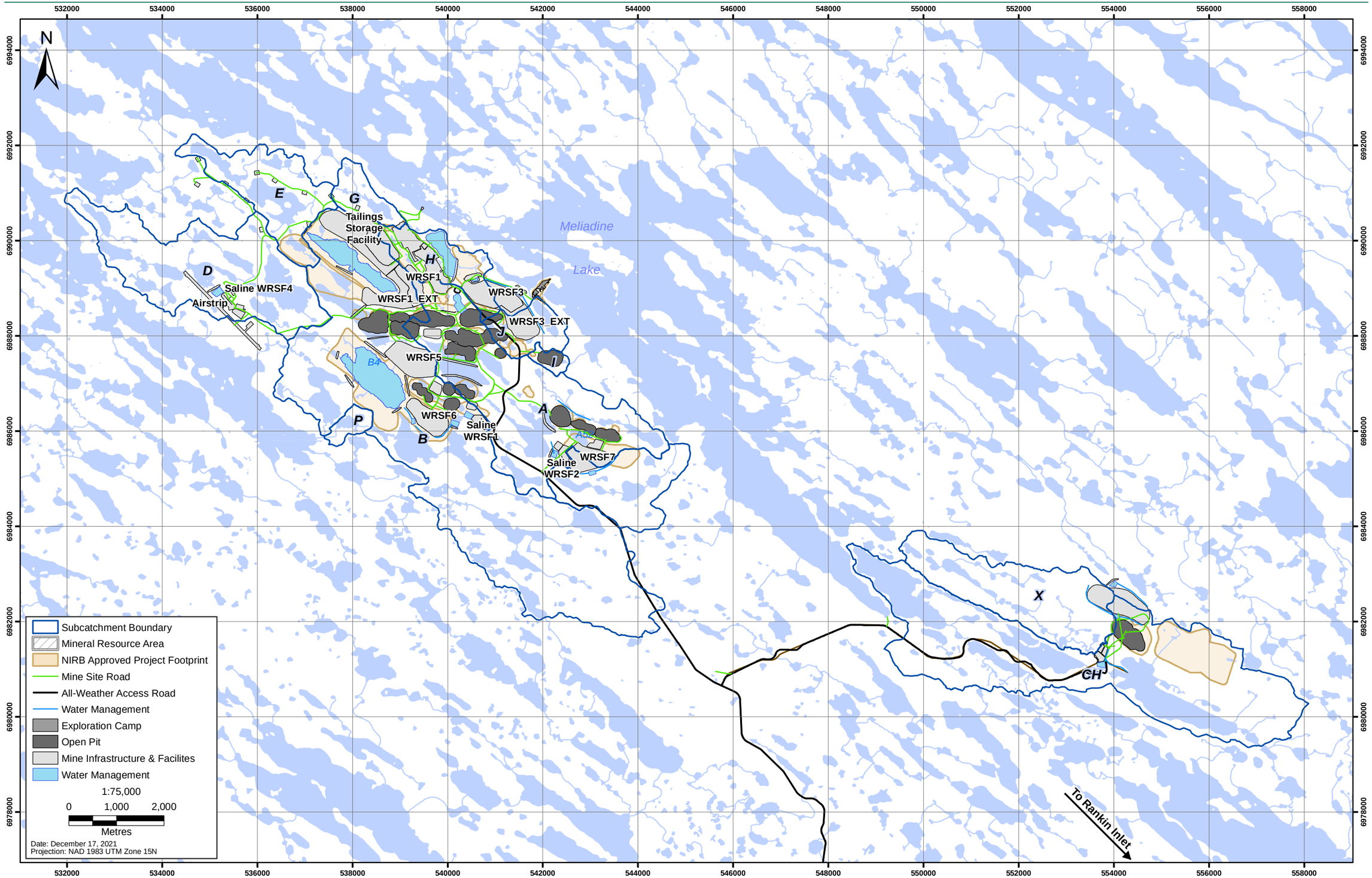


Figure 4-1: Sub-watersheds within the Meliadine Lake Watershed

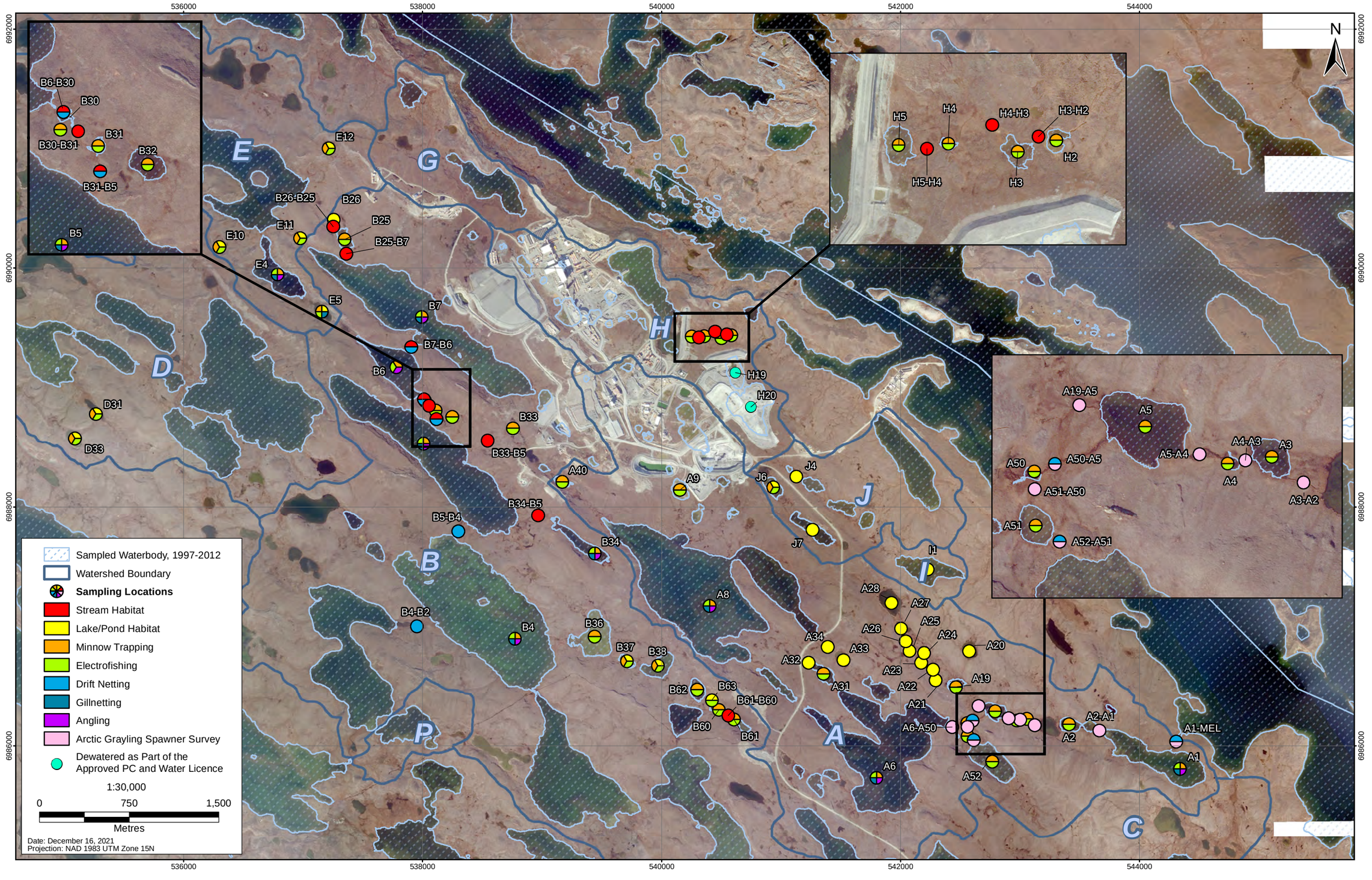


Figure 4-2: Fish and Fish Habitat Sampling in Lakes, Streams and Ponds, 2020-2021

5. METHODS

5.1 Arctic Grayling Spawning Assessment

Visual spawner surveys were conducted along A-Chain stream sections beginning at Meliadine Lake and ending at A6, between June 20 and 23, 2020. Crews were comprised of two people, one on each stream bank. Crews walked the banks of the streams from the downstream end to the upstream end, visually surveying the channel for adult Arctic Grayling. Feeding juveniles and nonbreeding adults generally prefer streams wider than 6 m and deeper than 1 m, while spawning adults prefer streams that are generally narrower and shallower (Stewart et al. 2007). Adult Arctic Grayling observed in small, shallow streams were assumed to be potential spawners. The locations of visible fish were recorded with a hand-held GPS unit. The numbers and locations of Arctic Grayling spawners and juveniles, and the number of other fish species were recorded. Observed behaviors, particularly Arctic Grayling spawning behaviors (e.g., pairing, holding over spawning substrates; Evans et al. 2002, Larocque et al. 2014) were also recorded for each fish sighting. Adult Arctic Grayling were not captured to minimize the disruption of spawning activities and to prevent inadvertent harm to spawners and fertilized eggs.

5.2 Fish Habitat

5.2.1 Stream Habitat

Stream fish habitat assessments were conducted along nine streams within the B-Chain and three streams along the H-Chain to describe the quantity and quality of fish habitat on September 11 and September 12, 2020. With the exception of H5-H4, H4-H3, H3-H2, B6-B30, B30-B31, B7-B6, and B31-B5, there is no historical habitat data for these streams. Stream locations are shown on Figure 4-2.

Habitats were surveyed using methods in the Fish Habitat Assessment Procedures (FHAP; Johnston and Slaney 1996). Representative sections of each reach, approximately 50 to 100 m in length, were assessed. Stream were divided into habitat units of relatively homogenous habitat, and habitat units were classified using the following classification types:

- Cascade: high-energy, steep (gradient > 4%) sections of stream typically dominated by bedrock, boulders and cobbles;
- Riffle: less steep than cascades, but still with turbulent, fast-flowing water. Riffles are usually shallow in water depth with gravel or cobble substrates that project above the water surface, causing surface turbulence;
- Glide: sections of stream with flowing, non-turbulent water and have relatively flat bottoms in cross-section;
- Flat: Areas of still, often stagnant water. Substrate usually covered in silt or organic matter; or
- Pool: relatively deep, slow flowing sections of stream with a concave longitudinal streambed profile and a surface gradient near 0%.

Individual habitat units were measured for length, width and depth (bankfull and wetted), gradient, substrate composition (% abundance of bedrock, boulders, cobble, gravel, and fines), residual pool depth, bank stability, and bank height. Stream attributes were marked using a handheld GPS unit and representative photographs were taken. Barriers or seasonal restrictions to fish migration were also noted and measured, where appropriate. Digital photos and habitat notes were taken to document other characteristics that might further describe each habitat unit (e.g., visual observations of fish, presence of unique or critical habitat features). Habitat suitability for spawning, rearing, migration, and overwintering was described and an overall habitat quality ranking was applied based on the fish species likely to be present (primarily Ninespine Stickleback and Arctic Grayling; Table 5.2-1).

Table 5.2-1: Overall Habitat Quality Rankings and Criteria

	Habitat Quality Ranking			
	Good	**Fair**	**Poor**	**None**
Spawning	The presence of high-value spawning habitat (e.g., locations with an abundance of suitably sized spawning substrates for the fish species present).	The presence of suitable spawning habitat (e.g., locations with some suitably sized spawning substrates for the fish species present).	The presence of suitable spawning habitat but where another factor may limit spawning potential (e.g., access to suitably sized spawning substrates is limited by flow conditions).	The absence of suitable spawning habitat (e.g., little or no suitably sized spawning substrates for the fish species present).
Rearing	The presence of high-value rearing habitat (e.g., locations with an abundance of deep pools, undercut banks, or stable debris).	The presence of suitable rearing habitat (e.g., some locations that provide rearing cover such as deep pools, undercut banks, or stable debris).	The presence of suitable rearing habitat but where another factor may limit rearing potential (e.g., suitable flow conditions but limited cover).	The absence of suitable rearing habitat (e.g., water depth or flow conditions not suitable for rearing for the fish species present).
Migration	Stream conditions (e.g., depth, velocity, water quality, presence of barriers, etc.) allow for unimpeded fish passage on the survey date.	Stream conditions are suitable for fish passage on the survey date (e.g., may be impediments but no passage barriers).	Stream conditions are not suitable for fish passage on the survey date (e.g., inadequate depth or flow, presence of temporary passage barriers).	The absence of suitable migration habitat on the survey date (e.g., NDC, dry channel, permanent barrier).
	High	**Moderate**	**Low**	**None**
Overall Value	Habitat supports all life stage uses for fish.	Habitat supports fish but lacks at least one life stage use.	Habitat may support fish, but does not provide all life stage uses, or is seasonal in nature.	At least one parameter prevents the use of stream as habitat for any life stage (e.g., barriers, water level, temperature, conductivity, pH).

The connectivity of each stream to other fish-bearing waterbodies was assessed to determine whether the stream might provide seasonal habitat to fish. Small Arctic streams flow seasonally; some flow during freshet only and then become dry later in the summer, while others flow throughout the ice-free (open water) period but freeze to the substrate in the winter. These seasonal streams are only of value to fish if they are connected to other habitat types where fish can overwinter, such as lakes or deep ponds, allowing fish to migrate from or into overwintering habitats during the open water season

5.2.2 Littoral Habitat

Littoral habitat at 26 ponds and one lake (i.e., E5) was assessed through visual surveys of the shoreline and littoral zone (up to approximately 1 m water depth) between July 30 and September 12, 2020, and June 20 to August 30, 2021 (Figure 4-2). With the exception of I1, J4, J6, and J7, there is no historical habitat data for these waterbodies. The shoreline was delineated into habitat units with relatively homogenous substrate composition using a handheld GPS unit. The substrate composition of each habitat unit was recorded as a percent of surface area (e.g., 50% cobble and 50% fines). Substrate types were defined by their average particle diameter: fines (less than 2 mm diameter), gravel (2 to 64 mm),

cobble (64 to 256 mm), boulder (256 to 4,000 mm), and bedrock (greater than 4,000 mm). Emergent and submerged vegetation was also recorded when present. Photographs were taken of representative habitat types. Field notes, GPS waypoints, and photographs were used to prepare habitat maps using ArcGIS 10 mapping software (ESRI 2019), and PLANET satellite imagery. Due to its limited size/depth, and uniform substrate type, an informal habitat assessment was completed at B63, whereby general habitat features were recorded and representative photos were taken. Visual surveys using an underwater video camera unit (Vexilar Fish Phone Underwater WiFi Camera System) were performed at randomly selected locations to describe sub-littoral substrate types at W1.

5.3 Fish Community and Biology

5.3.1 Fish Community Sampling

Backpack electrofishing, minnow traps, drift nets, gillnets, and angling were used to sample fish communities between June 20 and September 9, 2020, and August 27 to August 31, 2021. Fish community sampling locations are presented in Appendix A. Fish community sampling was conducted under two Licenses to Fish for Scientific Purposes (LFSP; S-20/21-1001-NU-A2 and S-21/22-1016-NU) issued by Fisheries and Oceans Canada.

Fish community composition was characterized and compared among sites using species presence and calculated catch-per-unit-effort (CPUE). CPUE is an index of relative abundance that can be used to compare fish populations among different areas and years. It is defined as the number of fish captured per sampling device per unit time (Table 5.3-1).

Table 5.3-1: Catch-Per-Unit-Effort Calculations Used in Fish Community Summaries

Sampling Gear	Catch-Per-Unit-Effort (CPUE) Calculation
Electrofisher	No. of fish caught × [100/(electrofishing effort, s)]
Minnow Trap	No. of fish caught × [24 (h) / Set time (h)]
Drift Net	No. of fish caught / [area of submerged net mouth (m^2) × flow velocity (m/s) × Set time (s)]
Gillnet	No. of fish caught per net × 100 m^2 / total net area (m^2) / Set time (h)
Angling	No. of fish caught per rod × (1/total no. of rods) × [1 h/(set time, h)]

5.3.1.1 Electrofishing

Backpack electrofishing was used to sample fish communities at 44 lakes and ponds between June 30 and August 25, 2020, and August 27 to 29, 2021 (Appendix A, Figures A-1 to A-23). A Halltech-2000 battery powered backpack electrofisher was used, accompanied by one dip netter. An anode ring diameter of 28 cm and a dip net diameter of 21 cm with 3.2 mm mesh were used. A systematic sweep sampling approach was conducted; the shoreline was sampled between the water's edge to the maximum safe wading depth. The primary objective was to determine fish presence and fish community composition. Electrofisher voltage (V), and frequency (Hz) settings were adapted to maximize capture efficiency at each site.

Electrofishing effort was standardized as CPUE, which was calculated as the number of fish captured per 100 seconds (s) of electrofishing effort. Fish that were observed but not captured were recorded. All captured fish were immediately placed in a holding tank for species identification, enumeration, and biological processing, and then released.

5.3.1.2 Minnow Trapping

Cylindrical minnow traps (43 cm long, 23 cm in diameter, with 6.5 mm mesh, entrance diameter 3 cm) were employed to sample small-bodied fish in 43 lakes and ponds between June 20 and August 23, 2020, and August 27 to 30, 2021 (Appendix A, Figures A-1 to A-23). Traps were baited with dry commercial crab bait and deployed along the shoreline within a representative range of habitat types to capture fish of different ages, and species with varying habitat preferences. Traps were immersed for approximately 24 hours (h) and retrieved on the following day. Minnow trapping data were standardized as CPUE, which was calculated as the number of fish captured per trap per 24 h.

5.3.1.3 Drift Netting

Drift nets were installed at eight stream locations to monitor fish movement between September 5 and September 9, 2020 (Appendix A, Figures A-1 to A-3, A-6 to A-9, and A-11). Each drift net consisted of a stainless steel D-shaped frame (73 cm x 55 cm), a tapering mesh net (length = 3.6 m; mesh size = 3 mm), and a collection container which was attached to the cod end of the net. The mouth of the net was set perpendicular to water flow, and secured in place using rebar stakes hammered into the streambed. Nets were checked at least once per 24 h, and total set times were adjusted according to catch rates. Captured fish were immediately placed in a holding tank for species identification, enumeration, and biological processing and then released. Where catches exceeded 500 stickleback of relatively uniform size, a different enumeration method was employed whereby a random subsample of fish were counted and placed in a small cup and weighed, in bulk, to the nearest 0.01 g. These measurements were then used to roughly convert bulk weight to fish number for subsequent measurements.

Drift net samples were standardized as CPUE, which was calculated according to total volume of water filtered (m^3; calculated as the product of mean current velocity in each net [m/s]), net area (m^2; width and height of the submerged portion of net) and duration of sampling (s). It is important to note that this calculation provides an approximation, as water velocity varies both spatially (within the net mouth) and temporally.

5.3.1.4 Gillnetting

A total of 66 gillnets were set between July 25 and September 4, 2020, and August 30 to 31, 2021 at nine lakes and one pond (i.e., W1) (Appendix A, Figures A-1, A-3 to A-4, A-7 to A-9, A-13, A-16, and A-23). In 2020, each gillnet consisted of a gang of three panels of different mesh sizes (1" - 3.5"). Each panel was 15 m long, and the panels were sewn together to make a net that was 45 m long and 1.8 m deep. In 2021, gillnets consisted of three 24.8 m long North American standard nets (panels: 3.1 m long by 1.8 m deep; stretched mesh sizes: 38 mm, 51 mm, 64 mm, 76 mm, 89 mm, 102 mm, 114 mm, and 127 mm), joined together as a 74.4 m long gang. All nets were deployed by boat and set for up to 1.5 h. Initial set times were short (i.e., less than 1 h), but were adjusted according to catch rates in order to maximize fish capture while minimizing stress and mortality to fish. Gill netting data were standardized as CPUE, which was calculated as the number of fish captured per 100 m^2 of net per hour.

5.3.1.5 Angling

Angling efforts were conducted between July 24 and September 3, 2020 at nine lakes using one or two spinning rods fishing simultaneously. Spinning rods were fished by spin casting or trolling with spinners in various colours with barbless treble hooks. Fishing locations were marked (Appendix A, Figures A-1, A-3 to A-4, A-7 to A-9, A-13, and A-16) and duration of fishing effort at each location was recorded.

5.3.2 Biological Sampling

All captured fish were immediately placed into a holding bin or bucket containing fresh water from the location of capture before being identified to species, enumerated, and given a unique sample number. Biological information was collected from all fish captured, with the exception of Ninespine Stickleback (*Pungitius pungitius*), which were randomly subsampled. Fork length (or total length for Slimy Sculpin (*Cottus cognatus*) and Burbot (*Lota lota*)) was measured to the nearest 1 mm with a measuring board and wet weight was measured using an electronic balance. Where parasites or deformities, erosions, lesions and tumors (DELTs) were observed, this information was recorded. Ageing structures, including scales and pelvic fin rays, were collected from all large-bodied fish captured (i.e., Arctic Grayling, Arctic Char, and Cisco (*Coregonus artedi*)). Representative photographs of several individuals of each species were recorded. Fish were then released back at the location of capture.

Additional data (sex, reproductive status, aging structures (i.e., sagittal otoliths), assessment of internal parasites, and visual inspection of stomach contents) were collected from incidental mortalities. The sex of immature fish was recorded as unknown. Spawning condition (unknown, undeveloped, green, ripe, running, or spent) was assigned based on the size of fish, as well as the presence of eggs or milt and the fullness of the belly. Fin rays, scales, and otoliths (if collected) were placed in wax paper and stored in labelled paper envelopes, and sent to North/South Consultants Inc. (Winnipeg, MB) for age determination analysis.

Age was determined by counting the number of annual rings (annuli) in the aging structure. One aging structure was analyzed for each fish with the potential to use additional structures for cross-validation if the age could not be determined from the first structure. Fin rays were the preferred structure used for analysis. Fin rays were first air-dried and then mounted in an epoxy medium. Thin microsections were cut from the mounted structure and fixed to a microscope slide. The annuli were counted using a compound microscope.

5.4 Offsetting Site Reconnaissance

To support the continued development of a fisheries offsetting plan, field work was initiated in June 2021 to collect hydrological data at two candidate offsetting sites: KM 10 (i.e., previously Char River #2; 15 V 546608.94 m E, 6973128.69 m N), and Suluppqugaliit (15V 542500.76 m E, 6938261.26 m N). In June, two hydrometric monitoring stations were installed at each of these sites, and water level (stage) and discharge (stream flow) measurements were completed at the KM 10 site. Water level and stream discharge measurements could not be completed at the Suluppqugaliit site in June due to helicopter access constraints.

An aerial-based reconnaissance survey was conducted on August 28, 2021 at Nipissar Lake (15V 544599.00 m E, 6966341.00 m N), which was also identified as a candidate offsetting option.

Following the initial field trip in June, the KM 10 and Suluppqugaliit sites were removed from consideration as offsetting sites and were not investigated further. All four hydrometric monitoring stations that were installed in June 2021 (i.e., two at KM 10 and two at Suluppqugaliit) were demobilized in late September. This was completed prior to freeze up in order to prevent damage to the station equipment and electronics. Stage-discharge measurements and water level surveys were conducted immediately prior to station demobilization.

5.5 Data Analysis

5.5.1 Fish Habitat

Fish habitat data collected in streams were based on measurements made over a representative segment of each reach surveyed. Where applicable, habitat characteristics within a reach are reported as the mean of all measurements collected within that reach.

5.5.2 Fish Community and Biology

5.5.2.1 Fish Community

Comparisons of CPUE were made based on the following assumptions (Johnson et al. 2007):

- no fish moved in/out of the site or lake during the assessment;
- the rate of fish catch was proportional to abundance;
- capture efficiency was independent of field conditions within each stream, lake, or pond; and
- each trap/net/rod was not influenced by the effort and catch of any other trap/net/rod.

Where less than 10 sampling sets were conducted, bootstrap resampling was performed on CPUE data (10,000 resamples) in order to generate a mean, SD of the mean, and 95% CI of the mean. In such cases, the bootstrap 95% CI are likely narrower than true 95% CI whereas the regular 95% CI are likely larger than the true 95% CI. Bootstrapping provides a less conservative estimate of error variance than conventional estimates for comparing the mean from small sample sizes.

5.5.2.2 Fish Biology

Basic fish measurements such as length and weight were compared for each species among sites. Where fewer than ten samples were collected, data were bootstrapped to provide more accurate summary statistics. Measurements were transformed with natural logarithms to meet assumptions of normality, and data were plotted so that outliers could be identified and addressed by correcting or removing incorrectly recorded or transcribed measurements.

Length- and age-frequency distribution graphs were created to visualize the distribution of these variables for each species at each lake. These graphs provide information about the overall population composition.

Condition is an index of the relative health of fish. Two indices were used to calculate condition: Fulton's condition factor and weight-length regressions. Fulton's condition factor (Fulton's K) was calculated for all fish for which length and weight data were obtained, and was based on the following formula:

$$\text{Fulton's K} = \text{weight (g)} \times 10^5 / \text{fork or total length (mm)}^3$$

Comparisons of weight-length regressions are generally considered to be more robust than comparisons of indices such as Fulton's condition factor (Environment Canada 2011). The weight-length relationship was tested using ordinary least-squares regression analyses with natural log transformed weight as the dependent variable and natural log transformed length as the independent variable. A significant regression indicates that there was a strong weight-length relationship. Lack of significance may be due to low sample sizes or variable data (either due to natural variability or measurement error). The equation for the weight-length model is:

$$\ln(\textit{weight}) = a + b\,[\ln(\textit{total, or fork length})]$$

where weight is in g, total, or fork length is in mm, *a* is the y intercept (i.e., weight at length zero), and *b* is the slope of the relationship between weight and length (change in weight with length, or, condition). Outliers were identified in preliminary weight-length regression plots and removed from analysis if the value was more than the standard deviation of the mean weight of all fish with a fork length within 5 mm.

The relationship between age and size of each species yields insight into individual growth rate and maximum body length for a population and may be determined using von Bertalanffy growth models. For each species, three models were examined: a standard von Bertalanffy model, a modified von Bertalanffy model with the age at which length equals zero (t_0) fixed at zero, and a linear regression length-age model. The standard equation for the von Bertalanffy model is:

$$L_t = L_\infty(1 - e^{(-K(t-t_0))})$$

where L_t is the length (mm) at age t (years), L_∞ is the length (mm) that the fish would attain if it were allowed to grow for an infinitely long time (otherwise known as asymptotic length), K is a growth constant (year^{-1}), and t_0 is the age (years) at which length equals zero.

The equation for the modified von Bertalanffy model is:

$$L_t = L_\infty(1 - e^{(-K(t))})$$

Weighted Akaike Information Criterion (wAIC) values are presented for each model to compare the goodness of fit of each model to the data. The model with the highest wAIC is the model that best fits the data. If either the von Bertalanffy or the modified von Bertalanffy models were the best fit, the estimated L_∞ (asymptotic length) and K (instantaneous growth rate) were reported. If the linear model was the best fit, the respective F value was reported along with the growth rate (the slope parameter, *b*, of the linear equation). Growth models were only estimated for datasets containing at least 10 fish, as model reliability declines sharply with fewer samples.

5.6 Quality Assurance and Control

Quality Assurance / Quality Control (QA/QC) was implemented throughout the field program to ensure accurate data collection and analysis. Field balances were calibrated prior to the beginning of the field program, kept free of excess water and sediment, and regularly tared to maintain accuracy. Field notes were transcribed into electronic spreadsheets and all transcriptions were checked visually against the field forms and any errors corrected. Data were also plotted to identify any outliers that may have resulted from transcription errors that occurred in the field.

Ten percent of the aging samples were reassessed by a second aging technician. Second readings were conducted as independent from each other. If two independent reads differed, then the mean age was taken for the sample.

6. RESULTS AND DISCUSSION

6.1 Arctic Grayling Spawning Assessment

Arctic Grayling spawn in a range of habitats, including tributaries to rivers and lakes, mainstem rivers, intermittent streams, and in lakes (usually in association with outlet and inlet streams) (Armstrong 1986). Arctic Grayling reach sexual maturity between 2 and 9 years of age (Stewart et al. 2007). They are able to spawn multiple times over the course of their lives, which can range from 10 to 29 years depending, in part, on environmental conditions (Stewart et al. 2007).

Stream-spawning Arctic Grayling migrate upstream into small tributaries to spawn in the spring during or just after ice breakup (Stewart et al. 2007). Females release their eggs over, or shallowly into (i.e., 2-3 cm) the gravel where they adhere and incubate for approximately two weeks before hatching (Stewart et al. 2007, Armstrong 1986, Bishop, 1971). Some eggs drift downstream from the spawning areas (Kratt 1977, Armstrong 1986).

Spawning substrate ranges from fine silts to coarse cobble, but the general preference is for small, unembedded gravels about 2.5 cm in diameter (Beauchamp 1990). Most spawning activity occurs from mid-day through late afternoon, when water temperature peaks for the day (Beauchamp 1990, Ford et al. 1995). There is no parental care of the eggs or young, and after spawning, adults leave the area, returning to lakes (Ford et al. 1995, Scott and Crossman 1973). Juveniles tend to rear in these streams for most of the summer, while adults rear in lakes, to which they return after spawning (Hubert et al. 1985). Both adults and juveniles overwinter in larger rivers and lakes downstream of the spawning areas (Stewart et al. 2007).

Twenty Arctic Grayling spawners were observed in five of the ten stream sections surveyed (Figure 6.1-1) between Meliadine Lake and A6. No juvenile Arctic Grayling were observed during the visual surveys. The maximum number of spawners (n = 8) was observed in stream A1-A2, June 20, 2020 (Figure 6.1-1). Pairing behavior was noted during surveys at A1-A2 and A2-A3. Four Arctic Grayling spawners were also observed at A4-A5, outside of the survey period, during fish community sampling at A5.

Overall, the presence of overwintering lakes (A1 and A6) and streams capable of supporting spawning, rearing, and migration of Arctic Grayling between Meliadine Lake and A6 likely contributes to year-round use by this species. The only other species observed during the surveys were Ninespine Stickleback which were recorded in streams A5-A19, and A50-A6.

Suitable spawning habitat was more limited in the smaller tributaries (i.e., A5-A19, A51-A52, and A50-A51) which displayed beaded tundra stream morphologies through wetted terrestrial vegetation, where water depths were generally more shallow, and substrates were comprised of finer materials (Figure 6.1-1). Detailed visual survey observations are presented in Appendix B, Table B-1. Representative photos of stream sections where spawners were observed are provided in Figure 6.1-1.

6.2 Fish Habitat

6.2.1 Stream Habitat

Fish habitat surveys were conducted on September 11 and September 12, 2020 at 12 streams within the B-Chain and H-Chain. Detailed habitat assessment data are presented in Appendix A-2, Table B-2.

Table 6.2-1 presents the dominant habitat type in each assessment reach, the type and permanence of any barriers to fish passage, and the overall fish habitat quality for stream habitat considered in the assessment. Habitat types recorded during the survey are mapped on Figure 6.2-1 and Figure 6.2-2 for B and H-Chain streams respectively. Overwintering habitat was assumed to be negligible as the depths of the streams assessed (i.e., < 2 m) mean that they freeze to the substrates in winter (Agnico Eagle 2014).

Table 6.2-1: Fish Habitat Quality Ranking at B-Chain and H-Chain Streams, September 2020

Waterbody Name	Dominant Habitat Type	Barriers/Obstructions		Ninespine Stickleback			Arctic Grayling			Overall Habitat Quality Ranking
		Type	Permanence	Spawning	Rearing	Migration	Spawning	Rearing	Migration	
B6-B30	G	None	-	G	G	G	G	G	G	High
B30-B31	R	None	-	G	G	G	G	G	G	High
B31-B5	R	None	-	G	G	G	F	F	F	High
B26-B25	F	OF	T	G	G	G	N	N	N	Moderate
B25-B7	F	OF	T	G	G	G	N	N	N	Moderate
B7-B6	F	None	-	G	G	G	G	G	G	High
B61-B60	F	OF; SF	T	G	G	G	N	N	N	Moderate
B34-B5	F	OF	T	G	G	G	N	N	N	Moderate
B33-B5	F	OF; WQ	T;P**	G	G	N	N	N	N	Low
H5-H4	F	D; OF; O*	T	N	N	N	N	N	N	None
H4-H3	G	OF; O*	T	G	G	N	N	N	N	Low
H3-H2	G	SF	T	F	F	N	N	N	N	Low

Notes:
Habitat Types: G = glide; F = Flat; R = riffle; P = pool
Permanence: P = permanent; T = temporary
Barrier Types: OF = Overland Flow; D = Dry channel; SF = Subsurface Flow; WQ = Water Quality; O = Other
Habitat Quality Ranking: N = none; P = poor; F = fair; G = good
Dashes = not applicable
** Erosion prevention and sediment control (EPSC) devices installed at this site create temporary barrier*
*** Elevated conductivity could indicate water quality issues at this site*

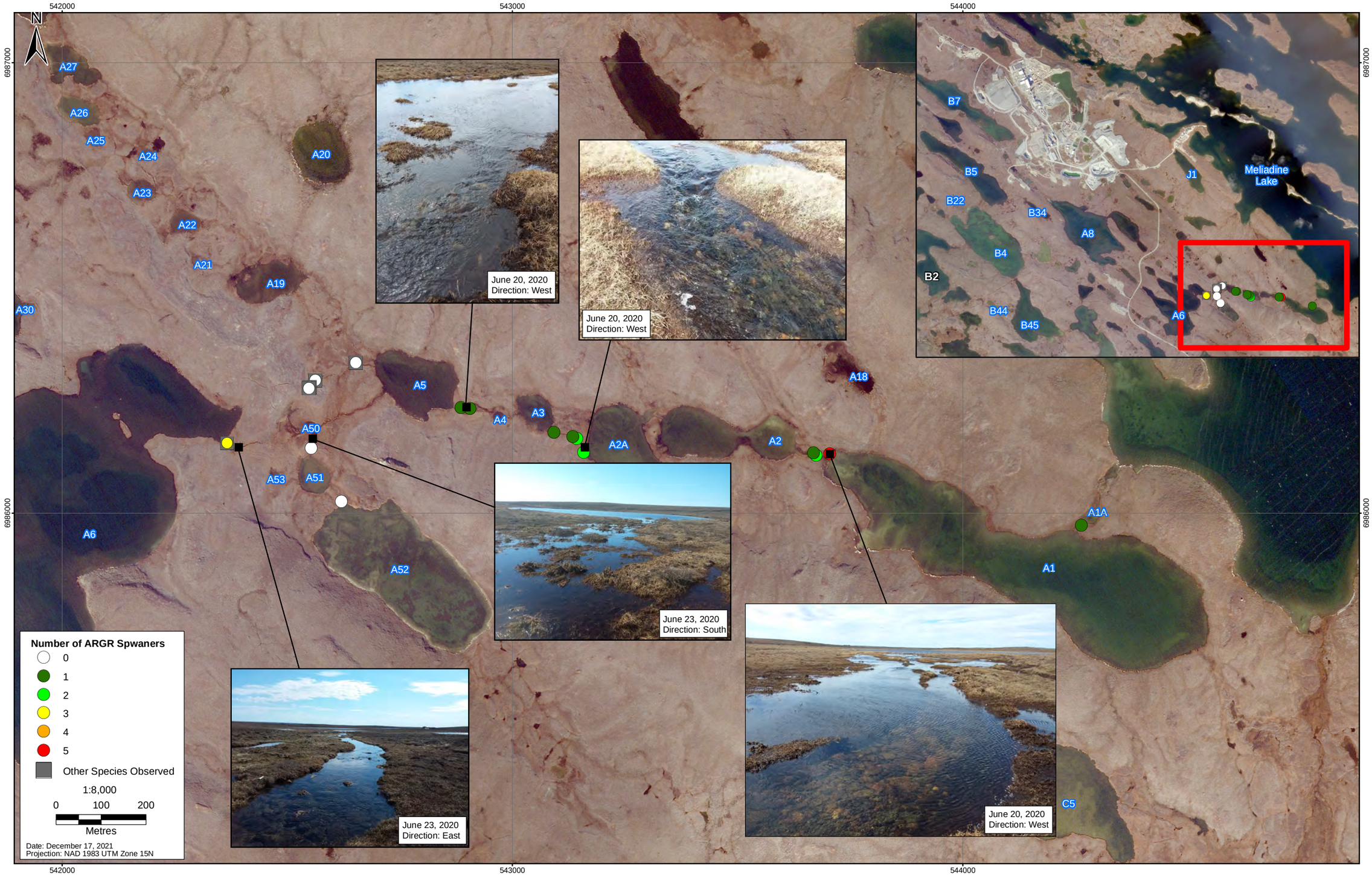


Figure 6.1-1: Arctic Grayling Spawner Survey Observations, June 2020

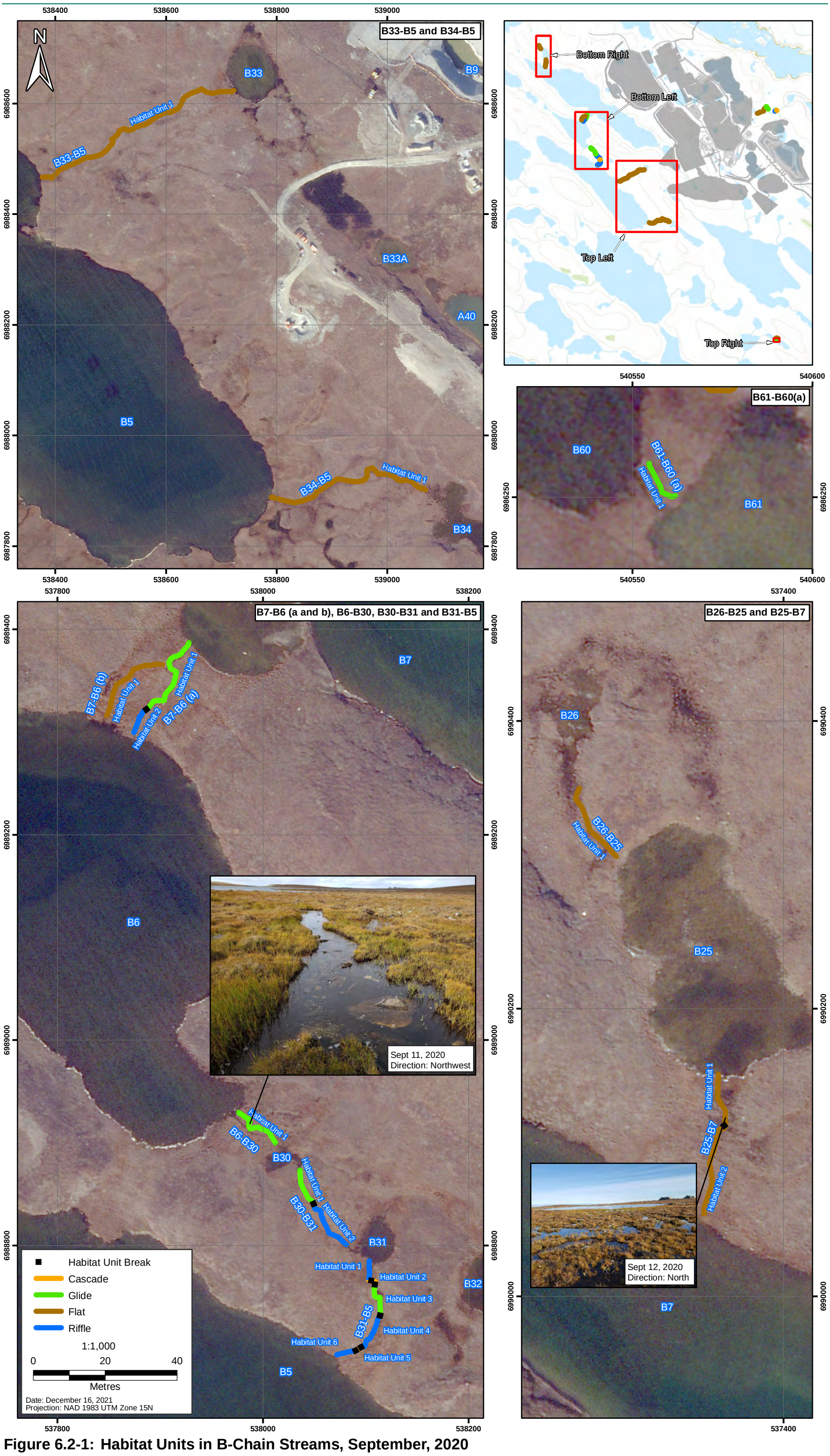


Figure 6.2-1: Habitat Units in B-Chain Streams, September, 2020

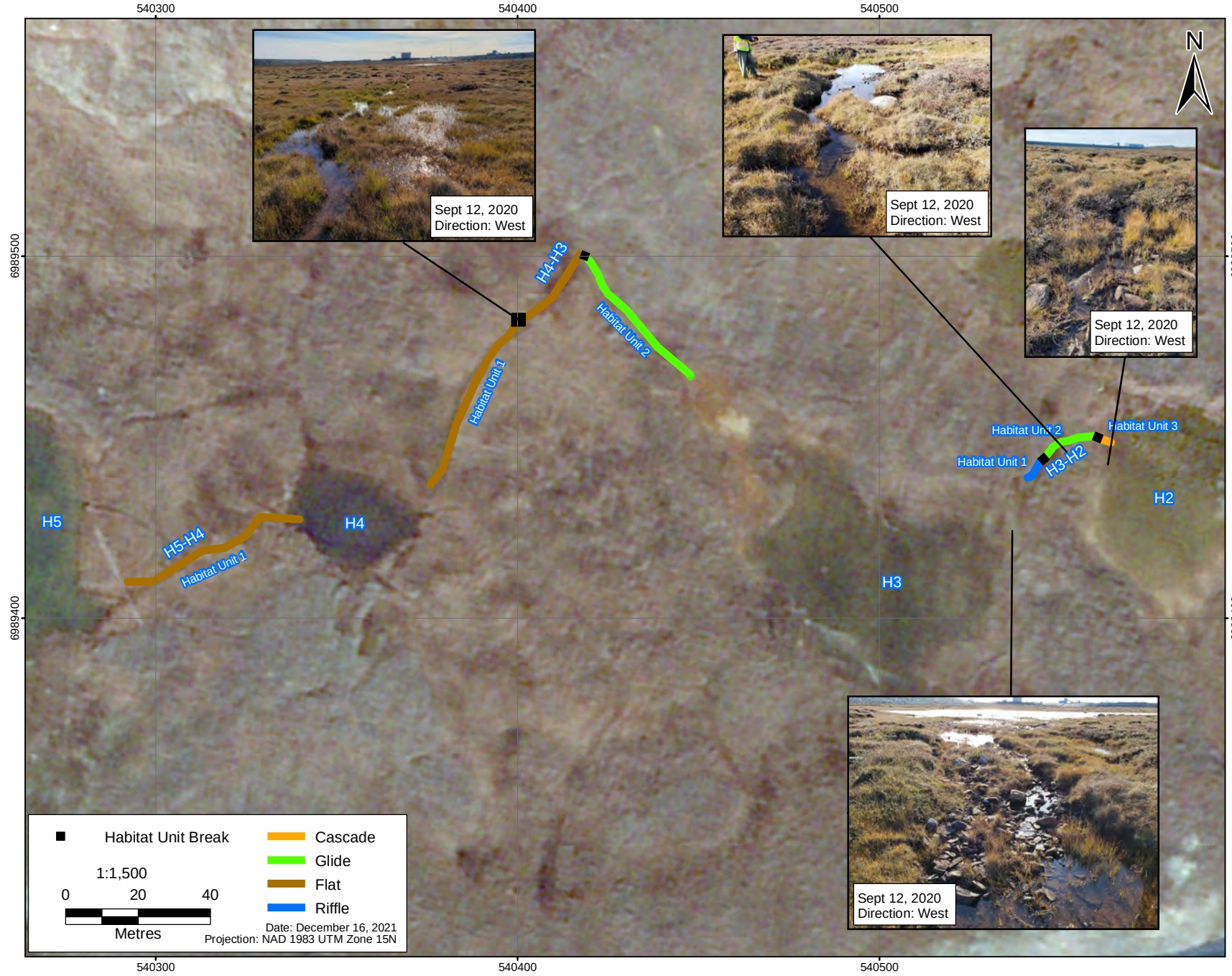


Figure 6.2-2: Habitat Units in H-Chain Streams, September, 2020

6.2.1.1 B-Chain Streams

Nineteen habitat units were identified in the nine streams surveyed within the B-Chain (Appendix B, Table B-2). Flat habitats were the most common habitat type based on the number of units and stream length (Figure 6.2-1). Flat habitat units accounted for over half of the total stream length at five of the streams surveyed including B26-B25, B25-B7, B61-B60, B34-B5, and B33-B5. These sections were characterized by low gradient, slow flowing, often braided channels throughout grass and willow cover. Due to shallow depths and low water velocities, flat habitat units provide little habitat for rearing salmonids but maintain stream connectivity and provide habitat for all life stages of small-bodied fish (e.g., Ninespine Stickleback). Glides comprised the next most common habitat type by stream length (Figure 6.2-1) in B6-B30, B30-B31, and B31-B5. Riffles were recorded in B30-B31, B31-B5, and B7-B6 and two cascades were recorded in B31-B5 (Figure 6.2-1; Appendix B, Table B-2). Riffles and cascades are higher quality habitats for juvenile rearing because they are structurally complex, well oxygenated, provide higher quality food sources, and provide refuge from predators.

Mean gradient ranged from 0.01% to 10%. Mean bankfull depth ranged from 0.2 m to 0.5 m. The bed material was primarily composed of fines and secondarily composed of varied amounts of cobble, gravel, and boulder. Substrate is a fundamental component of fish habitat due to its physical properties and its biological functions (e.g., cover for fish, invertebrate habitat, and incubator for fish embryos).
Instream cover ranged from 20% to 80%. Instream vegetation/organic debris was the primary cover type. Overhanging vegetation and boulders were the secondary type, while undercut banks contributed small proportions of the available habitat. Overland flow was identified as a potential barrier to fish migration at six of the B-Chain streams. Subsurface flow and water quality (elevated conductivity) were also identified as potential barriers to fish migration at B61-B60 and B33-B5 respectively.

Habitat surveys conducted at B6-B30, B30-B31, B31-B5, and B7-B6 suggests these streams have habitat characteristics that would provide rearing habitat for Ninespine Stickleback and Arctic Grayling due sufficient depth/velocity, the availability of cover, and shallow, calm water areas. Potential spawning habitat for both Ninespine Stickleback (comprised of aquatic vegetation/organic material), and Arctic Grayling (comprised of rock substrates) was also identified. Stream conditions (i.e., depth, velocity), and lack of barriers on the survey date allowed for unimpeded fish passage, suggesting these streams provide good migratory habitat for both Ninespine Stickleback and Arctic Grayling.

Habitat surveys conducted at B26-B25, B25-B7, B61-B60, and B34-B5 suggest these streams have habitat characteristics that would provide suitable rearing, spawning, and migratory habitat for Ninespine Stickleback at the time of the survey. Due to the ephemeral nature of these streams, migratory potential likely becomes limited as flows recede following spring freshet. No habitat for large-bodied fish was identified at the time of the survey.

B33-B5 provided suitable spawning and rearing habitat for Ninespine Stickleback. However, barriers identified during the survey (i.e., overland flow, water quality) may impede fish passage.

Overall, B-Chain streams varied in fish habitat quality during the September surveys. Fish habitat quality was high at B6-B30, B30-B31, B31-B5, and B7-B6, with good overall habitat for Ninespine Stickleback and fair to good habitat for Arctic Grayling (Table 6.2-1). Fish habitat quality was moderate at B26-B25, B25-B7, B61-B60, and B34-B5, which displayed beaded tundra stream morphologies.

Habitat quality at B33-B5 was categorized as low due to overland flow and possible water quality (elevated conductivity) barriers.

6.2.1.2 H-Chain Streams

Six habitat units were identified among the three streams surveyed within the H-Chain. Flat and glide habitats were the most common habitat types in number of units, while glides comprised the dominant habitat type by stream length (Figure 6.2-2). Glide habitat units accounted for over half of the total stream length at H3-H2, and H4-H3. The entire extent of H5-H4 was characterized by flat-type habitat. Riffle and cascade habitat types were recorded only in H3-H2 (Figure 6.2-2; Appendix B, Table B-2).

Mean gradient across all stream sections surveyed ranged from 0.1% to 20%. Mean bankfull depth ranged from 0.3 m to 0.5 m. Streambed material was primarily composed of fines and secondarily composed of varied amounts of cobble, gravel, and boulder. Instream cover ranged from 20% to 60%. Instream vegetation/organic debris were identified as the primary cover type. Undercut banks and boulders were the secondary type, while overhanging vegetation contributed small proportions of the available habitat. Overland flow was identified as a potential barrier to fish migration at H5-H4 and H4-H3. Subsurface flow was also identified as a potential barrier to fish migration at H3-H2. Man-made erosion prevention and sediment control (EPSC) devices placed at the outlets of H5 and H4 were identified as temporary barriers to fish passage. Access by Ninespine Stickleback to H-Chain streams was ephemeral, with streams lacking the flow necessary to support fish during dry periods in the summer.

In general, H-Chain streams had low habitat quality during the September, 2020 surveys when some temporary migration barriers were identified, no habitat for large-bodied fish was recorded and habitat quality for various life stages of Ninespine Stickleback varied (Table 6.2-1).

6.2.2 Littoral Habitat

Appendix B, Table B-3 presents the littoral habitat survey data. An informal habitat assessment was completed at B63, due to its limited size/depth, and uniform substrate type.

6.2.2.1 A20

A20 is a small pond located approximately 200 m northeast of A19. The full perimeter of A20, amounting to a total of 546 m of shoreline was assessed, and nine littoral habitat units were identified (Figure 6.2-3). The dominant substrates recorded in the littoral zone were cobble (41%), and fines (39%). Boulder and gravel each represented 11%, and 9% of the overall littoral habitat, respectively. Cobble substrates dominated in five of the habitat units, mainly on the southwest and southeast shorelines (Photo 6.2-1). Fines were the dominant substrate type in four of the habitat units (Photo 6.2-2), mainly occurring along the northern shoreline interspersed in places with large rocky substrates (e.g., cobble, boulder). Boulder and gravel substrates were subdominant across all habitat units. Wetted terrestrial vegetation (sedge) contributed moderate amounts of cover around the perimeter of the pond. At the time of the June 2021 survey, there was no visible connectivity between A20 and downstream ponds; however, during periods of increased flow, A20 may be connected to downstream waterbodies via ephemeral overland flow (Photo 6.2-3).

6.2.2.2 A21

A21 is a small, ephemeral pond located approximately 90 m west of A19. The full perimeter of A21, amounting to a total of 189 m of shoreline was assessed, and one littoral habitat unit was identified (Figure 6.2-4). Fines comprised 100% of the littoral habitat. At the time of the June survey the pond was very shallow (maximum depth = 0.15 m), and had little instream vegetation (Photo 6.2-4). Riparian vegetation consisted of short sedge and grasses. The pond was almost entirely dry at the time of the August survey (Photo 6.2-5). Signs of higher water indicate that A21 is likely to be seasonally connected to A19 via ephemeral overland flow; however, at the time of the June survey there was no visible downstream connectivity.

Photo 6.2-1: Cobble dominated shoreline habitat, A20, June 21, 2021.

Photo 6.2-2: Fines dominated shoreline habitat, A20, facing south, June 21, 2021.

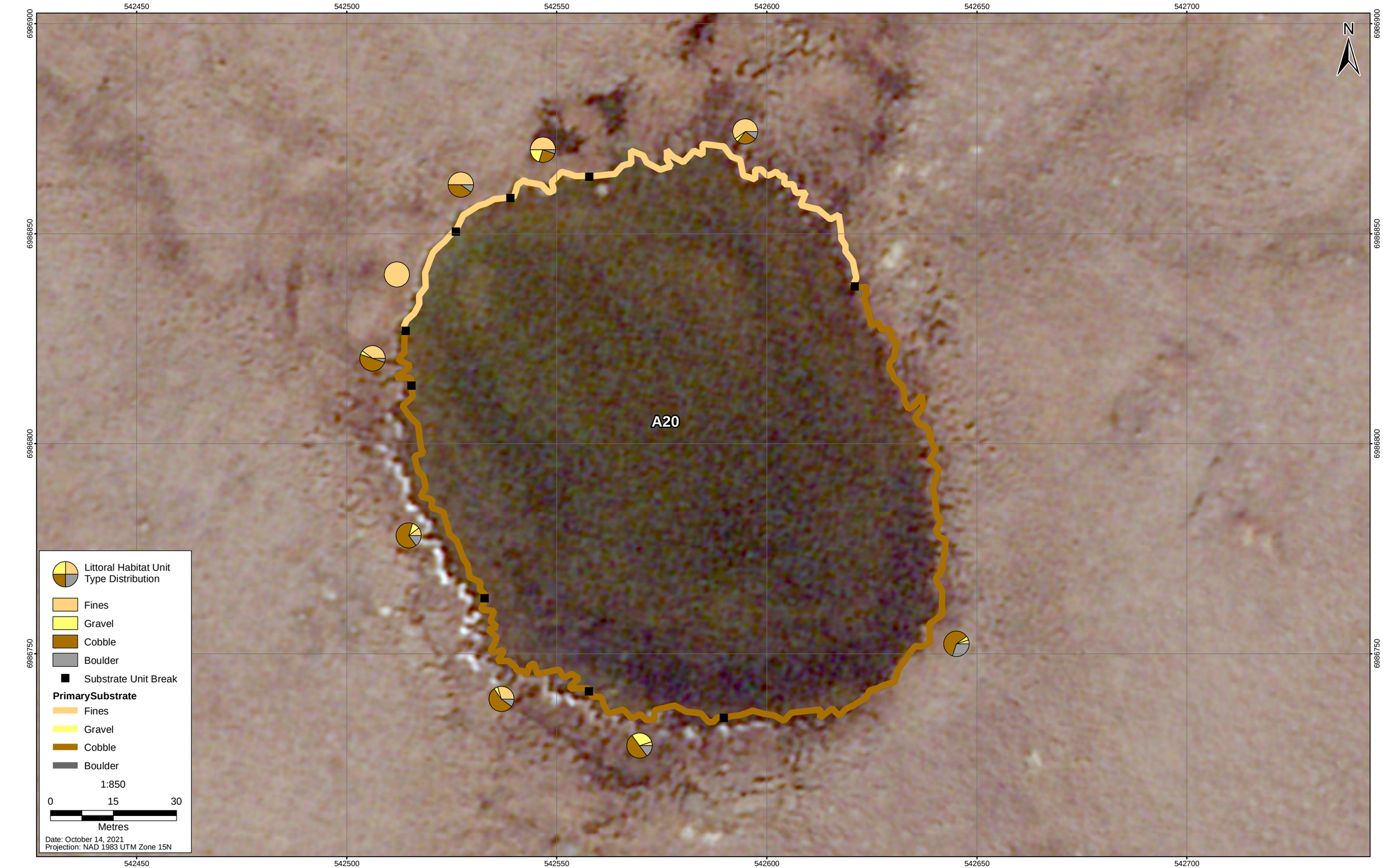


Figure 6.2-3: Littoral Substrate Composition in A20, 2021

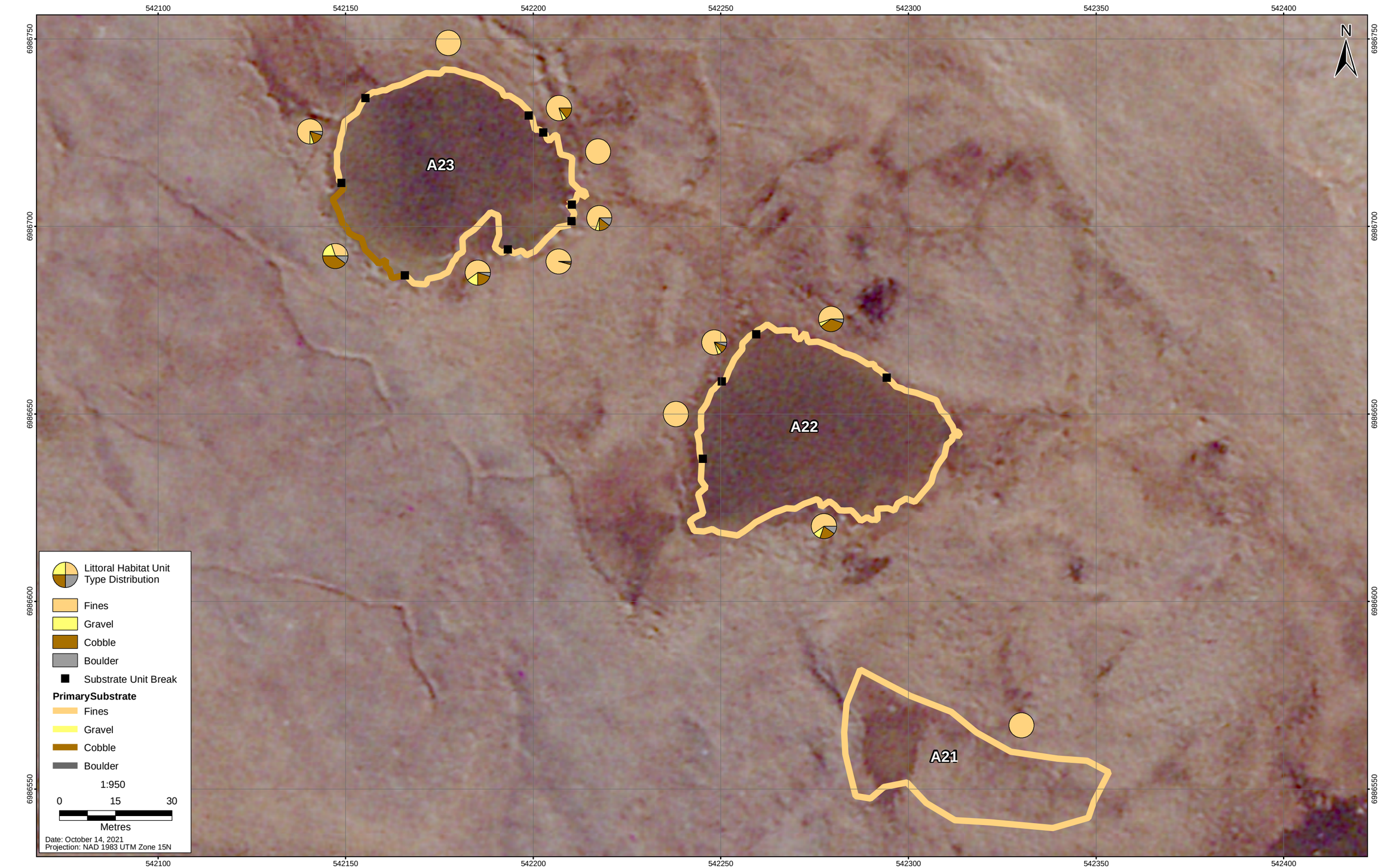


Figure 6.2-4: Littoral Substrate Composition in A21, A22, & A23, 2021

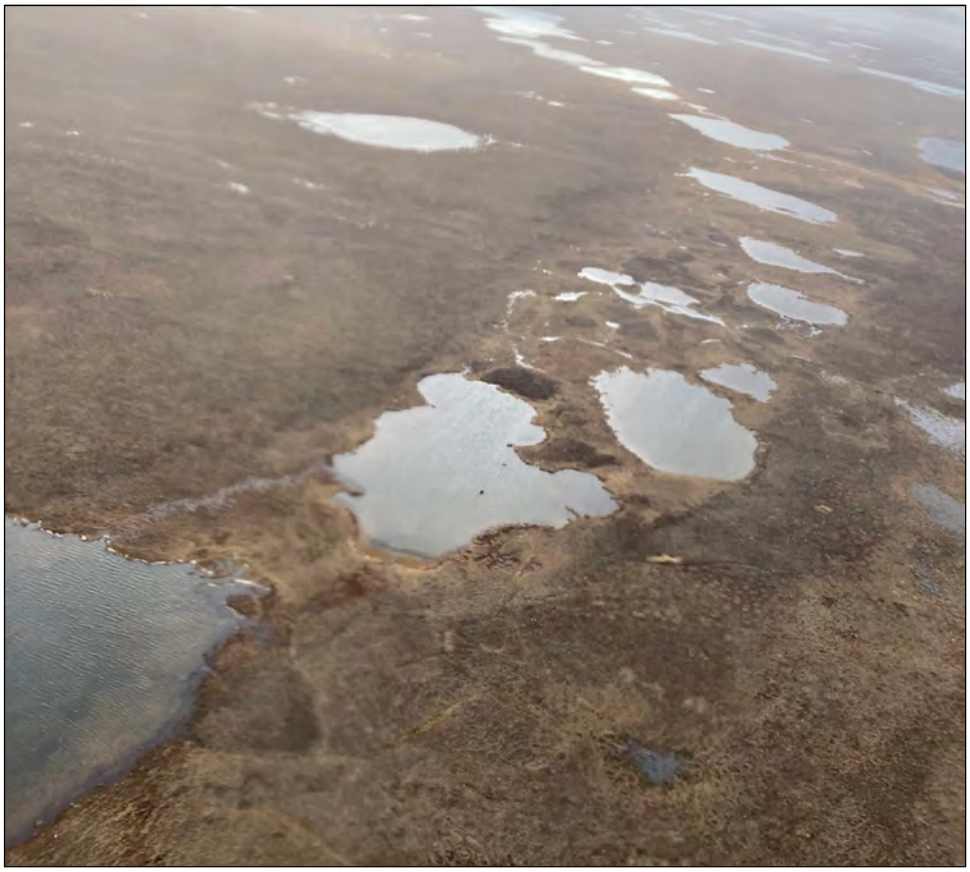


Photo 6.2-3: Aerial view of A-Chain ponds connected via ephemeral overland flow (A28 appears in the lower left corner; A20 appears in the upper left corner), facing south, June 19, 2021.

Photo 6.2-4: A21, facing northwest, June 26, 2020.

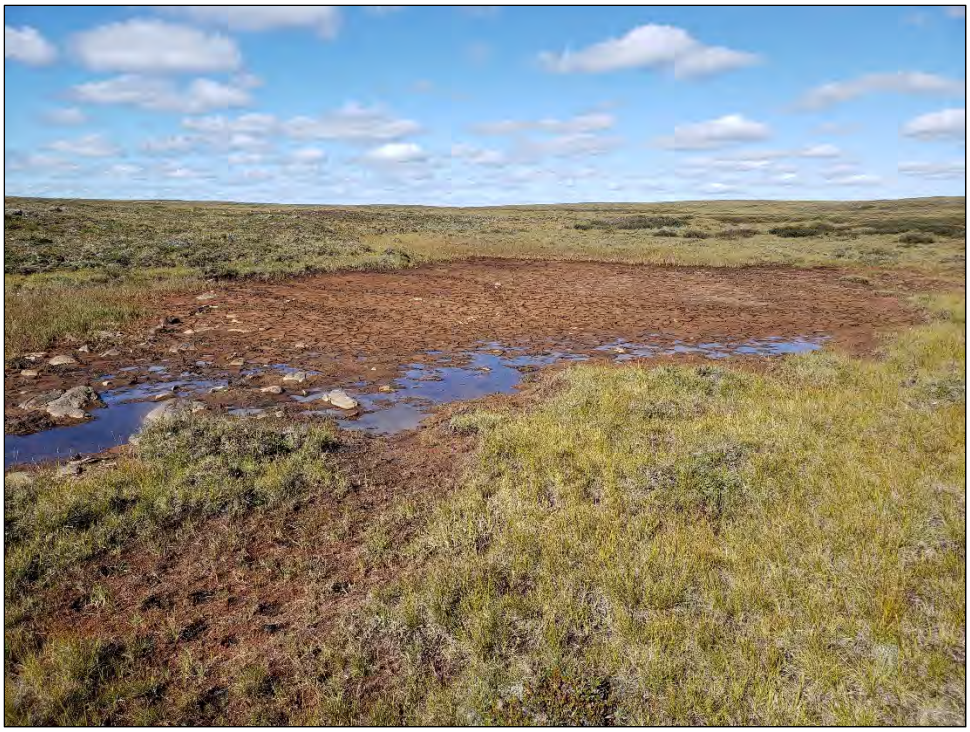


Photo 6.2-5: A21, facing northwest, August 24, 2020.

6.2.2.3 A22

The full perimeter of A22, amounting to a total of 227 m of shoreline, was assessed, and four littoral habitat units were identified (Figure 6.2-4). Fines (74%) were the dominant substrate recorded in the littoral zone, while cobble represented 16% and gravel and boulder each represented 5% of the overall littoral habitat. Fine substrates dominated in all four habitat units. Gravel, cobble, and boulder substrates occurred mainly along the southern and northeast shoreline interspersed with the more dominant, fine-type substrates. Wetted terrestrial vegetation, and decomposing organic material (sedge) contributed moderate amounts of cover around the perimeter of the pond. A22 was not connected to downstream waterbodies at the time of the survey; however, signs of higher water indicate that it may be connected during periods of higher flow (Photo 6.2-6).

6.2.2.4 A23

The full perimeter of A23, amounting to a total of 235 m of shoreline, was assessed, and eight littoral habitat units were identified (Figure 6.2-4). The dominant substrates recorded in the littoral zone were fines (76%) and cobble (13%). Fines were the dominant substrate type in seven of the habitat units (Photo 6.2-7), interspersed in places with rocky substrates (e.g., gravel, boulder). Cobble dominated in one habitat unit along the southwest shoreline. Gravel (6%) and boulder (4%) were subdominant across all habitat units. Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover around the perimeter of the pond. A23 is connected to A22 during periods of higher flow.

6.2.2.5 A24

The full perimeter of A24, amounting to a total of 105 m of shoreline, was assessed, and one littoral habitat unit was identified (Figure 6.2-5). Fines comprised 100% of the littoral habitat (Photo 6.2-8). Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover

around the perimeter of the pond. A24 was not connected to downstream waterbodies at the time of the June survey; however, signs of higher water indicate that it is likely to be seasonally connected via ephemeral overland flow (Photo 6.2-9).

Photo 6.2-6: Signs of higher water indicating seasonal connectivity to downstream waterbodies, A22, facing northwest, June 21, 2021.

Photo 6.2-7: Fines dominated shoreline habitat, A23, facing west, June 21, 2021.

6.2.2.6 A25

The full perimeter of A25, amounting to a total of 155 m of shoreline, was assessed, and four littoral habitat units were identified (Figure 6.2-5). Fines (90%) were the dominant substrate recorded in the littoral zone (Photos 6.2-10), while cobble represented 5% and gravel and boulder each represented 3% of the overall littoral habitat. Fine substrates dominated in all four habitat units. Gravel, cobble, and boulder substrates occurred mainly along the south and northwest shoreline, interspersed with the more dominant fine-type substrates (Photo 6.2-11). Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover around the perimeter of the pond. A25 is seasonally connected to downstream waterbodies via ephemeral overland flow.

Photo 6.2-8: Fines dominated shoreline habitat, A24, June 21, 2021.

Photo 6.2-9: Signs of higher water indicating seasonal connectivity to downstream waterbodies, A24, facing south, June 21, 2021.

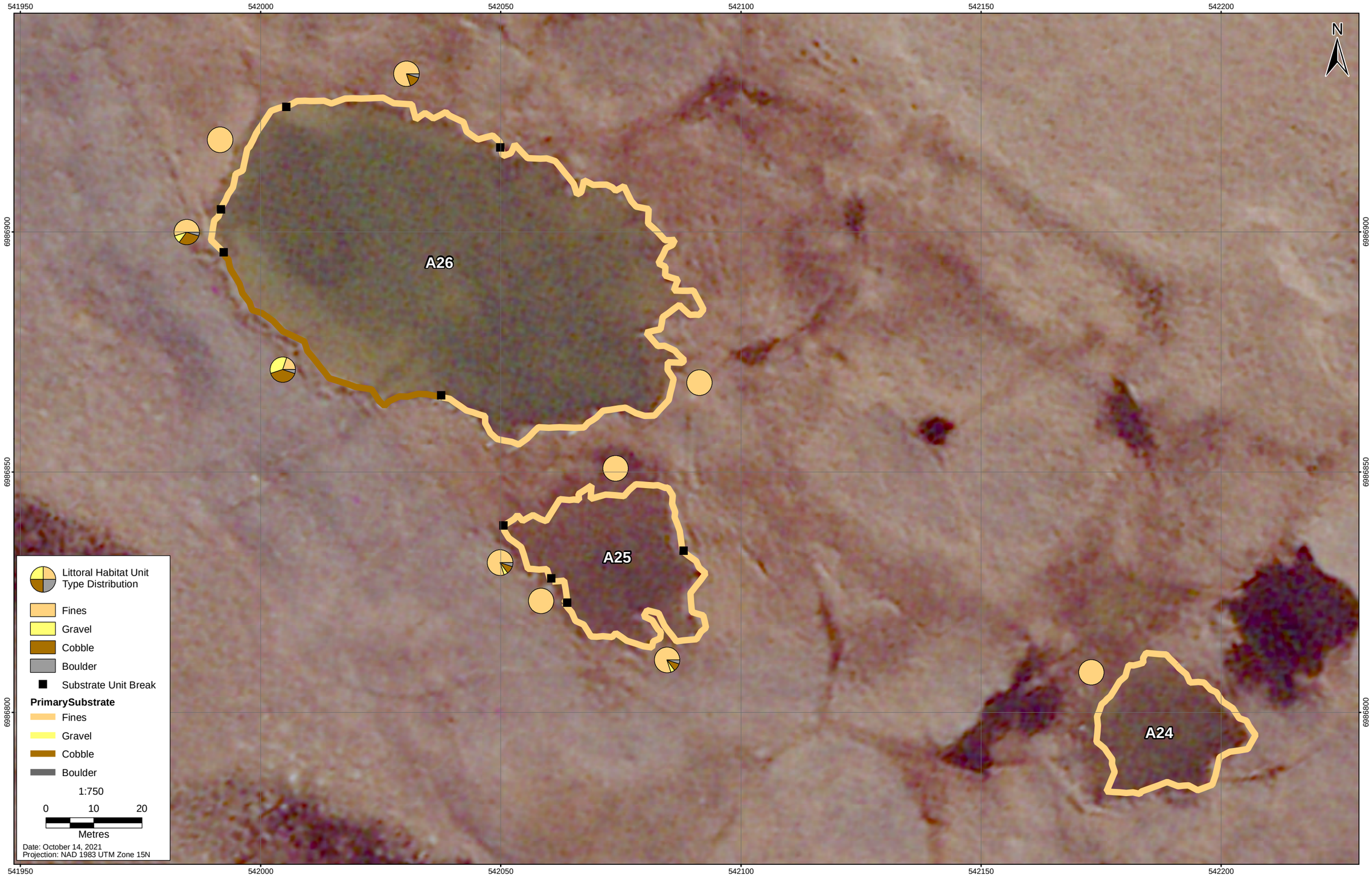


Figure 6.2-5 Littoral Substrate Composition in A24, A25, & A26, 2021

Photo 6.2-10: Fines dominated shoreline habitat, A25, facing southwest, June 21, 2021

Photo 6.2-11: Gravel and cobble interspersed with dominant fine-type substrate, A25, facing north, June 21, 2021.

6.2.2.7 A26

The full perimeter of A26, amounting to a total of 327 m of shoreline, was assessed, and five littoral habitat units were identified (Figure 6.2-5). The dominant substrates recorded in the littoral zone were fines (71%) and cobble (17%). Fines were the dominant substrate type in four of the habitat units (Photo 6.2-12), interspersed along the north shoreline with rocky substrates (e.g., cobble, boulder). Cobble dominated in one habitat unit along the southwest shoreline (Photo 6.2-13). Gravel (9%) and boulder (3%) were subdominant across all habitat units. Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover around the perimeter of the pond. A26 is seasonally connected to downstream waterbodies via ephemeral overland flow.

Photo 6.2-12: Fines dominated shoreline habitat, A26, facing southwest, June 21, 2021.

Photo 6.2-13: Cobble dominated shoreline habitat, A26, facing south, June 21, 2021.

6.2.2.8 A27

The full perimeter of A27, amounting to a total of 470 m of shoreline, was assessed, and seven littoral habitat units were identified (Figure 6.2-6). The dominant substrates recorded in the littoral zone were fines (66%) and cobble (23%). Fines were the dominant substrate type in four of the habitat units, mainly along the south shoreline (Photo 6.2-14). Cobble dominated in three habitat units (Photo 6.2-15), mainly occurring along the west and north shorelines. Gravel (8%) and boulder (3%) were subdominant across all habitat units. Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover around the perimeter of the pond. A27 is seasonally connected to upstream and downstream waterbodies via ephemeral overland flow (Photo 6.2-16).

6.2.2.9 A28

The full perimeter of A28, amounting to a total of 740 m of shoreline, was assessed, and eight littoral habitat units were identified (Figure 6.2-7). The dominant substrates recorded in the littoral zone were fines (65%) and cobble (26%). Fines were the dominant substrate type in five of the habitat units. Cobble dominated in three habitat units (Photo 6.2-17), occurring mainly along the southeast shoreline. Boulder (8%) and gravel (1%) were subdominant across all habitat units and mainly co-occurred with cobble-type substrates along the southeast shoreline. Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover around the perimeter of the pond. A28 is seasonally connected to downstream waterbodies via ephemeral overland flow.

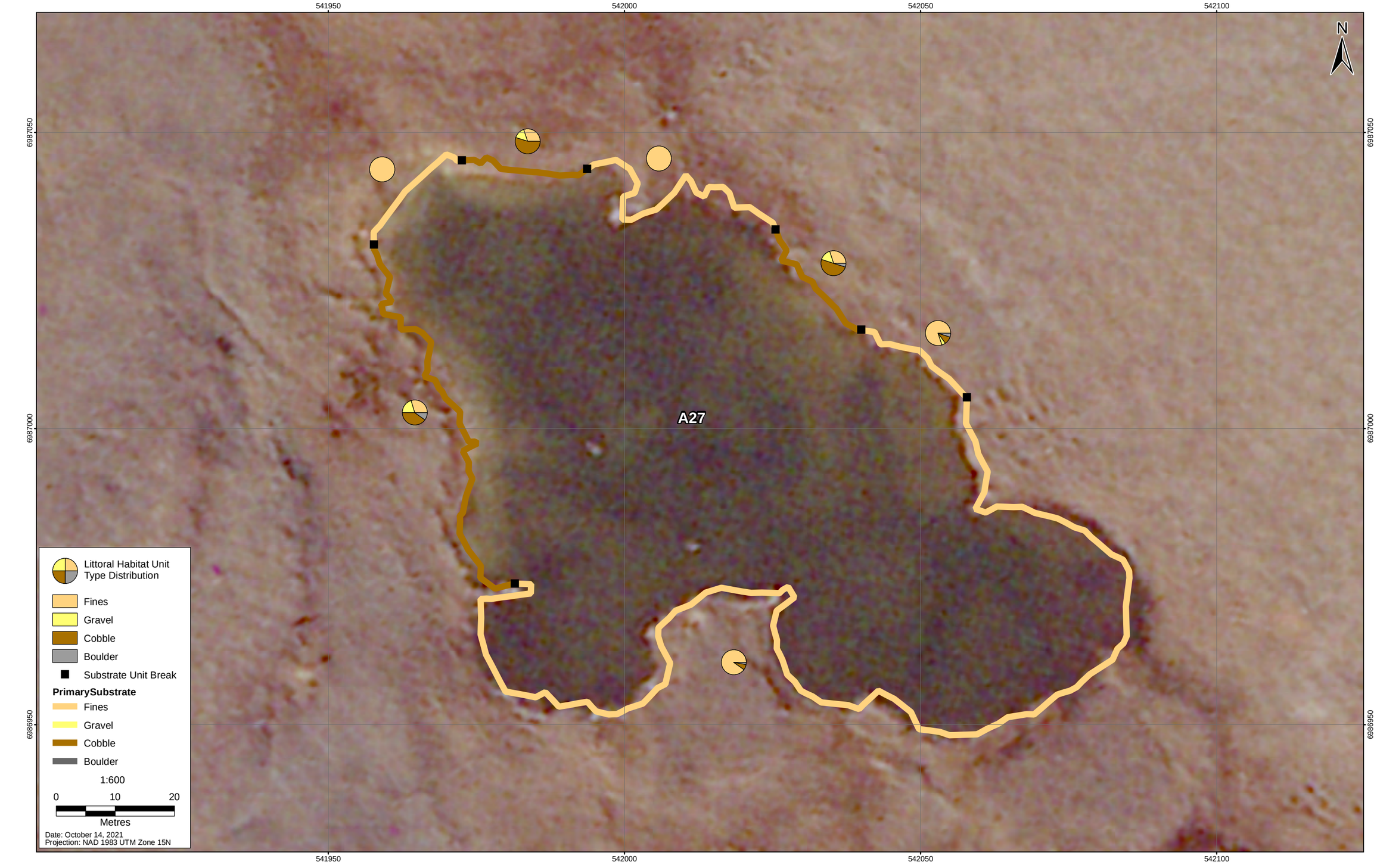


Figure 6.2-6: Littoral Substrate Composition in A27, 2021

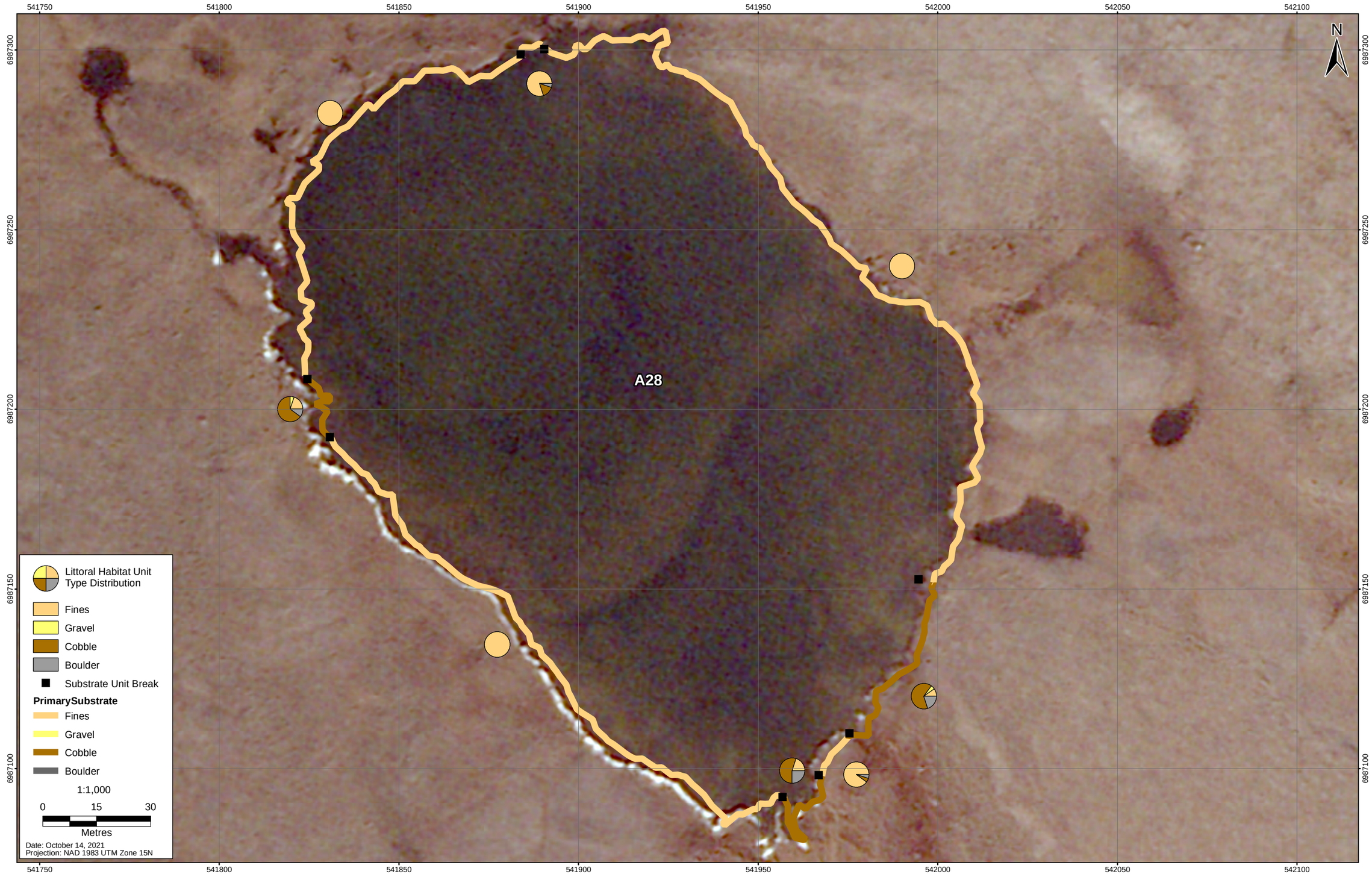


Figure 6.2-7: Littoral Substrate Composition in A28, 2021

Photo 6.2-14: Fines dominated shoreline habitat, A27, facing south, June 21, 2021.

Photo 6.2-15: Cobble dominated shoreline habitat, A27, facing east, June 21, 2021.

Photo 6.2-16: Signs of higher water indicating seasonal connectivity between A27 and A28, facing northeast, June 21, 2021.

Photo 6.2-17: Cobble dominated shoreline habitat, A28, facing northwest, June 21, 2021.

6.2.2.10 A32

A32 is a small pond located approximately 60 m east of the AWAR (All Weather Access Road) and approximately 30 m northwest of A31. At the time of the June survey the pond was shallow (maximum depth= 0.35 m). The full perimeter of A32, amounting to a total of 145 m of shoreline was assessed and one habitat unit was identified (Figure 6.2-8). Cobble substrate comprised the dominant habitat type (60%), while gravel and boulder each represented 15% of the overall littoral habitat (Photo 6.2-18). Fines comprised 10% of the shoreline habitat. Wetted terrestrial vegetation (sedge) contributed moderate amounts of cover around the perimeter of the pond. A32 was not visibly connected to A31 at the time of the June survey; however, signs of higher water indicate connectivity during periods of increased flow.

Photo 6.2-18: Cobble dominated shoreline habitat, A32, facing northwest, June 20, 2021.

6.2.2.11 A33

A33 is a small pond located approximately 180 m southeast of the AWAR. The full perimeter of A33, amounting to a total of 528 m of shoreline was assessed, and four littoral habitat units were identified (Figure 6.2-8). The dominant substrates recorded in the littoral zone were cobble (40%) and fines (33%). Boulder, and gravel substrates each represented 20%, and 8% of the overall littoral habitat, respectively. Cobble substrates dominated in three of the habitat units and was co-dominant in one other (Photo 6.2-19). Fines were the dominant substrate type in one of the habitat units, occurring along a 30 m section on the northern shoreline. Wetted terrestrial vegetation (sedge) contributed moderate amounts of cover around the perimeter of the pond. Signs of higher water indicate that A34 is likely to be seasonally connected to A33 via ephemeral overland flow; however, at the time of the June survey there was no visible downstream connectivity. Ninespine Stickleback were visually observed, confirming the fish-bearing status of A33.

Figure 6.2-8: Littoral Substrate Composition in A32, A33, & A34, 2021

Photo 6.2-19: Cobble dominated shoreline habitat, A33, facing south, June 21, 2021.

6.2.2.12 A34

A34 is a small pond located approximately 50 m southeast of the AWAR and approximately 70 m northwest of A33. The full perimeter of A34, amounting to a total of 290 m of shoreline was assessed, and six littoral habitat units were identified (Figure 6.2-8). At the time of the June survey, water depth at A34 was approximately 0.5 m. The dominant substrates recorded in the littoral zone were cobble (50%) and fines (20%). Boulder, and gravel substrates each represented 22%, and 8% of the overall littoral habitat, respectively. Cobble substrates dominated in four of the habitat units and was co-dominant in one other, occurring around most of the perimeter of A34 (Photo 6.2-20). Fines were the dominant substrate type in one of the habitat units and co-dominant in one other, mainly occurring along the southern shoreline interspersed in places with large rocky substrates (e.g., cobble, boulder). Wetted terrestrial vegetation (sedge) contributed moderate amounts of cover around the perimeter of the pond. Signs of higher water indicate that A34 is likely to be seasonally connected to A33 via ephemeral overland flow; however, at the time of the June survey there was no visible downstream connectivity.

Photo 6.2-20: Cobble dominated shoreline habitat, A34, facing east, June 20, 2021.

6.2.2.13 B26

B26 is a small, ephemeral pond located approximately 80 m north of B25 (Photo 6.2-21). At the time of the September survey the pond was very shallow (maximum depth = 0.3 m). B26 appears to have been dry previously, as evidenced by desiccation cracks (Photo 6.2-22).The littoral habitat of B26 was categorized based on the distribution of substrates (Figure 6.2-9). The full perimeter of B26, amounting to a total of 279 m of shoreline, was assessed and nine littoral habitat units were identified. The dominant substrate recorded in the littoral zone was fines (83%). Fines made up the dominant substrate type in all nine of the habitat units (Photo 6.2-22). Cobble (8%), boulder (7%), and gravel (2%) substrates were subdominant across all habitat units. B26 connects to B25 (downstream) via ephemeral overland flow. Wetted terrestrial vegetation (sedge) contributed moderate amounts of cover around the perimeter of the pond.

Photo 6.2-21: B26, facing south, September 12, 2020.

Photo 6.2-22: Fines dominated shoreline habitat and desiccation cracks observed in B26, facing south, September 12, 2020.

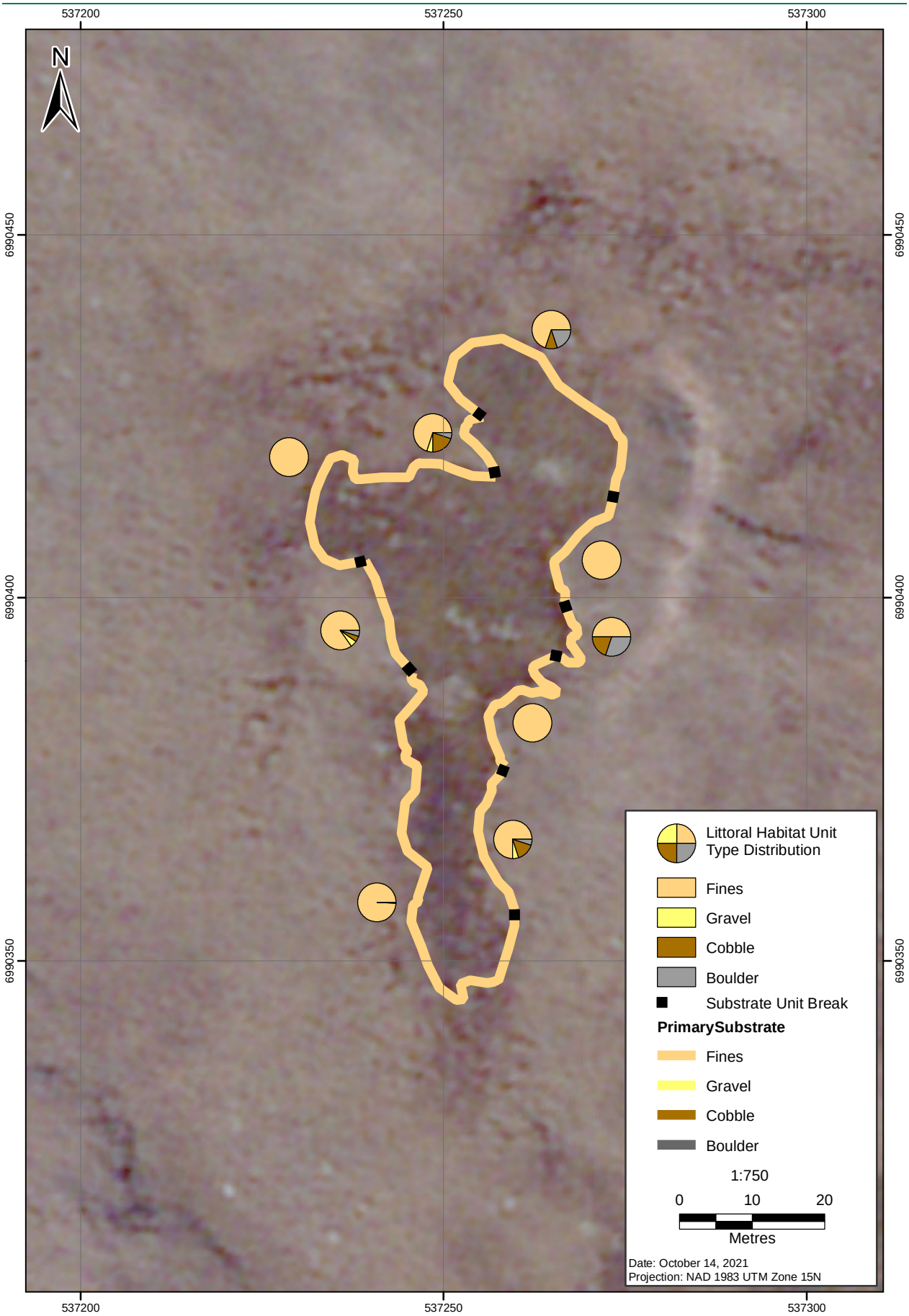


Figure 6.2-9: Littoral Substrate Composition in B26, 2020

6.2.2.14 B37

The littoral habitat of B37 was categorized based on the distribution of substrates (Figure 6.2-10). The full perimeter of B37, amounting to a total of 470 m of shoreline, was assessed and five littoral habitat units were identified. Fines (63%) were the dominant substrate recorded in the littoral zone (Photos 6.2-23 and 6.2-24), while cobble, gravel and boulder represented 19%, 13%, and 5% of the overall littoral habitat, respectively. Fine substrates dominated in three of the habitat units, mainly on the northwest and northeast shorelines. Cobble was the dominant substrate type in one of the habitat units and co-dominant in one other, mainly occurring along the southern shoreline interspersed in places with other large rocky substrates (e.g., boulder). Gravel co-dominated in one habitat unit on the north side of B37, interspersed with cobble. Wetted terrestrial vegetation (sedge) contributed moderate amounts of cover around the perimeter of the pond.

Photo 6.2-23: Fines dominated shoreline habitat, B37, facing south, July 30, 2020.

Photo 6.2-24: Fines dominated shoreline habitat, facing northwest, B37, July 30, 2020.

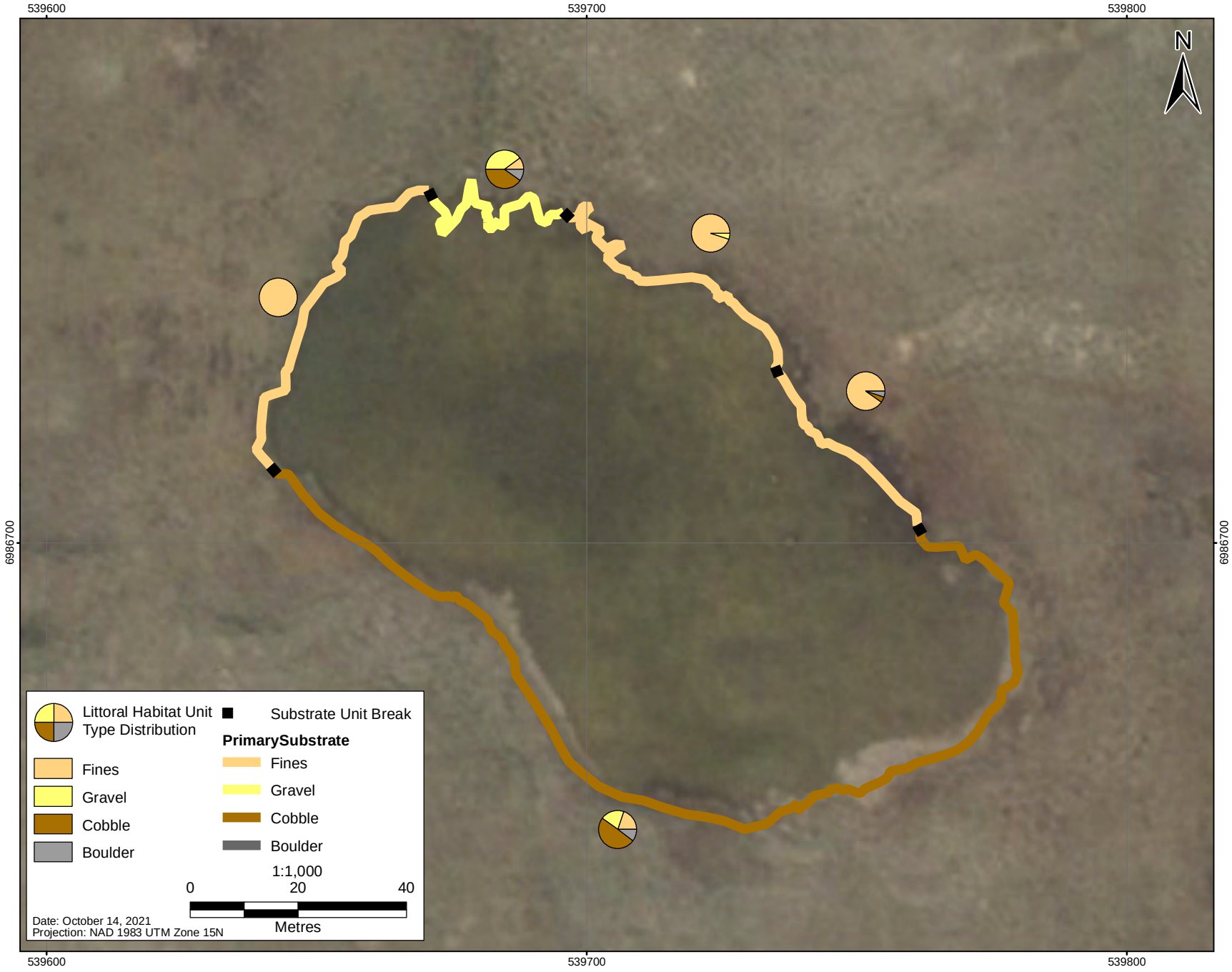


Figure 6.2-10: Littoral Substrate Composition in B37, 2020

6.2.2.15 B38

The full perimeter of B38, amounting to a total of 969 m of shoreline was assessed, and 27 littoral habitat units were identified (Figure 6.2-11). The dominant substrates recorded in the littoral zone were fines (55%) and cobble (30%). Fines dominated in 17 of the habitat units, occurring intermittently around the perimeter of B38. Cobble was the dominant substrate type in nine of the habitat units and co-dominant in one other, mainly occurring along the northeast shoreline interspersed in places with other large rocky substrates (e.g., boulder Photo 6.2-25). Gravel (7%) and boulder (8%) substrates were subdominant across all habitat units. Wetted terrestrial vegetation, and decomposing organic material (sedge) contributed moderate amounts of cover around the perimeter of the pond.

Photo 6.2-25: Cobble dominated shoreline habitat, facing north, B38, July 30, 2020

6.2.2.16 B63

B63 is a small (~174 m^2), ephemeral pond located approximately 63 m from B60 and approximately 130 m from B62. At the time of the June survey the pond was very shallow (maximum depth = 0.25 m; Photo 6.2-26). A thick layer (~0.3 m) of decaying organic material comprised the dominant bed material and submerged terrestrial vegetation (sedge and grasses) provided a small amount of cover. Riparian vegetation consisted of sedge and grasses. The pond was almost entirely dry at the time of the July survey (Photo 6.2-27). The September survey coincided with a period of heavy precipitation, and wetted depths observed in September were more similar to those observed in June (Photo 6.2-28). B63 connects to B59 and B62 (downstream), as well as B60 (upstream), via ephemeral overland flow.

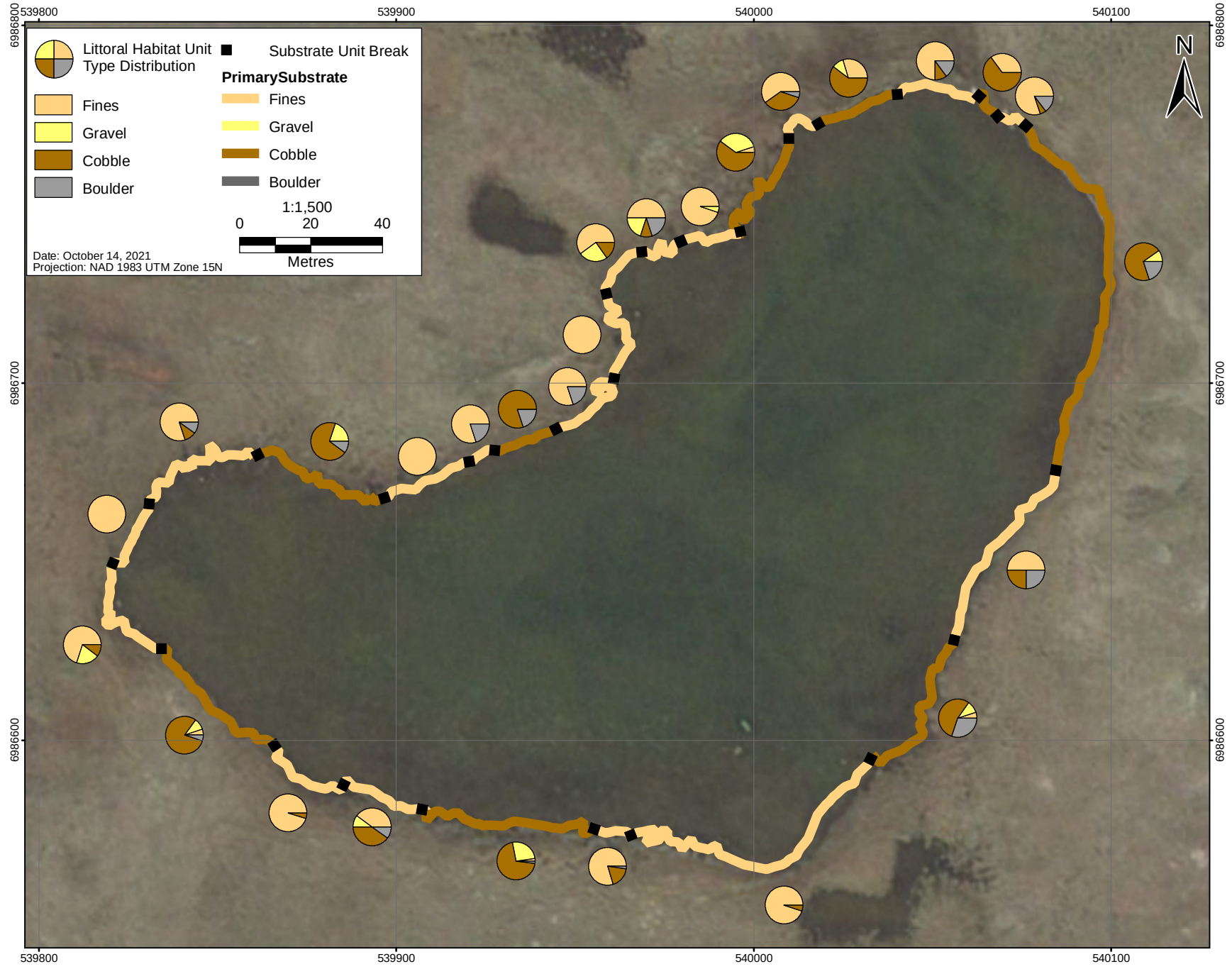


Figure 6.2-11: Littoral Substrate Composition in B38, 2020

Photo 6.2-26: B63, facing northeast, June 30, 2020.

Photo 6.2-27: B63, facing west, July 30, 2020.

Photo 6.2-28: B63, facing northwest, September 12, 2020.

6.2.2.17 D31

The full perimeter of D31, amounting to a total of 480 m of shoreline, was assessed, and one littoral habitat unit was identified (Figure 6.2-12). Fines (mainly decomposing organic debris) comprised 100% of the littoral habitat. The entire shoreline is densely vegetated with sedges, reeds and decomposing organic material, which contribute large amounts of cover around the perimeter of the pond (Photo 6.2-29). D31 is connected to D4 via ephemeral overland flow (Photo 6.2-30).

Photo 6.2-29: Densely vegetated shoreline habitat, D31, facing northeast, August 28, 2021.

Photo 6.2-30: Aerial view of the connectivity (via overland flow) between D31 and D4, facing southeast, August 28, 2021.

6.2.2.18 D33

The full perimeter of D33, amounting to a total of 557 m of shoreline, was assessed, and 13 littoral habitat units were identified (Figure 6.2-12). The dominant substrates recorded in the littoral zone were fines (45%), cobble (34%), and gravel (17%). Fines were the dominant substrate type in five of the habitat units, along the north and southeast shorelines (Photo 6.2-31). Cobble dominated in seven habitat units, mainly occurring along the west and east shorelines (Photo 6.2-32). Gravel dominated in one habitat unit along the south shoreline. Boulder (4%) substrate was subdominant across all habitat units and occurred primarily along the south shoreline. Wetted terrestrial vegetation contributed moderate amounts of cover around the perimeter of the pond. D33 is seasonally connected to downstream waterbodies via ephemeral overland flow.

6.2.2.19 E5

The full perimeter of E5, amounting to a total of 757 m of shoreline was assessed, and six littoral habitat units were identified (Figure 6.2-13). The dominant substrates recorded in the littoral zone were cobble (63%) and boulder (27%). Cobble was the dominant substrate type in five of the habitat units, and co-dominant in one other (Photo 6.2-33). Boulder was co-dominant in one habitat unit. Gravel (9%) and Fines (1%) were subdominant across all habitat units. Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover around the perimeter of the pond.

Photo 6.2-31: Fines dominated shoreline habitat, D33, facing south, August 28, 2021.

Photo 6.2-32: Cobble dominated shoreline habitat, D33, facing west, August 28, 2021.

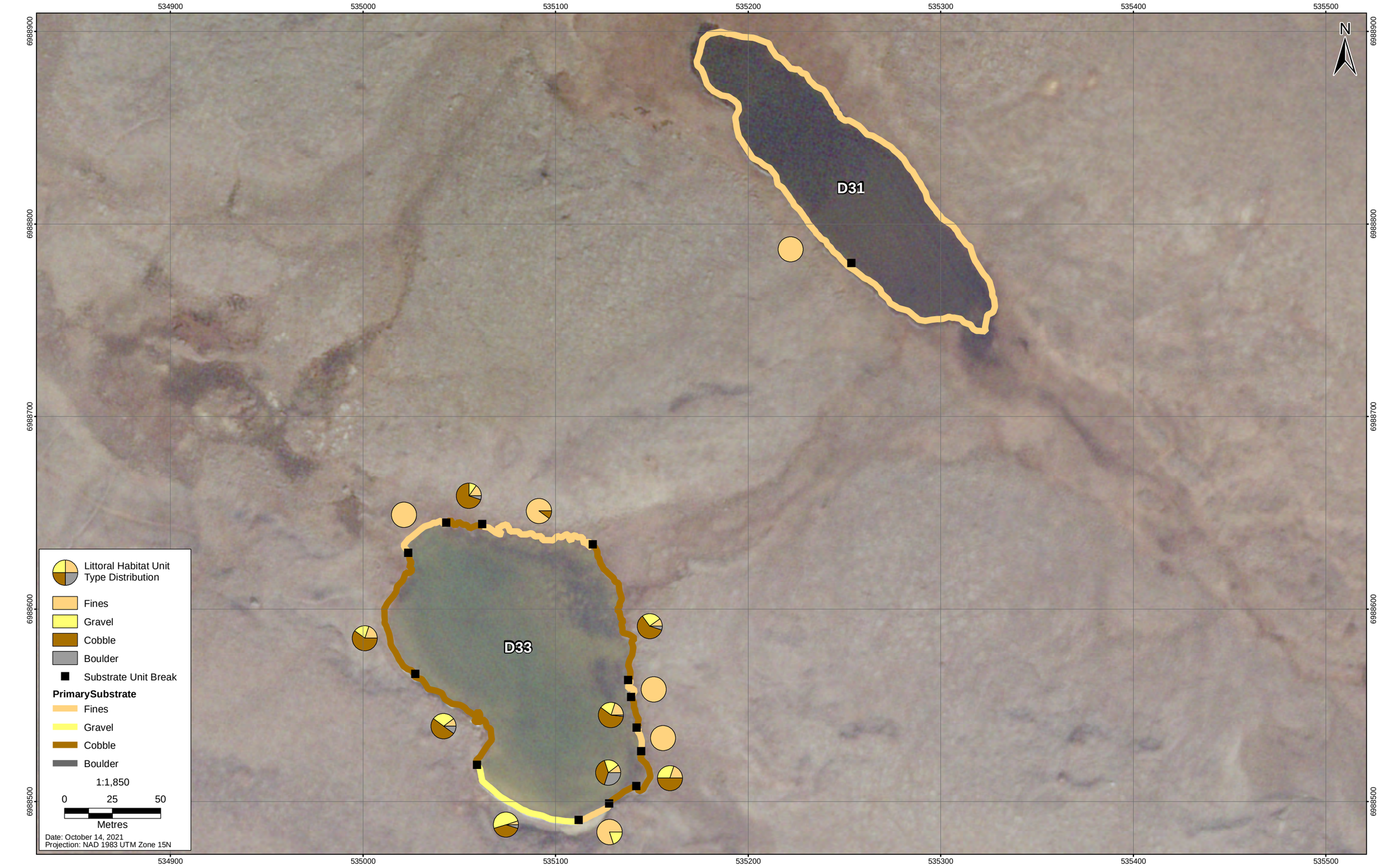


Figure 6.2-12: Littoral Substrate Composition in D31, & D33, 2021

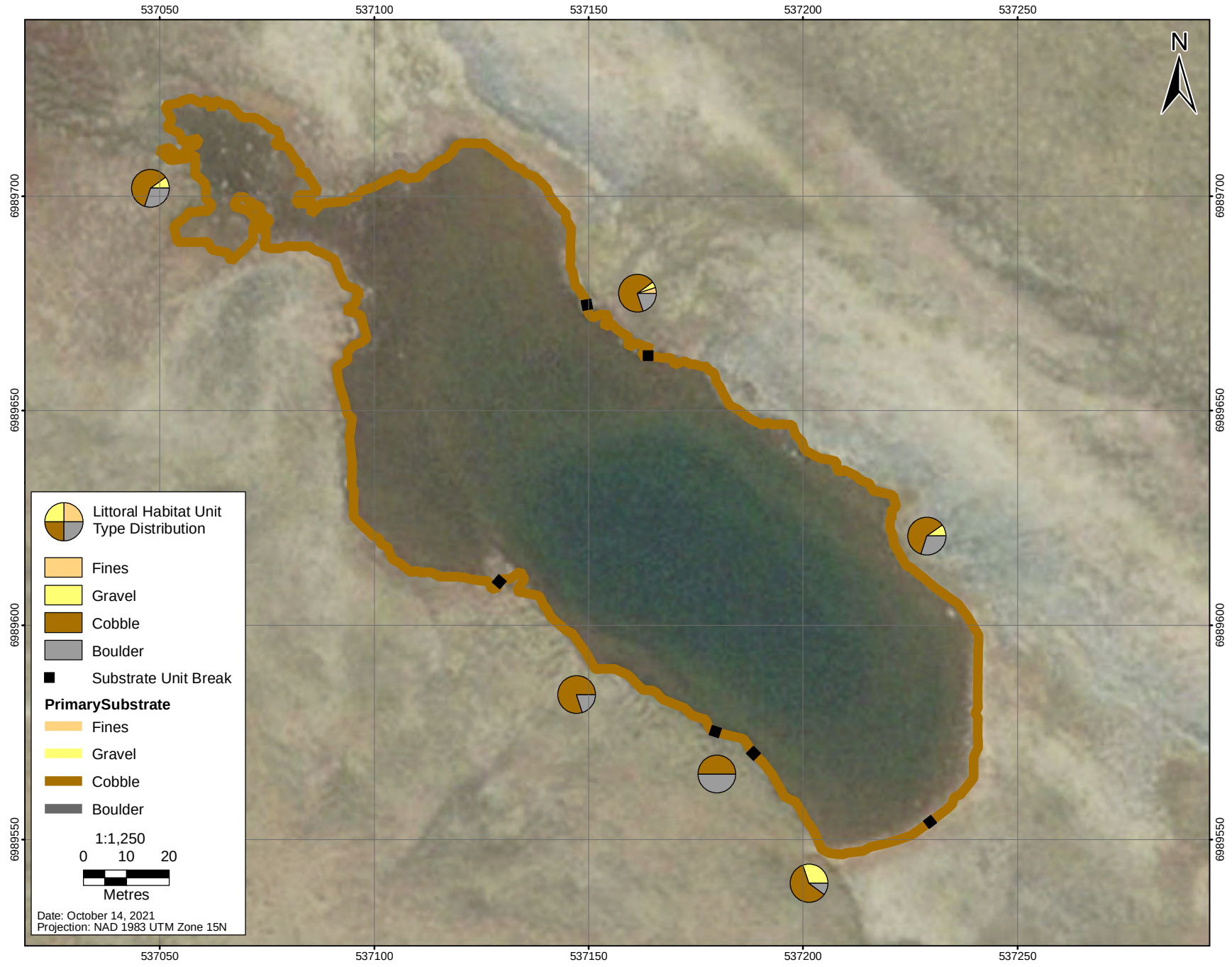


Figure 6.2-13: Littoral Substrate Composition in E5, 2020

Photo 6.2-33: Cobble dominated shoreline habitat, E5, facing northwest, August 23, 2020.

6.2.2.20 E10

The full perimeter of E10, amounting to a total of 331 m of shoreline was assessed, and seven littoral habitat units were identified (Figure 6.2-14). The dominant substrates recorded in the littoral zone were fines (53%) and cobble (41%). Fines dominated in three of the habitat units, mainly on the northern shoreline. Cobble was the dominant substrate type in four of the habitat units, mainly occurring along the southern shoreline interspersed in places with other large rocky substrates (e.g., boulder). Boulder (6%) and gravel (1%) were subdominant across all habitat units. Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover around the perimeter of the pond (Photo 6.2-34).

6.2.2.21 E11

The littoral habitat of E11 is shown in Figure 6.2-15. The full perimeter of E11, amounting to a total of 268 m of shoreline, was assessed, and five littoral habitat units were identified. The dominant substrate recorded in the littoral zone was fines (74%). Cobble and boulder each represented 11% of the overall littoral habitat. Fines dominated in four of the habitat units. Boulder was the dominant substrate type in one of the habitat units mainly occurring along the southern shoreline interspersed in places with other rocky substrates (e.g., gravel, and cobble, Photo 6.2-35). Gravel (4%) was subdominant across all habitat units. Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover around the perimeter of the pond.

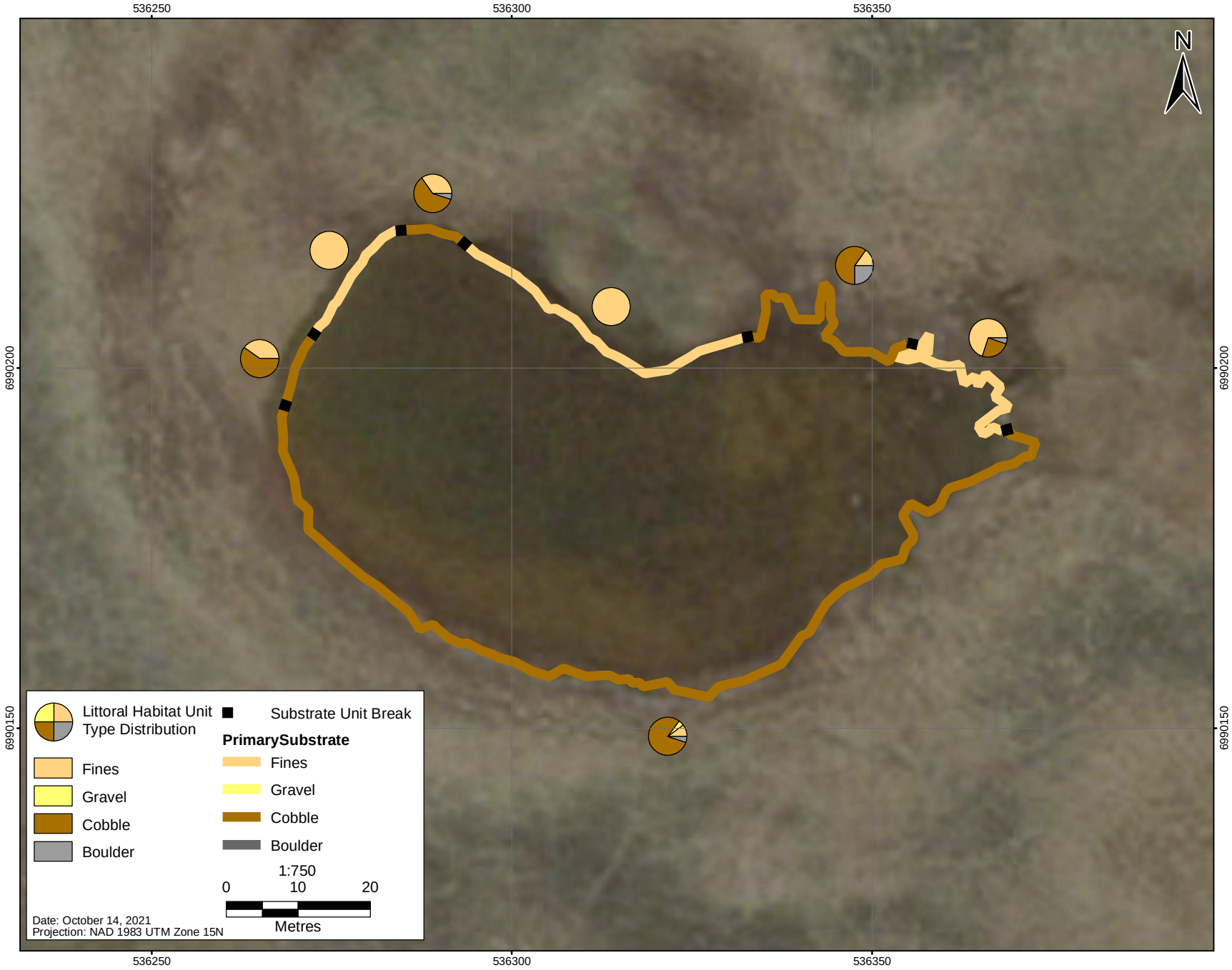


Figure 6.2-14:Littoral Substrate Composition in E10, 2020

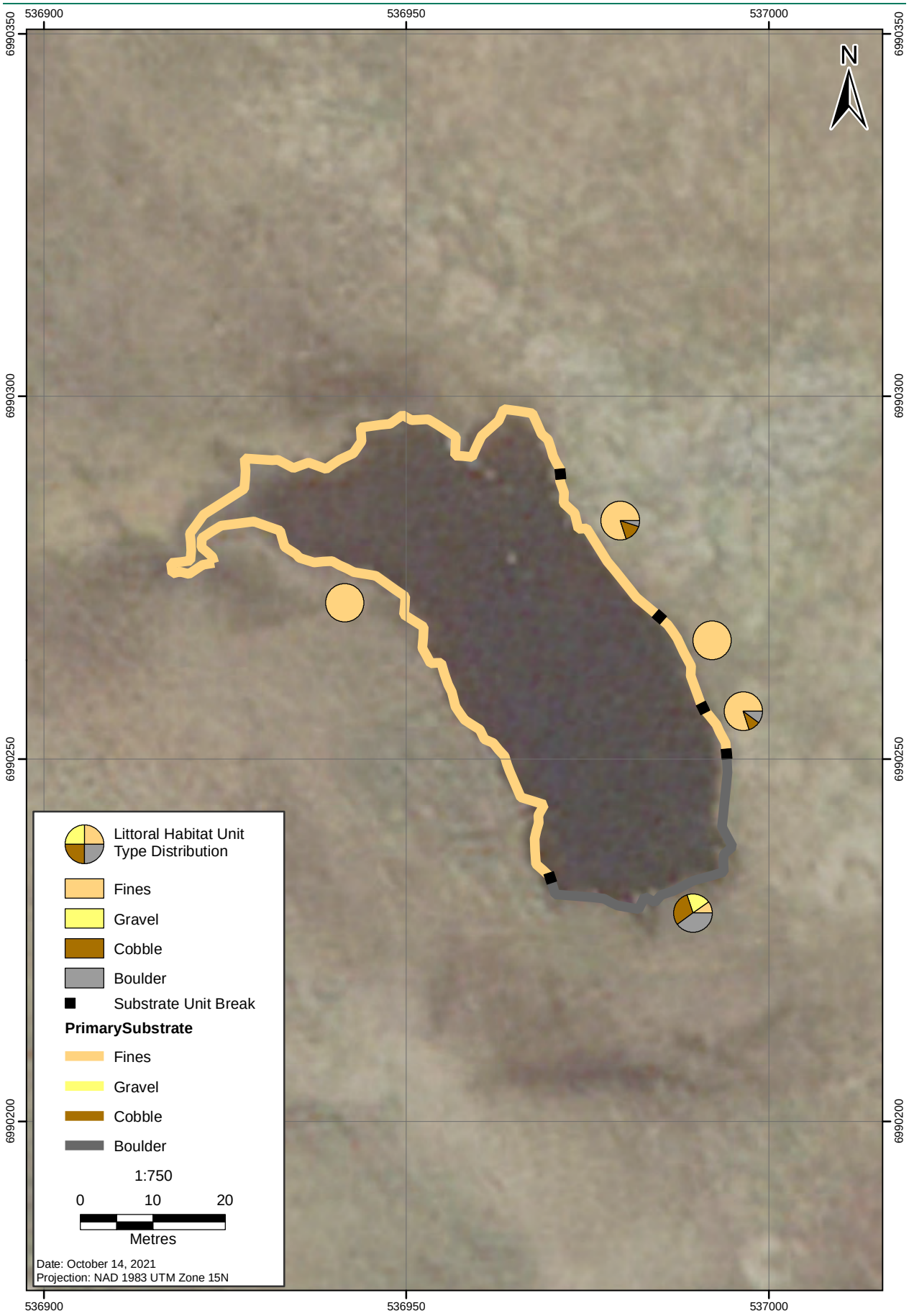


Figure 6.2-15: Littoral Substrate Composition in E11, 2020

Photo 6.2-34: Wetted terrestrial vegetation and decomposing organic material recorded in the littoral zone of E10, facing north, August 23, 2020.

Photo 6.2-35: Boulder dominated shoreline habitat, E11, facing west, August 23, 2020.

6.2.2.22 E12

The full perimeter of E12, amounting to a total of 527 m of shoreline, was assessed, and four littoral habitat units were identified (Figure 6.2-16). The dominant substrates recorded in the littoral zone were fines (63%) and boulder (31%). Fines dominated in two of the habitat units, mainly on the eastern shoreline. Boulder was the dominant substrate type in two of the habitat units, mainly occurring along the north and southeast shorelines interspersed in places with cobble substrate (Photo 6.2-36). Cobble (6%) was subdominant across all habitat units. Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover around the perimeter of the pond.

Photo 6.2-36: Boulder dominated shoreline habitat, E12, facing northwest, August 23, 2020.

6.2.2.23 I1

The full perimeter of I1, amounting to a total of 1,547 m of shoreline, was assessed, and 17 littoral habitat units were identified (Figure 6.2-17). The dominant substrates recorded in the littoral zone were cobble (55%) and fines (26%). Cobble was the dominant substrate type in 13 of the habitat units, often interspersed with other rocky substrates (e.g., gravel, boulder; Photo 6.2-37). Fines dominated in four of the habitat units, occurring in small sections along the eastern and western shorelines. Gravel (10%) and boulder (9%) were subdominant across all habitat units. Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover around the perimeter of the pond.

6.2.2.24 J4

The full perimeter of J4, amounting to a total of 287 m of shoreline, was assessed, and four littoral habitat units were identified (Figure 6.2-18). The dominant substrate recorded in the littoral zone was fines (98%) (Photo 6.2-38). Fines dominated in all four habitat units. Gravel (1%), cobble (2%), and boulder (1%) were subdominant across all habitat units. Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover around the perimeter of the pond.

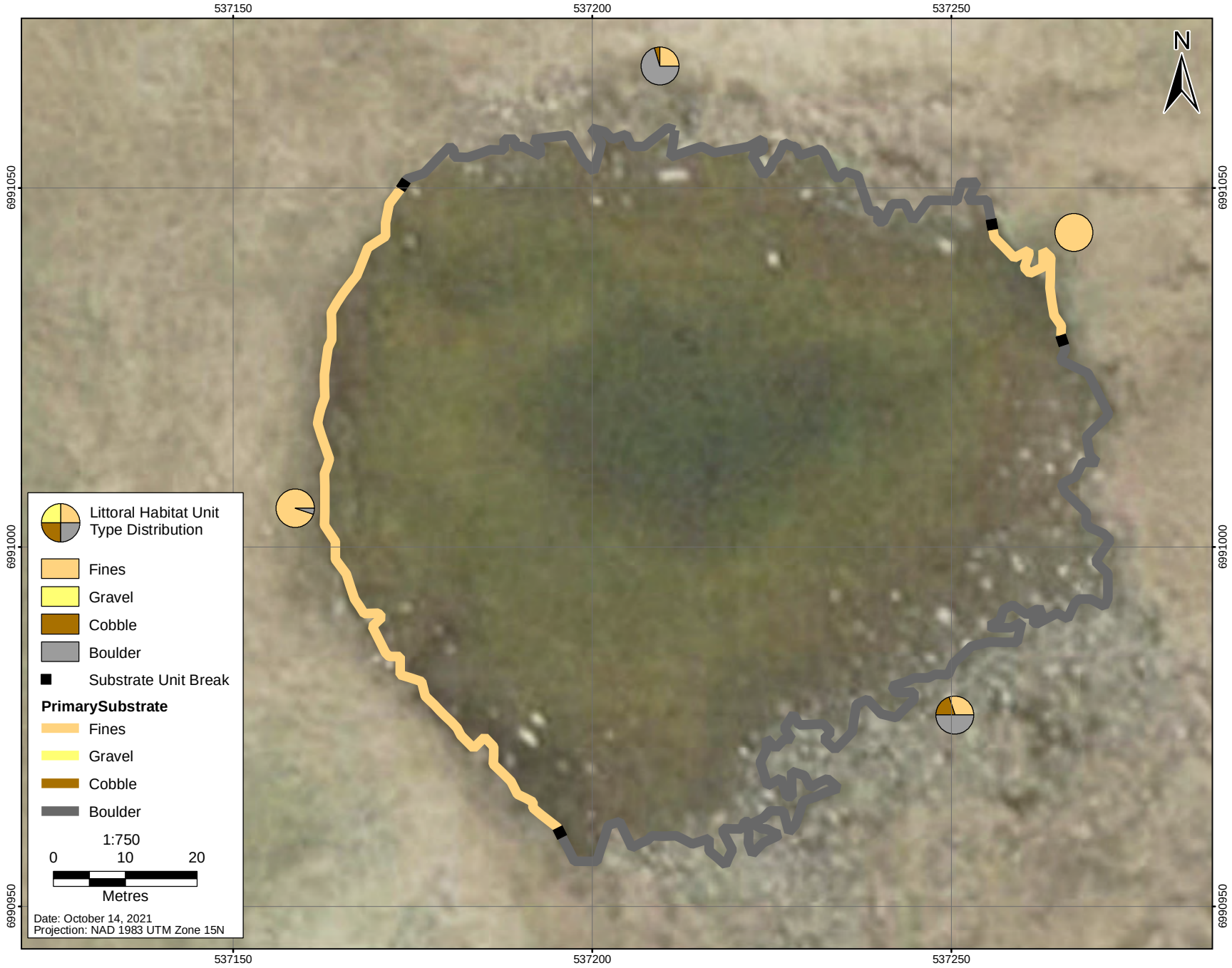


Figure 6.2-16: Littoral Substrate Composition in E12, 2020

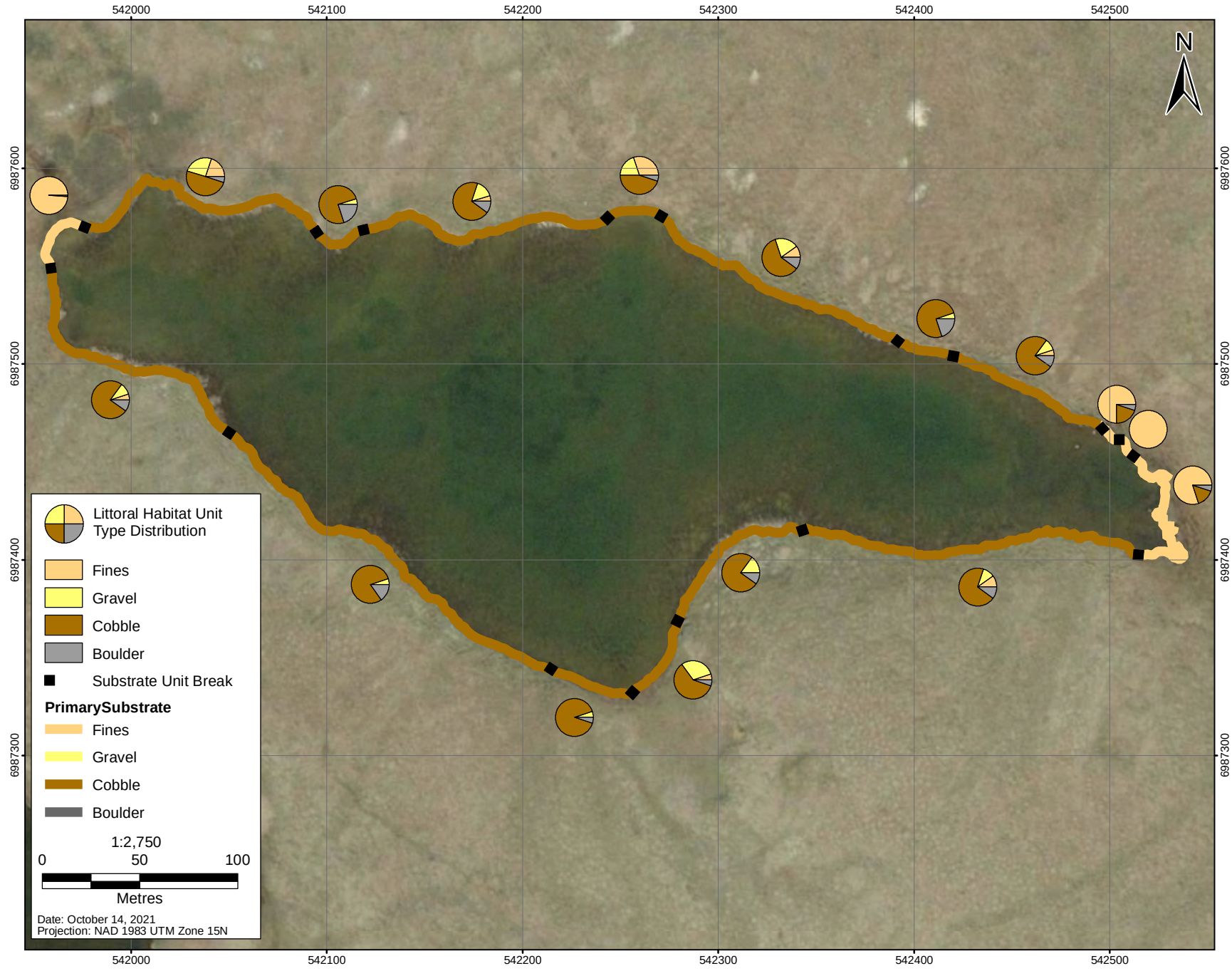


Figure 6.2-17: Littoral Substrate Composition in I1, 2020

Photo 6.2-37: Cobble dominated shoreline habitat, I1, facing east, September 10, 2020.

Photo 6.2-38: Fines dominated shoreline habitat, J4, September 10, 2020.

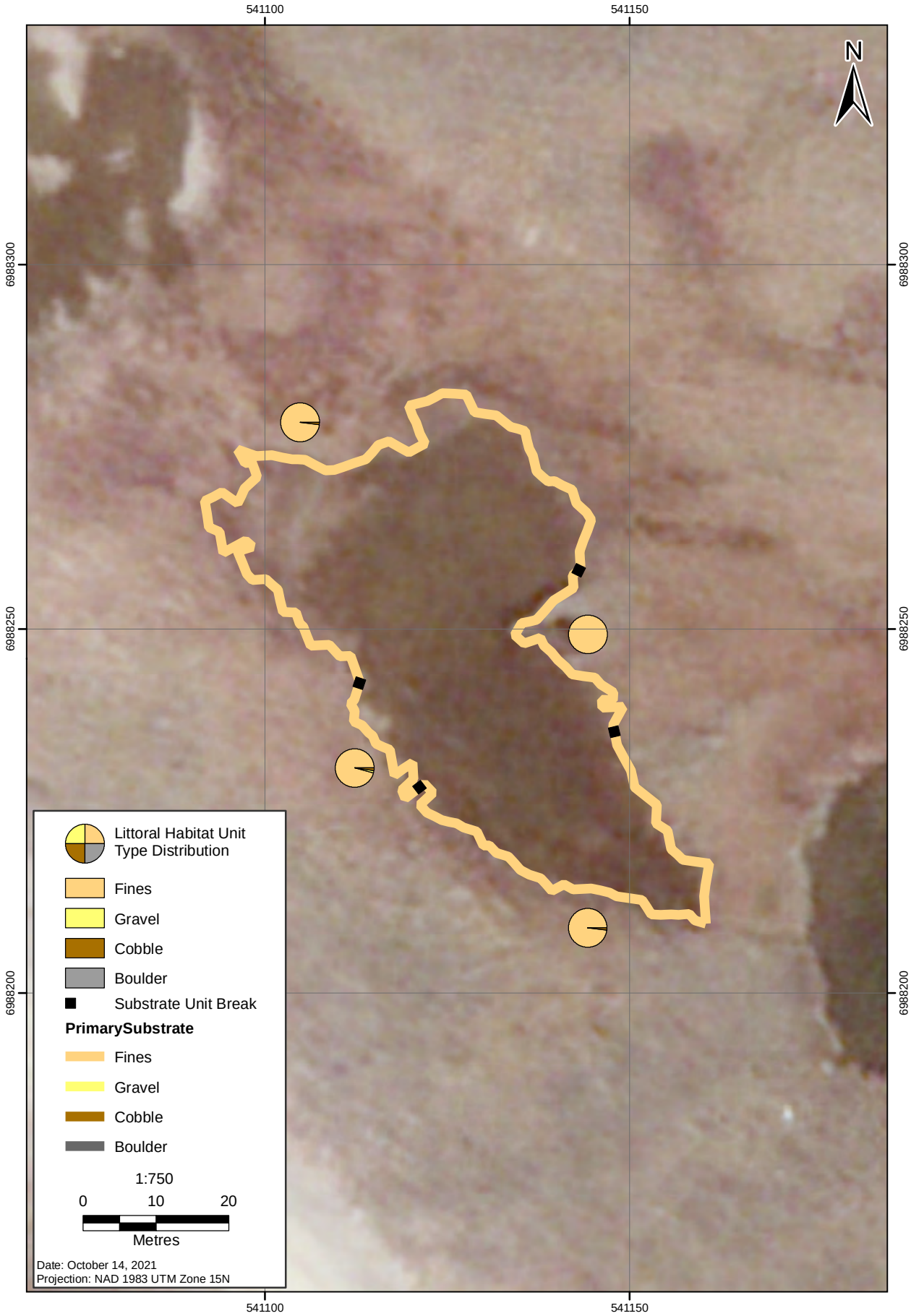


Figure 6.2-18: Littoral Substrate Composition in J4, 2020

6.2.2.25 J6

The full perimeter of J6, amounting to a total of 633 m of shoreline, was assessed on September 11, 2020, and eight littoral habitat units were identified (Figure 6.2-19). The dominant substrates recorded in the littoral zone were cobble (51%) and fines (28%). Cobble was the dominant substrate type in six of the habitat units (Photo 6.2-39). Fines dominated in two of the habitat units, occurring in small sections on the eastern shoreline. Boulder (14%) and gravel (8%) were subdominant across all habitat units. Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover around the perimeter of the pond. J6 was revisited on August 28, 2021 for fish community sampling. At this time, the pond was partially overprinted by mine infrastructure (Photo 6.2-40). J6 is connected to J7 via ephemeral overland flow; however, J6 and J7 are completely disconnected from downstream waterbodies. J5-J6 is overprinted by the AWAR/mine infrastructure and there is no culvert under the road.

Photo 6.2-39: Cobble dominated shoreline habitat, J6, September 11, 2020.

6.2.2.26 J7

The full perimeter of J7, amounting to a total of 1,256 m of shoreline, was assessed, and 31 littoral habitat units were identified (Figure 6.2-20). The dominant substrates recorded in the littoral zone were fines (61%) and cobble (22%). Fines dominated in 18 of the habitat units. Cobble was the dominant substrate type in nine of the habitat units and co-dominant in three other. Gravel (12%) co-dominated in two habitat units (Photo 6.2-41). Boulder (4%) co-dominated in one habitat unit on the east side of the lake, interspersed with other substrate types (e.g., cobble, fines). Wetted terrestrial vegetation, and decomposing organic material contributed moderate amounts of cover around the perimeter of the pond. J7 is connected to J6 via ephemeral overland flow; however, J6 and J7 are completely disconnected from downstream waterbodies. J5-J6 is overprinted by the AWAR/mine infrastructure and there is no culvert under the road.

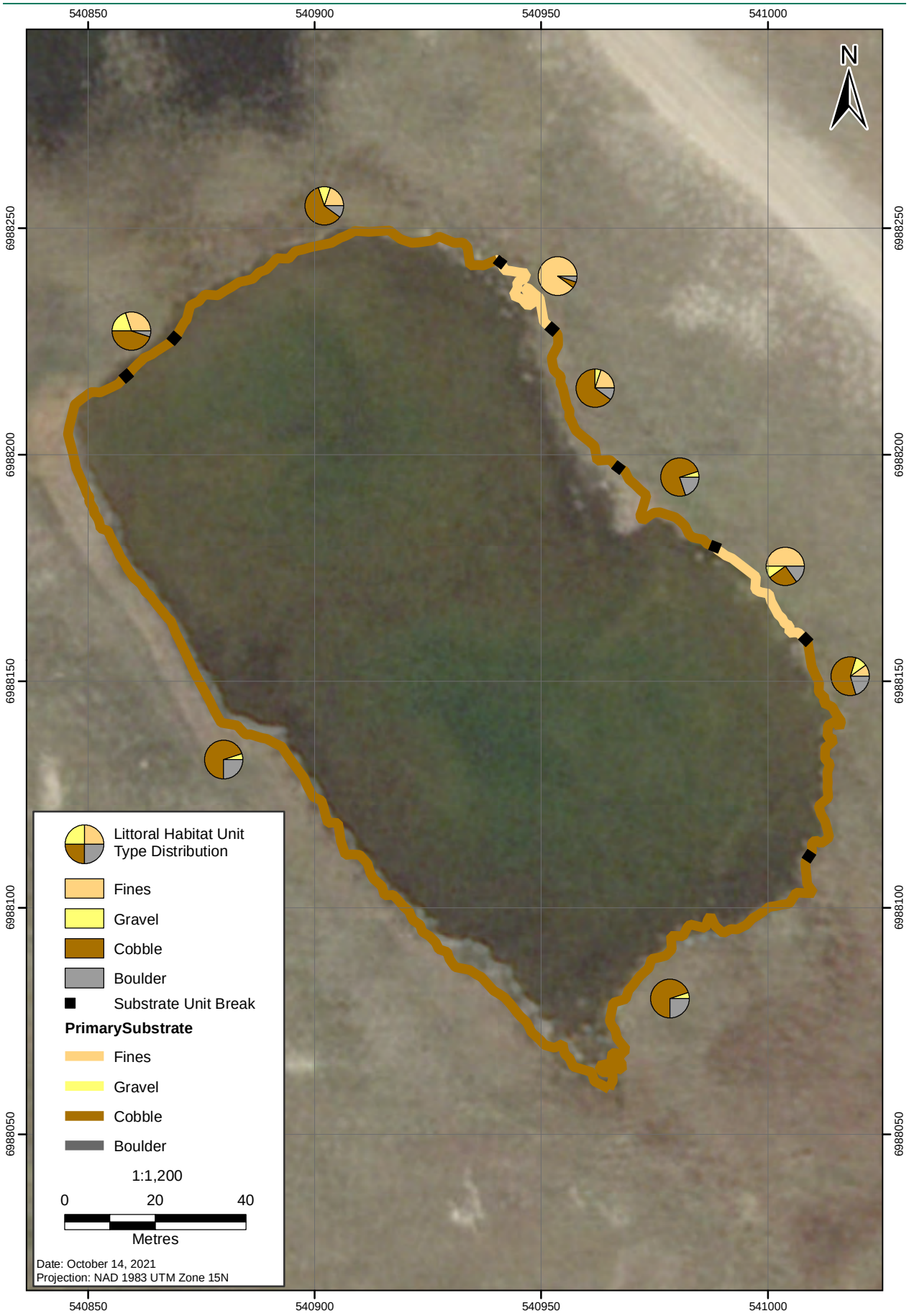


Figure 6.2-19: Littoral Substrate Composition in J6, 2020

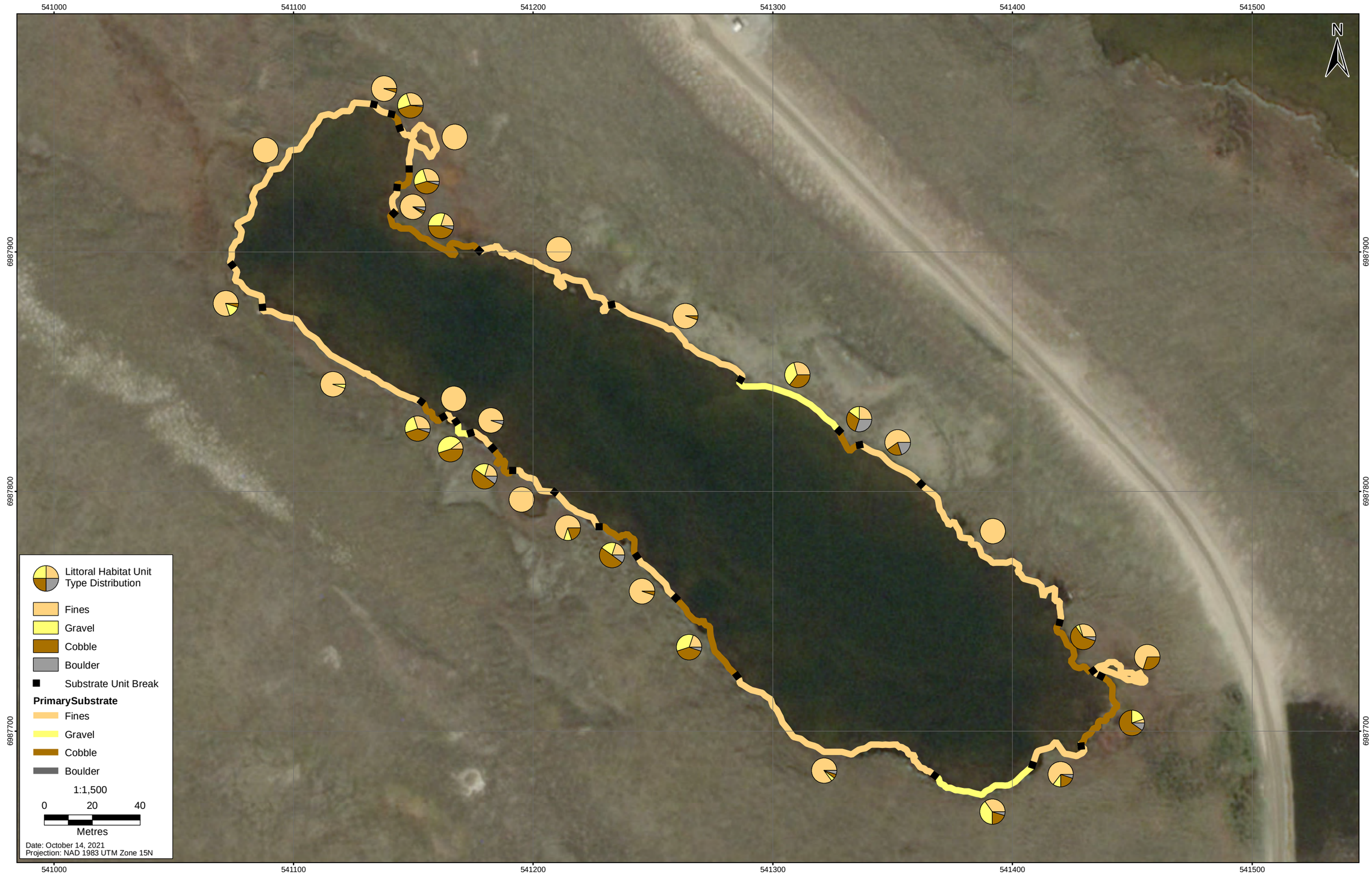


Figure 6.2-20: Littoral Substrate Composition in J7, 2020

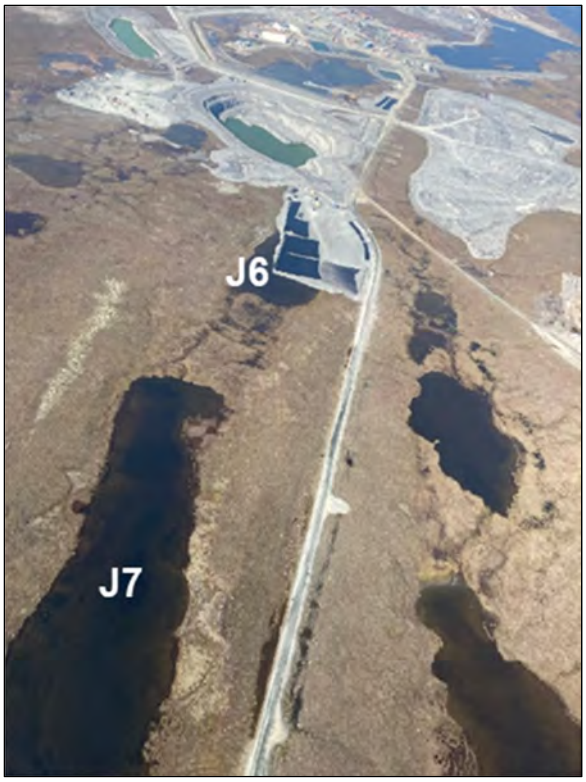


Photo 6.2-40: Aerial view of ponds J6 and J7, facing northwest, August 28, 2021. Note that J6 is partially overprinted by mine infrastructure.

Photo 6.2-41: Cobble and gravel dominated shoreline habitat, J7, September 11, 2020.

6.2.2.27 W1

The full perimeter of W1, amounting to a total of 2,750 m of shoreline, was assessed, and 23 littoral habitat units were identified (Figure 6.2-21). The dominant substrates recorded in the littoral zone were fines (44%), and cobble (37%). Fines were the dominant substrate type in eleven of the habitat units, occurring mainly along the north and east shorelines, interspersed with rocky substrates (e.g., cobble, boulder). Cobble dominated in twelve habitat units, mainly occurring along the west shoreline. Gravel (16%) and Boulder (4%) substrates were subdominant across all habitat units. Wetted terrestrial vegetation contributed moderate amounts of cover around the perimeter of W1.

During the sub-littoral habitat survey, fines with organic material were observed via underwater video at all three locations surveyed on W1 (Photo 6.2-42). Water depths at these locations ranged from 1.5-1.7 m. The number of locations surveyed using the underwater camera was limited by both poor weather and by malfunction of the boat motor.

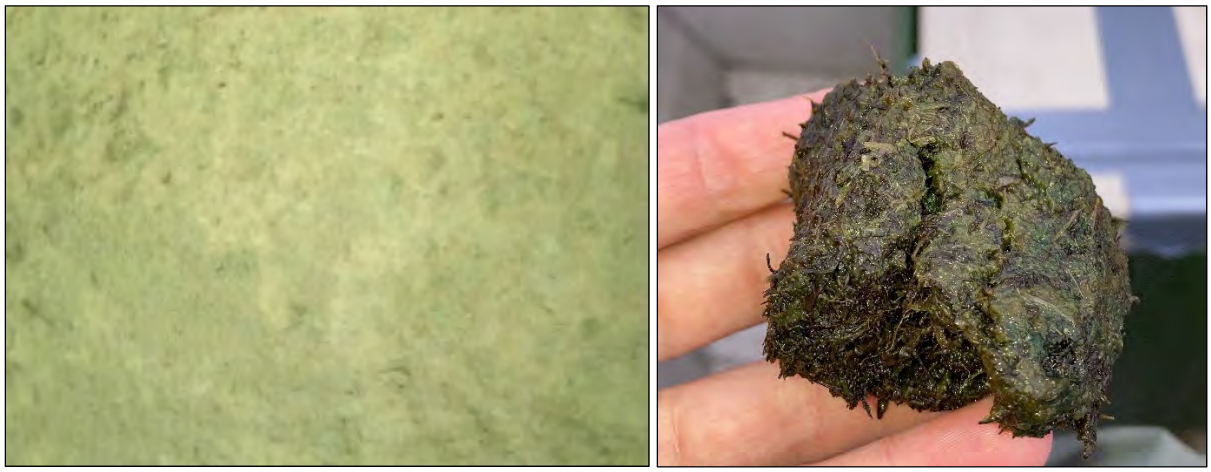


Photo 6.2-42: Fines with organic material observed at 1.5 m water depth during underwater video surveys at W1, August 31, 2021.

6.2.2.28 Littoral Habitat Summary

Overall, the results of the littoral habitat surveys conducted suggest that all surveyed waterbodies have habitat characteristics that would provide rearing habitat for Ninespine Stickleback due to the availability of cover among the wetted terrestrial vegetation (i.e., sedge) and/or rocky substrates. Potential Ninespine Stickleback spawning habitat, comprised of aquatic vegetation, and organic material, as well as fine substrates was identified in all surveyed waterbodies. Overwintering habitat is not present due to insufficient water depth (less than 2 m) with the exception of E5, which has a maximum depth of 3.0 m (Agnico Eagle 2014), suggesting potential for fish to overwinter. Migratory potential may become limited as flows recede following spring freshet, thus movement between ponds may only be possible during periods of increased flow (i.e., spring freshet and/or precipitation events). When accessible, all surveyed waterbodies offer seasonal fish habitat. E5 may provide perennial fish habitat depending on the duration and extent of ice cover in a given year. Seasonal fish use of J6 and J7 is restricted by mine infrastructure which overprints J6, and the stream (J5-J6) that would connect J6 and J7 to downstream waterbodies.

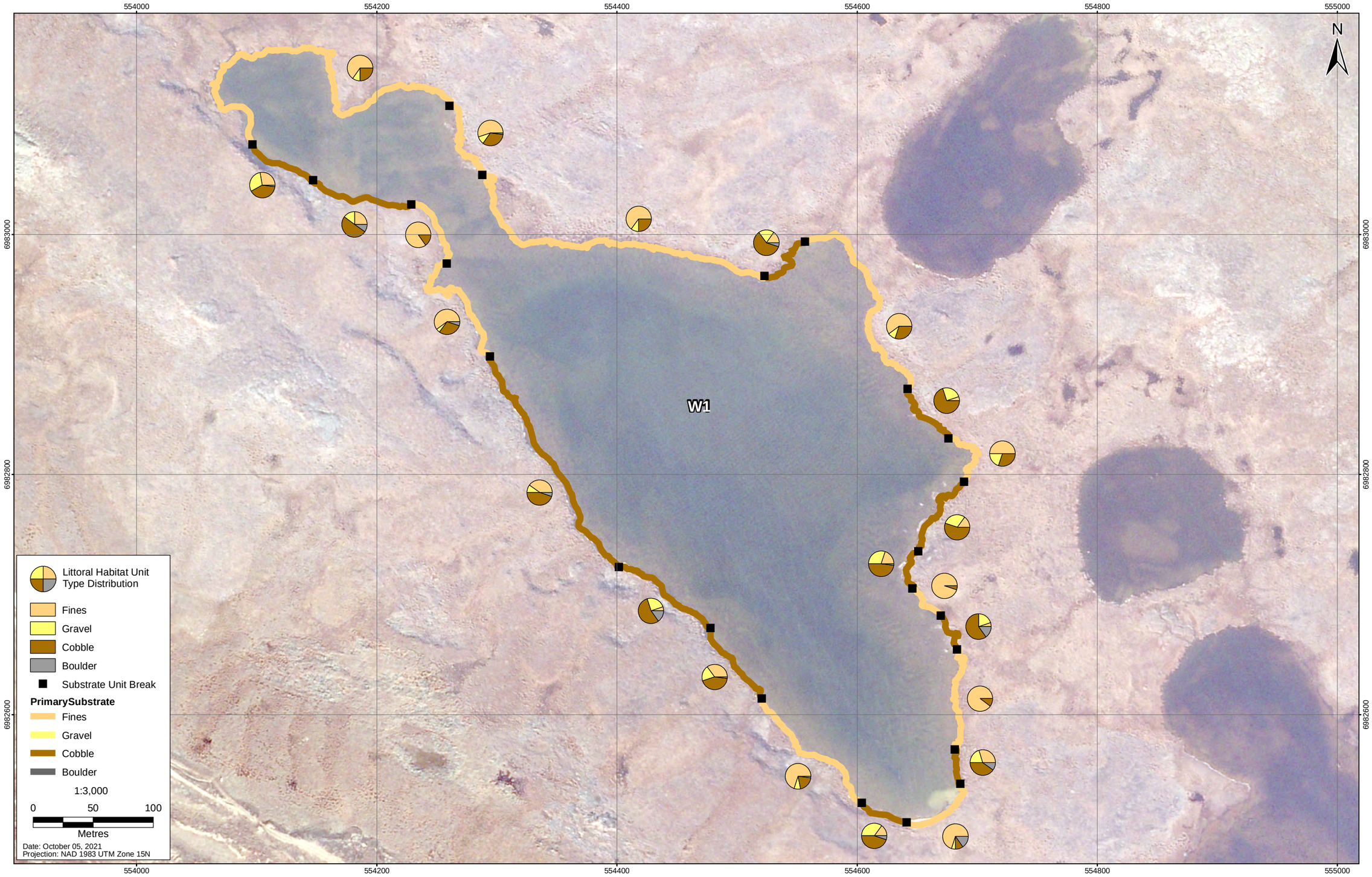


Figure 6.2-21: Littoral Substrate Composition in W1, 2021

6.3 Fish Community and Biology

6.3.1 Fish Community

6.3.1.1 Species Composition

Seven fish species were captured in the surveyed lakes, ponds, and streams including: Arctic Grayling, Arctic Char, Cisco, Burbot, Slimy Sculpin, Threespine Stickleback (*Gasterosteus aculeatus*), and Ninespine Stickleback (Photos 6.3-1 to 6.3-7). Table 6.3-1 presents the life history characteristics for fish species captured in 2020-2021 surveys.

Photo 6.3-1: Adult Arctic Grayling captured by gill netting from B7, July 25, 2020 (top); Juvenile Arctic Grayling captured by drift netting from A50-A5, September 8, 2020 (bottom).

Photo 6.3-2: Arctic Char captured by gillnetting from A1, August 26, 2020.

Photo 6.3-3: Cisco captured by gillnetting from E4, September 3, 2020.

Photo 6.3-4: Burbot captured by electrofishing from B7, July 23, 2020.

Table 6.3-1: General Life History Characteristics for Fish Species Captured, 2020-2021

Species	Depth Range	Maximum Age (years)	Age at Sexual Maturity (years)	Life Stage				Food Preference
				Spawning	Rearing	Overwintering	Migration	
Arctic Grayling	Typically <4 m, but in some cases up to 10 m	10-29	2-9	■ Spring (April-mid-June), during or just after ice breakup ■ Small, clear streams over gravel and rock substrates at depths < 1 m ■ Mid-day to late afternoon	■ Eggs incubate for 13-18 days ■ Alevins may remain within gravel substrate for 3-4 days ■ YOY remain in streams until the fall, usually in shallow, calm water areas in association with cover ■ Juveniles prefer areas with sand and gravel substrates	■ Deepwater areas in lakes ■ Adults usually occur over sand, silt, gravel, and rubble substrates and along rocky shorelines	■ Juveniles and adults migrate annually between feeding areas in small tributaries and overwintering areas in lakes ■ Adult grayling often use debris, rubble, and cobble as cover.	Aquatic and terrestrial insects (e.g., mayflies, caddisflies, midges, bees, wasps, beetles), fish eggs, fry, plankton
Arctic Char	Variety of depths, most commonly < 5 m	14-33	3-13	■ In lakes in the fall from September to October ■ Gravel and cobble substrates at depths between 0.5-6 m ■ Females construct a redd in loose gravel to deposit eggs ■ Spawn on an intermittent basis every 2-5 years	■ Eggs incubate over the winter and hatch from March to April ■ Young char are most often found in nearshore, shallow water areas ■ Young Arctic Char remain in freshwater systems for 2-9 years before making their first migration to sea	■ Deepwater areas in lakes	■ Adults migrate upstream from July to September to spawn in lakes ■ Post-spawning fish migrate downstream to the sea to feed the following spring ■ First-time migrants migrate to the sea around early July after the adults ■ Adult and juvenile Arctic Char migrate upstream in the fall to overwinter in lakes	Invertebrates, algae, fish and plankton
Cisco	10-60	up to 13	5-6	■ In lakes in the fall, usually in shallow water 1-5 m deep, over sand and gravel substrates ■ Can also occur over boulders, rubble, clay, mud, and vegetation	■ Eggs incubate over the winter for 10-14 weeks and hatch in the spring ■ Young are often found in association with rocky substrates and vegetation	■ Deepwater areas in lakes	■ Move from shallow water in the spring to deeper water in the summer (within lakes) ■ Diel migrations toward shore at sunrise and away from shore at sunset	Plankton, large crustaceans, chironomid larvae and young fish
Burbot	Deepwater lakes	14-23	3-5	■ Under the ice at night between November and May ■ Associated with temperatures between 0.6-1.7 °C ■ Broadcast spawn over sand, gravel, or rubble substrates at depths of 0.5-3 m	■ Eggs incubate between 3 weeks to 3 months (depending on water temperature) ■ Sac fry are found primarily in the pelagic zone over sand and rubble substrates ■ YOY become nocturnal and shelter during the daytime in shallow water under various cover types (i.e., boulders, cobble, vegetation) ■ Juveniles are typically found over rock and gravel bottoms along rocky shorelines	■ Deepwater areas in lakes	■ Seasonally move offshore to deeper, cooler water in the early summer ■ Diel movements into shallower water at night to feed	Primarily fish (e.g., ciscoes, cottids, whitefish, sticklebacks)
Ninespine Stickleback	<1-70	3.5	~ 1	■ Shallow water in the spring and summer from May to late July ■ Males build nests among weeds in densely vegetated areas ■ Males may also nest in burrows constructed in muddy organic bottoms	■ Eggs incubate for 4-7 days ■ Once free swimming, young disperse into shallow water areas amongst vegetation	■ Adult and YOY Ninespine Stickleback move to deepwater areas in the fall to overwinter	■ Move to deepwater areas in the fall to overwinter	Aquatic insects, chironomid larvae, small crustaceans, mollusks, cladocerans and other zooplankton

Species	Depth Range	Maximum Age (years)	Age at Sexual Maturity (years)	Life Stage				Food Preference
				Spawning	Rearing	Overwintering	Migration	
Threespine Stickleback	<1 - 20 m	2.5-3.5	~ 1	■ Spring or summer, from May to July ■ Spawn in association with vegetation, or open water habitats ■ Construct nests of algae, small twigs and debris from aquatic plants ■ In water 0.02-40 m deep	■ Eggs incubate for 4-27 days ■ Young stay in shallow water areas in association with vegetation until the fall	■ Deepwater areas in lakes	■ Move to deepwater areas in the fall to overwinter	Invertebrates, eggs, fish fry, plankton
Slimy Sculpin	0.5-210	5-7	2-3	■ In lakes in May, usually over sand, gravel, and rock substrates in shallow water areas <1.5 m deep.	■ Young commonly occur over gravel and sand substrates, in shallow water 0.5-1.5 m deep	■ Deepwater areas in lakes ■ Adults usually occur over gravel and rocky substrates	■ Move to deepwater areas in the fall to overwinter	Aquatic insects, crustaceans, small fishes, aquatic vegetation

Notes:

Life History Characteristics based on Scott and Crossman (1973), Evans et al. (2002), Craig and Wells (1976), and Richardson et al. (2001)

YOY = Young-of-the-year

Photo 6.3-5: Slimy Sculpin captured by electrofishing from B6, July 26, 2020.

Photo 6.3-6: Threespine Stickleback captured by minnow trapping from A2, June 24, 2020.

Table 6.3-2 identifies the fish species captured in surveyed lakes and ponds based on all sampling methods, except for drift netting (i.e., gillnetting, angling, minnow trapping, and electrofishing). Drift net catch data are presented in Table 6.3-3. Ninespine Stickleback were the most prevalent species (95.5%) followed by Threespine Stickleback (2.4%), and Arctic Grayling (1.5%). Slimy Sculpin, Burbot, Cisco, and Arctic Char each comprised < 1% of the total catch (not including fish captured by drift netting). Species diversity was highest in A1 where five species were captured, followed by A6 and B7, where four species were captured. Ninespine Stickleback were the most widespread species, followed by Arctic Grayling. Arctic Char were only captured in two lakes (A1, and A6). Prior to the 2020 field program, no Arctic Char had been recorded in A6, an upper A-Chain lake. Given that Arctic Char have only been captured at A6 once across four years of sampling (1997, 1998, 2009, 2020) it is unlikely that A6 supports a freshwater resident Arctic Char population. However, its presence suggests that Arctic Char may periodically migrate further upstream if conditions are suitable. No fish were captured at B60, B33, H2, H3, H4, and H5.

Photo 6.3-7: Ninespine Stickleback captured by minnow trapping from A4, June 21, 2020.

Table 6.3-2: Number of Fish Captured in Surveyed Lakes and Ponds, 2020-2021

Year	Waterbody Name	Waterbody Type	No. Fish							
			NSSB	TSSB	SLSC	BURB	ARGR	ARCH	CISC	Total
2020	A1	Lake	43	27	0	0	1	2	1	74
	A19	Pond	20	0	0	0	0	0	0	20
	A2	Pond	334	40	0	0	0	0	0	374
	A3	Pond	63	0	0	0	0	0	0	63
	A31	Pond	1	0	0	0	0	0	0	1
	A4	Pond	18	0	0	0	0	0	0	18
	A40	Pond	6	0	0	0	0	0	0	6
	A5	Pond	67	0	0	0	0	0	0	67
	A50	Pond	135	0	0	0	0	0	0	135
	A51	Pond	111	0	0	0	0	0	0	111
	A52	Pond	141	0	0	0	0	0	0	141
	A6	Lake	85	0	1	0	5	1	0	92
	A8	Lake	388	0	1	0	18	0	0	407
	B25	Pond	37	0	0	0	0	0	0	37
	B30	Pond	5	0	0	0	0	0	0	5
	B31	Pond	16	0	0	0	0	0	0	16
	B32	Pond	40	0	0	0	0	0	0	40
	B33	Pond	0	0	0	0	0	0	0	0
	B34	Lake	75	0	0	0	0	0	0	75

Year	Waterbody Name	Waterbody Type	No. Fish							
			NSSB	TSSB	SLSC	BURB	ARGR	ARCH	CISC	Total
2020	B36	Pond	25	0	0	0	0	0	0	25
	B37	Pond	10	0	0	0	0	0	0	10
	B38	Pond	13	0	0	0	0	0	0	13
	B4	Lake	110	0	0	0	2	0	0	112
	B5	Lake	105	0	0	0	4	0	0	109
	B6	Lake	42	0	6	0	3	0	0	51
	B60	Lake	0	0	0	0	0	0	0	0
	B61	Pond	1	0	0	0	0	0	0	1
	B62	Pond	46	0	0	0	0	0	0	46
	B63	Pond	2	0	0	0	0	0	0	2
	B7	Lake	287	0	0	1	11	0	3	302
	E10	Pond	46	0	0	0	0	0	0	46
	E11	Pond	60	0	0	0	0	0	0	60
	E12	Pond	132	0	0	0	0	0	0	132
	E4	Lake	91	0	0	0	0	0	1	92
	E5	Lake	166	0	0	0	0	0	0	166
	H2	Pond	0	0	0	0	0	0	0	0
	H3	Pond	0	0	0	0	0	0	0	0
	H4	Pond	0	0	0	0	0	0	0	0
	H5	Pond	0	0	0	0	0	0	0	0
2021	A9	Pond	4	0	0	0	0	0	0	4
	D31	Pond	1	0	0	0	0	0	0	1
	D33	Pond	2	0	0	0	0	0	0	2
	J6	Pond	0	0	0	0	0	0	0	0
	W1	Pond	60	0	0	1	0	0	0	61
Total			**2788**	**67**	**8**	**2**	**44**	**3**	**5**	**2917**
Total (%)			**95.58**	**2.30**	**0.27**	**0.07**	**1.51**	**0.10**	**0.17**	

Notes:

NSSB = Ninespine Stickleback; TSSB = Threespine Stickleback; SLSC = Slimy Sculpin; BURB = Burbot; ARCH = Arctic Char; ARGR = Arctic Grayling; CISC = Cisco

Table 6.3-3: Total Effort and Catch from Drift Netting Surveys, 2020

Waterbody Name	No. Drift Net Sets	Total Effort (decimal h)	No. of Fish				Mean Total CPUE
			NSSB	TSSB	ARGR	Total	
B7-B6	2	47.98	0	0	0	0	0.000
B31-B5	2	47.38	1	0	0	1	0.001
B30-B6	2	46.75	0	0	0	0	0.000
B4-B2	1	5.92	153	1	1	155	-
B5-B4	1	5.70	0	0	0	0	-
A50-A5	2	46.50	*	*	1	26,572**	18.023**
A52-A51	1	24.23	*	*	0	822**	-
A1-MEL	2	5.27	*	*	3	8,055**	50.923**
Total	**13**	**229.73**	*****	*****	**5**	**35,604****	**10.754****

Notes:

** Fish counted using bulk measurement technique; refer to total number; mostly NSSB, few (i.e., < 10) TSSB.*

*** Based on approximate numbers of (mostly) NSSB and (few: <10) TSSB counted using bulk measurement technique.*

NSSB = Ninespine Stickleback; TSSB = Threespine Stickleback; ARGR = Arctic Grayling

CPUE = Catch-Per-Unit-Effort (no. fish/m³ of water filtered)

6.3.1.2 Catch-Per-Unit-Effort

CPUE was recorded for electrofishing, minnow trapping, drift netting, gillnetting, and angling in all surveyed lakes, ponds, and streams and is presented separately below.

Electrofishing

Forty-four sites were sampled by single-pass electrofishing (Appendix A, Figures A-1 to A-23). Electrofishing CPUE is summarized in Table 6.3-4. A total of 820 fish were captured in 40,541 s of electrofishing effort (Table 6.3-4). Ninespine Stickleback were the dominant species captured, making up 98.5% (n = 808) of the catch. Threespine Stickleback (n= 1), Slimy Sculpin (n= 8), Burbot (n= 1), and Arctic Grayling (n= 2) each comprised < 1% of the total catch. The presence and high relative abundance of Ninespine Stickleback in 33 of the 44 lakes and ponds surveyed by electrofishing indicates that this species is distributed across the Project area and thus able to occupy a broad range of habitat types. Total CPUE ranged from 0 fish/100 s (A31, A40, B33, B60, B61, H2, H3, H4, H5, D31, and J6) to 13.84 fish/100 s at A3 (Table 6.3-4).

Minnow Trapping

Table 6.3-5 summarizes the total number of minnow trap deployments, total effort, total catch, and mean total CPUE (defined as the mean of total CPUE from all minnow trap deployments); detailed effort and catch data are presented in Appendix B, Table B-4. Standard and bootstrap mean CPUE of minnow trapping efforts for each waterbody and each species are presented in Table 6.3-6.

A total of 660 minnow traps were set in the littoral zones of 43 lakes and ponds within the Project area, for a total fishing effort of 14,699 h (Appendix A, Figures A-1 to A-23 Table 6.3-5). The total number of minnow trap deployments ranged from four at A4 and H2 to thirty at A1, A2, A52, B4, B5, B6, and B7, with an average of fifteen trap deployments per waterbody (Table 6.3-5). The number of minnow trap deployments per waterbody was dependent on lake/pond size and depth; generally, smaller/shallow waterbodies had fewer areas suitable for minnow trap deployments, where the trap entrances could be fully submerged.

Table 6.3-4: Effort and Catch from Electrofishing Surveys, 2020-2021

Year	Waterbody Name	Waterbody Type	Total Fishing Effort (s)	No. of fish						CPUE (No. of fish/100 s)						Comments
				NSSB	TSSB	SLSC	BURB	ARGR	Total	NSSB	TSSB	SLSC	BURB	ARGR	Total	
2020	A1	Lake	1370.8	35	0	0	0	0	35	2.55	0.00	0.00	0.00	0.00	2.55	
	A19	Pond	727.1	16	0	0	0	0	16	2.20	0.00	0.00	0.00	0.00	2.20	
	A2	Pond	1643.7	141	1	0	0	0	142	8.58	0.71	0.00	0.00	0.00	8.64	Electrofished all three "lobes" of A2
	A3	Pond	325.1	45	0	0	0	0	45	13.84	0.00	0.00	0.00	0.00	13.84	
	A31	Pond	1040	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	
	A4	Pond	371.5	5	0	0	0	0	5	1.35	0.00	0.00	0.00	0.00	1.35	
	A40	Pond	1450.2	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	
	A5	Pond	345.8	33	0	0	0	0	33	9.54	0.00	0.00	0.00	0.00	9.54	
	A50	Pond	338.8	22	0	0	0	0	22	6.49	0.00	0.00	0.00	0.00	6.49	
	A51	Pond	639.5	27	0	0	0	0	27	4.22	0.00	0.00	0.00	0.00	4.22	
	A52	Pond	554.8	33	0	0	0	0	33	5.95	0.00	0.00	0.00	0.00	5.95	
	A6	Lake	683.5	43	0	1	0	0	44	6.29	0.00	0.15	0.00	0.00	6.44	
	A8	Lake	1137.4	44	0	1	0	0	45	3.87	0.00	0.09	0.00	0.00	3.96	
	B25	Pond	1587.7	11	0	0	0	0	11	0.69	0.00	0.00	0.00	0.00	0.69	
	B30	Pond	366.7	5	0	0	0	0	5	1.36	0.00	0.00	0.00	0.00	1.36	Mucky bottom prevented access to some areas; juvenile ARGR between B30 and B31
	B31	Pond	658.2	14	0	0	0	0	14	2.13	0.00	0.00	0.00	0.00	2.13	
	B32	Pond	603.7	30	0	0	0	0	30	4.97	0.00	0.00	0.00	0.00	4.97	
	B33	Pond	1161.7	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	
	B34	Lake	568.7	28	0	0	0	0	28	4.92	0.00	0.00	0.00	0.00	4.92	

Year	Waterbody Name	Waterbody Type	Total Fishing Effort (s)	No. of fish						CPUE (No. of fish/100 s)						Comments
				NSSB	TSSB	SLSC	BURB	ARGR	Total	NSSB	TSSB	SLSC	BURB	ARGR	Total	
2020	B36	Pond	879.6	16	0	0	0	0	16	1.82	0.00	0.00	0.00	0.00	1.82	
	B37	Pond	1266.7	7	0	0	0	0	7	0.55	0.00	0.00	0.00	0.00	0.55	
	B38	Pond	1295.2	8	0	0	0	0	8	0.62	0.00	0.00	0.00	0.00	0.62	
	B4	Lake	1405.2	9	0	0	0	1	10	0.64	0.00	0.00	0.00	0.07	0.71	
	B5	Lake	1621.8	6	0	0	0	1	7	0.37	0.00	0.00	0.00	0.06	0.43	
	B6	Lake	830.2	4	0	6	0	0	10	0.48	0.00	0.72	0.00	0.00	1.20	
	B60	Lake	1601.6	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	
	B61	Pond	1561.3	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	
	B62	Pond	1693.7	16	0	0	0	0	16	0.94	0.00	0.00	0.00	0.00	0.94	
	B63	Pond	306.5	2	0	0	0	0	2	0.65	0.00	0.00	0.00	0.00	0.65	Observed about 12 NSSB in pond
	B7	Lake	942.3	3	0	0	1	0	4	0.32	0.00	0.00	0.11	0.00	0.42	
	E10	Pond	473.4	40	0	0	0	0	40	8.45	0.00	0.00	0.00	0.00	8.45	
	E11	Pond	307.5	37	0	0	0	0	37	12.03	0.00	0.00	0.00	0.00	12.03	
	E12	Pond	580.2	30	0	0	0	0	30	5.17	0.00	0.00	0.00	0.00	5.17	
	E4	Lake	706.9	33	0	0	0	0	33	4.67	0.00	0.00	0.00	0.00	4.67	
	E5	Lake	616.9	46	0	0	0	0	46	7.46	0.00	0.00	0.00	0.00	7.46	
	H2	Pond	217.4	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	Very soft bottom limiting shocking time; H2 connects to DNST pond at higher flow
	H3	Pond	579.3	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	Very soft bottom limiting shocking time

Year	Waterbody Name	Waterbody Type	Total Fishing Effort (s)	No. of fish						CPUE (No. of fish/100 s)						Comments
				NSSB	TSSB	SLSC	BURB	ARGR	Total	NSSB	TSSB	SLSC	BURB	ARGR	Total	
2020	H4	Pond	53.3	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	Very soft bottom limiting shocking time
	H5	Pond	764.7	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	Very soft bottom limiting shocking time
2021	A9	Pond	434.5	2	0	0	0	0	2	0.46	0.00	0.00	0.00	0.00	0.46	>30 NSSB YOY were visually observed
	D31	Pond	1741.9	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	
	D33	Pond	2528.9	2	0	0	0	0	2	0.08	0.00	0.00	0.00	0.00	0.08	
	J6	Pond	988.1	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	
	W1	Pond	1569.4	15	0	0	0	0	15	0.96	0.00	0.00	0.00	0.00	0.96	
Total			**40541.4**	**808**	**1**	**8**	**1**	**2**	**820**							

Notes:

NSSB = Ninespine Stickleback; TSSB = Threespine Stickleback; ARGR = Arctic Grayling; SLSC = Slimy Sculpin; BURB = Burbot

CPUE = Catch-Per-Unit-Effort

Table 6.3-5: Total Minnow Trap Deployments, Catch, and CPUE, 2020-2021

Year	Waterbody Name	Waterbody Type	No. Minnow Traps	Total Effort (decimal h)	No. of Fish					Mean Total CPUE
					NSSB	TSSB	ARGR	BURB	Total	
2020	A1	Lake	30	1312.60	8	27	0	0	35	0.64
	A19	Pond	11	212.80	4	0	0	0	4	0.45
	A2	Pond	30	652.52	193	39	0	0	232	8.65
	A3	Pond	10	227.72	18	0	0	0	18	1.91
	A31	Pond	15	300.18	1	0	0	0	1	0.08
	A4	Pond	4	93.20	13	0	0	0	13	3.35
	A40	Pond	15	297.55	6	0	0	0	6	0.48
	A5	Pond	16	387.68	34	0	0	0	34	2.11
	A50	Pond	6	125.97	113	0	0	0	113	21.56
	A51	Pond	13	279.48	84	0	0	0	84	7.15
	A52	Pond	30	586.33	108	0	0	0	108	4.48
	A6	Lake	15	296.73	42	0	0	0	42	3.40
	A8	Lake	15	310.55	344	0	0	0	344	26.50
	B25	Pond	20	438.23	26	0	0	0	26	1.43
	B30	Pond	6	115.30	0	0	0	0	0	0.00
	B31	Pond	10	178.65	2	0	0	0	2	0.27
	B32	Pond	14	325.88	10	0	0	0	10	0.73
	B33	Pond	10	162.95	0	0	0	0	0	0.00
	B34	Lake	20	378.32	47	0	0	0	47	2.97
	B36	Pond	10	176.77	9	0	0	0	9	1.22
	B37	Pond	10	178.62	3	0	0	0	3	0.40
	B38	Pond	10	180.98	5	0	0	0	5	0.66

Year	Waterbody Name	Waterbody Type	No. Minnow Traps	Total Effort (decimal h)	No. of Fish					Mean Total CPUE
					NSSB	TSSB	ARGR	BURB	Total	
2020	B4	Lake	30	844.10	101	0	0	0	101	2.86
	B5	Lake	30	751.25	99	0	1	0	100	3.20
	B6	Lake	30	710.72	38	0	0	0	38	1.28
	B60	Lake	15	303.28	0	0	0	0	0	0.00
	B61	Pond	15	305.25	1	0	0	0	1	0.08
	B62	Pond	20	498.15	30	0	0	0	30	1.44
	B7	Lake	30	467.50	284	0	0	0	284	14.43
	E10	Pond	10	217.95	6	0	0	0	6	0.66
	E11	Pond	10	226.82	23	0	0	0	23	2.46
	E12	Pond	10	206.12	102	0	0	0	102	12.10
	E4	Lake	20	502.65	58	0	0	0	58	2.74
	E5	Lake	10	207.07	120	0	0	0	120	13.98
	H2	Pond	4	73.98	0	0	0	0	0	0.00
	H3	Pond	9	166.50	0	0	0	0	0	0.00
	H4	Pond	6	111.13	0	0	0	0	0	0.00
	H5	Pond	11	168.88	0	0	0	0	0	0.00
2021	A9	Pond	5	102.53	2	0	0	0	2	0.47
	D31	Pond	25	569.83	1	0	0	0	1	0.04
	D33	Pond	15	318.37	0	0	0	0	0	0.00
	J6	Pond	15	288.02	0	0	0	0	0	0.00
	W1	Pond	20	439.87	45	0	0	1	46	2.50
Total			**660**	**14698.98**	**1980**	**66**	**1**	**1**	**2048**	**3.59**

Notes:
CPUE=Catch-Per-Unit-Effort (# fish per trap per 24 h)
NSSB= Ninespine Stickleback; TSSB= Threespine Stickleback; ARGR= Arctic Grayling; BURB= Burbot

Table 6.3-6: Minnow Trap CPUE Summary Statistics, 2020-2021

Year	Waterbody Name	Species	Minnow Traps (n)	Standard CPUE (# fish per trap per 24 h)							Bootstrap CPUE (# fish per trap per 24 h)			
				Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2020	A1	ARGR	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	30	0.15	0.32	0.06	0.00	1.10	0.00	1.10	0.15	0.06	0.05	0.27
		TSSB	30	0.49	1.45	0.27	0.00	7.70	0.00	3.71	0.50	0.26	0.11	1.10
	A19	ARGR	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	11	0.45	0.84	0.25	0.00	2.48	0.00	2.17	0.45	0.24	0.00	1.01
		TSSB	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A2	ARGR	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	30	7.20	12.29	2.24	0.00	47.49	0.00	45.42	7.22	2.21	3.40	11.89
		TSSB	30	1.45	1.80	0.33	0.00	6.63	0.00	5.87	1.45	0.32	0.86	2.10
	A3	ARGR	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	10	1.91	2.14	0.68	0.00	6.51	0.00	6.00	1.91	0.64	0.75	3.22
		TSSB	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A31	ARGR	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	15	0.08	0.31	0.08	0.00	1.20	0.00	0.78	0.08	0.08	0.00	0.24
		TSSB	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A4	ARGR	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	4	3.35	3.29	1.64	1.02	8.22	1.09	7.77	3.35	1.45	1.30	6.67
		TSSB	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A40	ARGR	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	15	0.49	1.57	0.41	0.00	6.06	0.00	4.36	0.48	0.39	0.00	1.37
		TSSB	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Year	Waterbody Name	Species	Minnow Traps (n)	Standard CPUE (# fish per trap per 24 h)							Bootstrap CPUE (# fish per trap per 24 h)			
				Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2020	A5	ARGR	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	16	2.11	4.61	1.15	0.00	17.00	0.00	13.97	2.11	1.12	0.31	4.61
		TSSB	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A50	ARGR	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	6	21.56	30.13	12.30	0.00	69.51	0.28	67.02	21.54	11.22	2.12	44.36
		TSSB	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A51	ARGR	13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	13	7.15	15.18	4.21	0.00	48.19	0.00	43.52	7.13	4.01	0.76	16.05
		TSSB	13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A52	ARGR	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	30	4.48	10.16	1.86	0.00	50.53	0.00	31.01	4.51	1.86	1.61	8.77
		TSSB	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A6	ARGR	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	15	3.40	3.80	0.98	0.00	12.14	0.00	11.31	3.39	0.96	1.62	5.35
		TSSB	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A8	ARGR	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	15	26.50	16.65	4.30	0.00	52.12	0.00	51.07	26.50	4.14	18.49	34.43
		TSSB	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B25	ARGR	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	20	1.44	2.40	0.54	0.00	6.66	0.00	6.64	1.44	0.53	0.50	2.55
		TSSB	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Year	Waterbody Name	Species	Minnow Traps (n)	Standard CPUE (# fish per trap per 24 h)							Bootstrap CPUE (# fish per trap per 24 h)			
				Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2020	B30	ARGR	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TSSB	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B31	ARGR	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	10	0.27	0.57	0.18	0.00	1.35	0.00	1.35	0.27	0.17	0.00	0.67
		TSSB	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B32	ARGR	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	14	0.73	1.10	0.29	0.00	3.08	0.00	3.07	0.73	0.28	0.22	1.32
		TSSB	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B33	ARGR	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TSSB	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B34	ARGR	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	20	2.97	2.72	0.61	0.00	10.11	0.00	9.46	2.98	0.60	1.90	4.22
		TSSB	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B36	ARGR	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	10	1.22	1.63	0.51	0.00	4.08	0.00	3.78	1.23	0.49	0.27	2.18
		TSSB	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B37	ARGR	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	10	0.40	1.27	0.40	0.00	4.02	0.00	3.11	0.40	0.38	0.00	1.21
		TSSB	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Year	Waterbody Name	Species	Minnow Traps (n)	Standard CPUE (# fish per trap per 24 h)							Bootstrap CPUE (# fish per trap per 24 h)			
				Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2020	B38	ARGR	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	10	0.67	1.13	0.36	0.00	2.67	0.00	2.67	0.67	0.34	0.00	1.34
		TSSB	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B4	ARGR	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	30	2.86	3.31	0.60	0.00	10.87	0.00	10.84	2.86	0.60	1.75	4.07
		TSSB	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B5	ARGR	30	0.03	0.18	0.03	0.00	1.00	0.00	0.27	0.03	0.03	0.00	0.10
		NSSB	30	3.16	3.18	0.58	0.00	11.71	0.00	10.45	3.17	0.56	2.12	4.34
		TSSB	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B6	ARGR	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	30	1.28	3.00	0.55	0.00	14.17	0.00	10.42	1.28	0.54	0.41	2.45
		TSSB	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B60	ARGR	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TSSB	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B61	ARGR	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	15	0.08	0.31	0.08	0.00	1.18	0.00	0.77	0.08	0.08	0.00	0.24
		TSSB	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B62	ARGR	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	20	1.44	2.35	0.53	0.00	10.53	0.00	7.33	1.44	0.51	0.67	2.58
		TSSB	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Year	Waterbody Name	Species	Minnow Traps (n)	Standard CPUE (# fish per trap per 24 h)							Bootstrap CPUE (# fish per trap per 24 h)			
				Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2020	B7	ARGR	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	30	14.43	19.24	3.51	0.00	90.90	0.00	55.18	14.42	3.47	8.37	21.90
		TSSB	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	E10	ARGR	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	10	0.66	1.18	0.37	0.00	3.32	0.00	3.06	0.67	0.36	0.00	1.43
		TSSB	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	E11	ARGR	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	10	2.46	3.69	1.17	0.00	10.75	0.00	9.55	2.47	1.10	0.54	4.83
		TSSB	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	E12	ARGR	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	10	12.10	22.00	6.96	0.00	70.68	0.00	59.82	12.02	6.51	2.10	26.36
		TSSB	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	E4	ARGR	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	20	2.74	4.02	0.90	0.00	15.81	0.00	13.19	2.75	0.89	1.26	4.66
		TSSB	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	E5	ARGR	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	10	13.98	12.12	3.83	3.44	36.40	3.44	34.81	13.98	3.61	7.44	21.43
		TSSB	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	H2	ARGR	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TSSB	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Year	Waterbody Name	Species	Minnow Traps (n)	Standard CPUE (# fish per trap per 24 h)							Bootstrap CPUE (# fish per trap per 24 h)			
				Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2020	H3	ARGR	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TSSB	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	H4	ARGR	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TSSB	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	H5	ARGR	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TSSB	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2021	A9	ARGR	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	5	0.47	0.64	0.29	0.00	1.17	0.00	1.17	0.47	0.26	0.00	0.94
		TSSB	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		BURB	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D31	ARGR	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	25	0.04	0.22	0.04	0.00	1.08	0.00	0.43	0.04	0.04	0.00	0.13
		TSSB	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		BURB	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D33	ARGR	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TSSB	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		BURB	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Year	Waterbody Name	Species	Minnow Traps (n)	Standard CPUE (# fish per trap per 24 h)							Bootstrap CPUE (# fish per trap per 24 h)			
				Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2021	J6	ARGR	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TSSB	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		BURB	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	W1	ARGR	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		NSSB	20	2.45	6.10	1.36	0.00	27.38	0.00	17.01	2.46	1.34	0.60	5.45
		TSSB	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		BURB	20	0.06	0.25	0.06	0.00	1.10	0.00	0.58	0.06	0.05	0.00	0.17

Notes:

CI = 95% confidence interval

n = minnow trap sample size

SD = standard deviation of the mean

SE = standard error of the mean

CPUE=Catch-Per-Unit-Effort

ARGR = Arctic Grayling; NSSB= Ninespine Stickleback; TSSB= Threespine Stickleback; BURB= Burbot

Trap soak times ranged between 14.4 and 43.9 h, with an average soak duration of 22.27 h. In total, 2,048 fish were captured across all 43 lakes and ponds, including 1,980 (96.7%) Ninespine Stickleback, 66 (3.2%) Threespine Stickleback, 1 Burbot (0.05%), and 1 (0.05%) Arctic Grayling (Table 6.3-5). Mean total CPUE ranged from 0 fish/24 h (B30, B33, B60, H2, H3, H4, H5, D33, and J6) to 26.5 fish/24 h (A8; Table 6.3-5).

Drift Netting

Table 6.3-3 summarizes the total number of driftnet sets, total effort, total catch, and mean total CPUE (defined as the mean of the total CPUE from all drift net deployments). Detailed effort and catch data for all drift net deployments are presented in Appendix B, Table B-5. A total of 13 drift nets were set in eight stream sections within the Project area, for a combined total fishing effort of 229.73 h (Appendix A, Figures A-1 to A-3, A-6 to A-9, and A-11; Table 6.3-3). Drift net soak times ranged from 2.47 to 31.03 h, with an average of soak duration of 17.7 h. Soak durations were adjusted based on catch rates.

Approximately 35,604 fish were captured across all eight streams (fish were counted using the bulk measurement technique described in the methods; Table 6.3-3). Mean total CPUE ranged from 0 fish/m^3 of water filtered (B7-B6, B30-B6) to 50.9 fish/m^3 of water filtered (A1-MEL; Table 6.3-3). Overall, Ninespine Stickleback were the dominant species captured, making up approximately 99% of the catch. Threespine Stickleback ($n < 50$), and Arctic Grayling ($n = 5$, from A50-A5, A1-MEL, and B4-B2) each comprised < 1% of the total catch. Arctic Grayling captured in drift nets deployed at A50-A5, A1-MEL, and B4-B2 suggests that juvenile Arctic Grayling utilize these stream sections as migratory habitat, in order to access deeper overwintering lakes (e.g., A1, Meliadine Lake, A6, B2).

Total catches were highest within A-Chain streams, ranging from approximately 822 fish at A52-A51 to approximately 26,572 fish at A50-A5 (Photo 6.3-8; Table 6.3-3). Catches within B-Chain streams ranged from 0 fish at B7-B6, B30-B6, and B5-B4 to 155 fish at B4-B2 (Table 6.3-3). The high abundance of Ninespine Stickleback in stream sections within the A-Chain and B-Chain suggests that these stream sections provide migratory habitat, allowing fish to access overwintering habitats prior to freeze up.

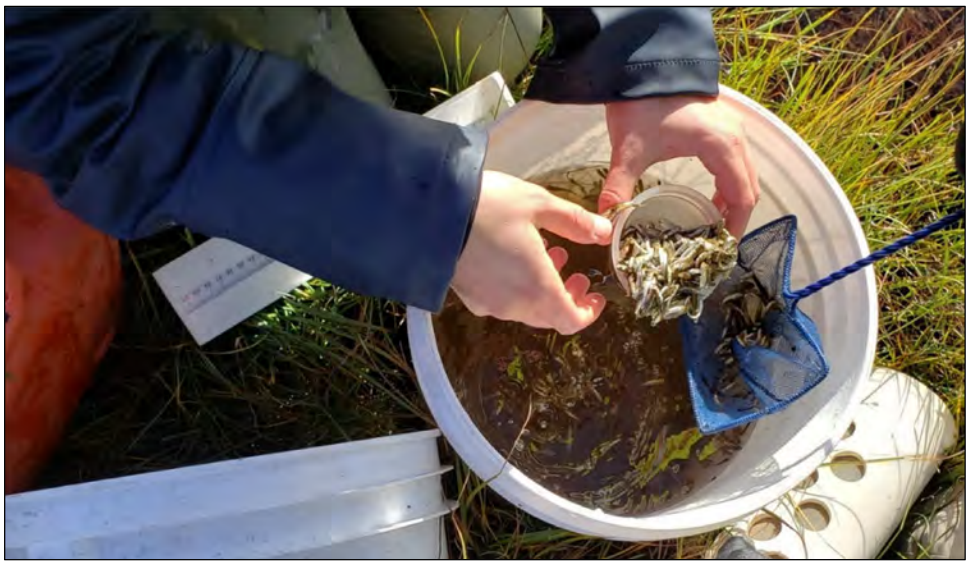


Photo 6.3-8: Fish captured by drift netting at A50-A5, September 8, 2020.

Drift net catch data provided a brief snapshot of the scale of seasonal fish movement between September 5 and 9, 2020. Fish movement was also observed during stream habitat surveys, where dense groups of Ninespine Stickleback at all life stages, ranging from Young-of-the-Year (YOY) to adult, were seen moving along the entire extent of wetted tundra (beaded overland flow) at B34-B5 (Photo 6.3-9). Overall, high abundances of Ninespine Stickleback observed, and captured during drift net surveys, may indicate that small upstream ponds, and the forage species that they support, have a large contribution to downstream productivity for larger-bodied species. This is further evidenced by the presence of Ninespine Stickleback in the stomach contents of an Arctic Char which was captured in A1.

Photo 6.3-9: Ninespine Stickleback observed throughout a section of beaded overland flow at B24-B5, September 12, 2020.

Gillnetting

Table 6.3-7 summarizes the total number of gillnet sets, total effort, total catch, and mean total CPUE (defined as the mean of total CPUE from all gillnet sets), detailed effort and catch data are presented in Appendix B, Table B-6. Standard and bootstrap mean CPUE of gillnetting efforts for each waterbody and each species are presented in Table 6.3-8. A total of 66 sinking gillnets were set in nine lakes and one pond within the Project area, for a combined total fishing effort of 58.7 h (Appendix A, Figures A-1, A-3 to A-4, A-7 to A-9, A-13, A-16, and A-23; Table 6.3-7). The total number of gillnet sets ranged from three at B4, B7, and E5 to fourteen at A6 with an average of seven sets per waterbody. The number of gillnets set per lake was dependent on lake size and depth; generally, smaller/shallow waterbodies had fewer areas suitable for gillnet deployments. Gillnet soak times ranged between 0.2 to 1.5 h, with an average soak duration of 0.9 h. Forty-six fish were captured in total across all ten waterbodies, including Thirty-eight (82.6%) Arctic Grayling, three (6.5%) Arctic Char, and five (10.8%) Cisco. Mean total CPUE ranged from 0 fish/100 m^2 /h (B34, E5, and W1) to 15.3 fish/100 m^2 /h (B7; Table 6.3-7). B7 had the highest mean CPUE for Arctic Grayling (11.8 fish/100 m^2 /h; Table 6.3-8).

Table 6.3-7: Total Gillnet Sets, Catch, and CPUE, 2020-2021

Year	Waterbody Name	No. Gillnet Sets	Total Effort (decimal h)	No. of Fish				Mean Total CPUE
				ARGR	ARCH	CISC	Total	
2020	A1	7	6.55	1	2	1	4	0.71
	A6	14	14.35	5	1	0	6	0.58
	A8	11	7.47	18	0	0	18	3.16
	B34	4	4.37	0	0	0	0	0.00
	B4	3	3.23	1	0	0	1	0.41
	B5	5	4.20	3	0	0	3	0.92
	B7	3	1.08	10	0	3	13	15.31
	E4	12	12.10	0	0	1	1	0.10
	E5	3	2.48	0	0	0	0	0.00
2021	W1	4	2.88	0	0	0	0	0.00
Total		**66**	**58.72**	**38**	**3**	**5**	**46**	**1.60**

Notes:
ARGR= Arctic Grayling; ARCH= Arctic Char; CISC= Cisco
CPUE = Catch-Per-Unit-Effort (fish/100 m²/h)

Angling

Angling was conducted at nine lakes to complement gillnet sampling, for a total fishing effort of 12.75 rod-hours. Arctic Grayling were captured at B6 (n = 3, CPUE = 1.7 fish/rod/hour) and B7 (n = 1,CPUE= 4 fish/rod/hour). Detailed angling effort and catch data are presented in Appendix B, Table B-7. All angling locations are shown in Appendix A, Figures A-1, A-3 to A-4, A-7 to A-9, A-13, and A-16.

6.3.2 Fish Biology

6.3.2.1 Length, Weight, and Condition

Table 6.3-9 summarizes standard and bootstrapped mean fork length, weight, age, and condition for all large-bodied fish species captured via gillnetting and angling in each of the sampled waterbodies. Tables 6.3-10 to 6.3-12 summarizes the standard and bootstrapped mean fork length, weight, and condition of small-bodied fish species captured, separated by sampling method in each of the surveyed waterbodies. Biological data for fish sampled from surveyed waterbodies are presented in Appendix B, Tables B-8 and B-9 for large-bodied and small-bodied fish species, respectively.

Arctic Grayling were captured by gillnetting and/or angling in seven of the waterbodies sampled. Fork length ranged from 206 mm (B6) to 425 mm (A8), and weight ranged from 192.0 g (B7) to 863.0 g (A8; Table 6.3-9). Mean condition factor (K) for Arctic Grayling captured by gillnetting and/or angling at all sites was within normal values for salmonid fishes and ranged from 1.14 (B7) to 1.69 (B6; Table 6.3-9).

Arctic Char were captured by gillnetting in A1 and A6. Fork length ranged from 240 mm (A6) to 328 mm (A1), and weight ranged from 173.0 g (A6) to 460.0 g (A1; Table 6.3-9). Condition factor (K) for Arctic Char captured by gillnetting at all sites ranged from 1.04 (A1) to 1.3 (A1; Table 6.3-9).

Table 6.3-8: Gillnet CPUE Summary Statistics, 2020-2021

Year	Waterbody Name	Species	Gillnets (n)	Standard CPUE (# fish caught per net × 100 m^2 / total net area (m^2) / Set time (h))							Bootstrap CPUE (# fish caught per net × 100 m^2 / total net area (m^2) / Set time (h))			
				Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2020	A1	ARCH	7	0.35	0.60	0.23	0.00	1.24	0.00	1.24	0.35	0.21	0.00	0.71
		ARGR	7	0.18	0.47	0.18	0.00	1.24	0.00	1.05	0.18	0.17	0.00	0.53
		CISC	7	0.18	0.47	0.18	0.00	1.24	0.00	1.05	0.18	0.17	0.00	0.53
	A6	ARCH	14	0.08	0.31	0.08	0.00	1.16	0.00	0.78	0.08	0.08	0.00	0.25
		ARGR	14	0.49	0.87	0.23	0.00	2.47	0.00	2.35	0.50	0.23	0.09	0.99
		CISC	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A8	ARCH	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		ARGR	11	3.16	3.30	0.99	0.00	11.22	0.00	10.06	3.17	0.96	1.52	5.26
		CISC	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B34	ARCH	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		ARGR	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		CISC	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B4	ARCH	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		ARGR	3	0.41	0.71	0.41	0.00	1.24	0.00	1.17	0.40	0.33	0.00	1.24
		CISC	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B5	ARCH	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		ARGR	5	0.92	1.02	0.46	0.00	2.47	0.00	2.34	0.92	0.41	0.19	1.72
		CISC	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B7	ARCH	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		ARGR	3	11.85	6.33	3.65	5.93	18.52	6.19	18.15	11.84	3.01	5.93	18.52
		CISC	3	3.46	3.73	2.15	0.00	7.41	0.15	7.19	3.43	1.76	0.00	7.41

Year	Waterbody Name	Species	Gillnets (n)	Standard CPUE (# fish caught per net × 100 m^2 / total net area (m^2) / Set time (h))							Bootstrap CPUE (# fish caught per net × 100 m^2 / total net area (m^2) / Set time (h))			
				Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2020	E4	ARCH	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		ARGR	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		CISC	12	0.10	0.34	0.10	0.00	1.18	0.00	0.85	0.10	0.09	0.00	0.29
	E5	ARCH	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		ARGR	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		CISC	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2021	W1	ARCH	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		ARGR	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		CISC	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes:
CI = 95% confidence interval
n = gillnet sample size
SD = standard deviation of the mean
SE = standard error of the mean
CPUE=Catch-Per-Unit-Effort
ARCH= Arctic Char; ARGR= Arctic Grayling; CISC= Cisco

Cisco were captured by gillnetting in A1, B7, and E4. Fork length ranged from 93 mm (E4) to 269 mm (B7), and weight ranged from 18.0 g (A1) to 254.0 g (B7; Table 6.3-9). Condition factor (K) for Cisco captured by gillnetting at all sites ranged from 0.94 (A1) to 1.11 (B7; Table 6.3-9).

Ninespine Stickleback were captured by electrofishing, minnow trapping, and/or drift netting in 37 lakes/ponds and six streams. Of the Ninespine Stickleback captured by electrofishing, mean fork length ranged from 20.6 mm (B31) to 63.1 mm (B62), mean weight ranged from 0.10 g (E12) to 2.15 g (B62), and mean condition factor ranged from 0.49 (A6) to 1.16 (B37; Tables 6.3-10 to 6.3-12). Ninespine Stickleback captured by minnow trapping ranged in mean fork length from 47.6 mm (B38) to 67.3 mm (E11), mean weight from 0.85 g (B38) to 2.20 g (B37), and mean condition from 0.60 (E11 and E5) to 1.02 (B61; Tables 6.3-10 to 6.3-12). Ninespine Stickleback captured by drift nets ranged in mean fork length from 29.0 mm (A50-A5) to 65.0 mm (B31-B5), mean weight from 0.16 g (A50-A5) to 0.19 g (B4-B2), and mean condition from 0.55 (A50-A5) to 0.65 (B4-B2).

Threespine Stickleback were captured by electrofishing, minnow trapping, and/or drift netting in two lakes and five streams. One Threespine Stickleback was captured by electrofishing at A2. Fork length, weight, and condition factor were 66.0 mm, 2.71 g, and 0.94, respectively (Tables 6.3-10 to 6.3-12). Threespine Stickleback captured by minnow trapping had mean fork lengths of 58.0 mm (A1 and A2); weights were not measured for these individuals due to high winds affecting the accuracy of the balance. Threespine Stickleback captured by drift nets ranged in mean fork length from 23.0 mm (B4-B2) to 55.5 mm (A50-A5), mean weight ranged from 0.09 g (B4-B2) to 1.78 g (A50-A5), and mean condition from 0.74 (B4-B2) to 0.80 (B4-B2; Tables 6.3-10 to 6.3-12).

Slimy Sculpin were captured by electrofishing in A6, A8, and B6. Total length ranged from 30.0 mm (B6) to 78.0 mm (A6; Table 6.3-10), and weight ranged from 0.28 g (B6) to 5.50 g (A6; Table 6.3-11). Condition factor (K) for Slimy Sculpin captured by electrofishing at all sites ranged from 0.78 (B6) to 1.41 (B6; Table 6.3-12).

One Burbot was captured at each of B7 and W1 via electrofishing and minnow trapping, respectively. Fork length ranged from 148 mm to 253 mm, weight from 19.7 g to 76 g, and condition ranged from 0.47 to 0.61 (Tables 6.3-10 to 6.3-12).

Arctic Grayling were captured by electrofishing, minnow trapping, and/or drift netting in five of the lakes, ponds, and streams sampled. All of these fish were juveniles with the exception of one adult Arctic Grayling captured at B4-B2. Arctic Grayling captured in drift nets ranged in length from 60 mm (A1-MEL) to 310 mm (B4-B2; Table 6.3-10; this fish was not weighed as it exceeded the maximum capacity of the balance used to weigh small-bodied fish), weight ranged from 2.8 g (A1-MEL) to 24.1 g (A50-A5; Table 6.3-11). Condition factor (K) for Arctic Grayling captured by drift netting at all sites was within normal values for salmonid fishes and ranged from 0.92 (A1-MEL) to 1.28 (A1-MEL; Table 6.3-12).

One juvenile Arctic Grayling was captured by electrofishing at each of B5 and B4. Fork length ranged from 29 mm to 39 mm, weight from 0.23 g to 0.58 g, and condition ranged from 0.94 to 0.98 (Tables 6.3-10 to 6.3-12). One juvenile Arctic Grayling was captured by minnow trapping at B5. Fork length, weight, and condition factor were 86 mm, 5.70 g, and 0.90, respectively (Tables 6.3-10 to 6.3-12).

Length-frequency distributions were plotted for all lakes, ponds and streams, and all species in which at least ten fish were captured (Figures 6.3-1 to 6.3-3). Length-frequency distributions could not be created for select lakes, ponds and streams, and species (i.e., Slimy Sculpin, Cisco, Burbot, or Arctic Char) due to low sample sizes.

The majority of Arctic Grayling captured in A8 were in the 350 to 400 mm size class, while the majority of Arctic Grayling captured at B7 were in the 250 to 300 mm size class (Figure 6.3-1). Both followed an approximately normal distribution.

Table 6.3-9: Fork Length, Weight, Age, and Condition Summary Statistics of Large-bodied Fish Captured, 2020

Waterbody Name	Species	Standard Fork Length (mm)								Bootstrap Fork Length (mm)				Standard Total Weight (g)							
		n	Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI	n	Mean	SD	SE	Min	Max	Lower CI	Upper CI
A1	ARCH	2.00	321.50	9.19	6.50	315.00	328.00	315.33	327.68	321.55	4.59	315.00	328.00	2.00	392.50	95.46	67.50	325.00	460.00	328.38	456.63
	ARGR	1.00	267.00	-	-	267.00	267.00	267.00	267.00	-	-	-	-	1.00	270.00	-	-	270.00	270.00	270.00	270.00
A1	CISC	1.00	124.00	-	-	124.00	124.00	124.00	124.00	-	-	-	-	1.00	18.00	-	-	18.00	18.00	18.00	18.00
A6	ARCH	1.00	240.00	-	-	240.00	240.00	240.00	240.00	-	-	-	-	1.00	173.00	-	-	173.00	173.00	173.00	173.00
	ARGR	5.00	374.60	12.97	5.80	365.00	395.00	365.00	393.50	374.50	5.21	365.60	386.00	5.00	650.20	48.27	21.59	620.00	736.00	621.00	725.90
A8	ARGR	16.00	381.19	22.73	5.68	350.00	425.00	351.13	421.25	381.17	5.49	370.88	392.19	16.00	681.88	97.03	24.26	569.00	863.00	569.38	846.88
B5	ARGR	3.00	256.67	25.66	14.81	235.00	285.00	235.75	283.25	256.70	12.14	235.00	285.00	3.00	259.33	78.02	45.04	207.00	349.00	207.75	342.65
B6	ARGR	3.00	292.00	74.65	43.10	206.00	340.00	212.20	339.50	291.99	35.29	206.00	340.00	3.00	386.67	141.03	81.42	226.00	490.00	236.90	487.70
B7	ARGR	11.00	296.64	19.45	5.86	260.00	325.00	265.00	325.00	296.62	5.58	285.64	307.18	11.00	302.91	67.60	20.38	192.00	449.00	209.00	432.00
	CISC	3.00	266.33	2.31	1.33	265.00	269.00	265.00	268.80	266.33	1.09	265.00	269.00	3.00	226.67	24.69	14.25	206.00	254.00	206.70	252.30
E4	CISC	1.00	93.00	-	-	93.00	93.00	93.00	93.00	-	-	-	-	-	-	-	-	-	-	-	-

Waterbody Name	Species	Bootstrap Total Weight (g)				Standard Age (years)								Bootstrap Age (Years)			
		Mean	SD	Lower CI	Upper CI	n	Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
A1	ARCH	391.78	47.69	325.00	460.00	2.00	3.00	1.41	1.00	2.00	4.00	2.05	3.95	3.00	0.71	2.00	4.00
	ARGR	-	-	-	-	1.00	5.00	-	-	5.00	5.00	5.00	5.00	-	-	-	-
A1	CISC	-	-	-	-	1.00	0.00	-	-	0.00	0.00	0.00	0.00	-	-	-	-
A6	ARCH	-	-	-	-	1.00	3.00	-	-	3.00	3.00	3.00	3.00	-	-	-	-
	ARGR	650.27	19.16	625.00	693.60	5.00	5.80	0.84	0.37	5.00	7.00	5.00	6.90	5.80	0.34	5.20	6.40
A8	ARGR	681.60	23.74	636.19	729.31	16.00	6.19	0.83	0.21	5.00	8.00	5.00	7.63	6.19	0.21	5.81	6.63
B5	ARGR	259.18	36.60	207.00	349.00	3.00	2.33	0.58	0.33	2.00	3.00	2.00	2.95	2.33	0.27	2.00	3.00
B6	ARGR	386.91	66.71	226.00	490.00	3.00	4.67	1.53	0.88	3.00	6.00	3.10	5.95	4.67	0.72	3.00	6.00
B7	ARGR	302.78	19.50	265.91	341.91	11.00	5.73	1.10	0.33	4.00	8.00	4.25	7.75	5.73	0.32	5.09	6.36
	CISC	226.74	11.57	206.00	254.00	3.00	5.00	0.00	0.00	5.00	5.00	5.00	5.00	5.00	0.00	5.00	5.00
E4	CISC	-	-	-	-	1.00	1.00	-	-	1.00	1.00	1.00	1.00	-	-	-	-

Waterbody Name	Species	Standard Condition (K)								Bootstrap Condition (K)			
		n	Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
A1	ARCH	2	1.17	0.19	0.13	1.04	1.30	1.05	1.30	1.17	0.09	1.04	1.30
	ARGR	1	1.42	-	-	1.42	1.42	1.42	1.42	-	-	-	-
A1	CISC	1	0.94	-	-	0.94	0.94	0.94	0.94	-	-	-	-
A6	ARCH	1	1.25	-	-	1.25	1.25	1.25	1.25	-	-	-	-
	ARGR	5	1.24	0.06	0.03	1.15	1.30	1.15	1.29	1.24	0.03	1.18	1.28
A8	ARGR	16	1.23	0.10	0.02	1.06	1.42	1.06	1.40	1.23	0.02	1.18	1.27
B5	ARGR	3	1.51	0.09	0.05	1.42	1.60	1.43	1.59	1.51	0.04	1.42	1.60
B6	ARGR	3	1.69	0.78	0.45	1.24	2.59	1.24	2.52	1.69	0.36	1.24	2.59
B7	ARGR	11	1.14	0.07	0.02	1.08	1.31	1.08	1.28	1.14	0.02	1.11	1.19
	CISC	3	1.20	0.10	0.06	1.11	1.31	1.11	1.30	1.20	0.05	1.11	1.31
E4	CISC	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
n = sample size
SD = standard deviation of the mean
SE = standard error of the mean
CI = 95% confidence interval
Dashes indicate data not available.
ARCH= Arctic Char; ARGR= Arctic Grayling; CISC= Cisco
No large-bodied fish were captured in 2021

Table 6.3-10: Fork Length Summary Statistics of Small-bodied Fish Captured, 2020-2021

Year	Waterbody Name	Capture Method	Species	Standard Fork Length (mm)						Bootstrap Fork Length (mm)					
				n	Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2020	B7	EF	BURB	*1*	253.00	-	-	253.00	253.00	253.00	253.00	-	-	-	-
2021	W1	MT	BURB	1	148.00	-	-	148.00	148.00	148.00	148.00	-	-	-	-

Notes:
n = sample size
SD = standard deviation of the mean
SE = standard error of the mean
CI = 95% confidence interval
Dashes indicate data not available.
ARGR= Arctic Grayling; NSSB= Ninespine Stickleback; TSSB= Threespine Stickleback; SLSC= Slimy Sculpin; BURB= Burbot
Method: EF= Electrofishing; MT= Minnow Trapping; DN= Drift Netting

Table 6.3-11: Weight Summary Statistics of Small-bodied Fish Captured, 2020-2021

Year	Waterbody Name	Capture Method	Species	Standard Total Weight (g)						Bootstrap Total Weight (g)					
				n	Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2020	A19	MT	NSSB	4	1.03	0.29	0.15	0.75	1.40	0.76	1.38	1.02	0.13	0.80	1.26
	A3	MT	NSSB	18	1.70	0.86	0.20	1.10	4.50	1.10	3.91	1.69	0.20	1.37	2.12
	A4	MT	NSSB	13	1.65	0.67	0.19	0.70	3.10	0.82	2.92	1.64	0.18	1.31	2.00
	A40	MT	NSSB	6	1.51	0.23	0.09	1.10	1.75	1.14	1.74	1.51	0.09	1.33	1.66
	A5	MT	NSSB	23	1.49	0.50	0.10	0.90	3.10	0.96	2.77	-	-	-	-
	A50	MT	NSSB	58	1.53	0.52	0.07	0.60	3.70	0.62	2.69	1.53	0.07	1.40	1.67
	A51	MT	NSSB	16	1.43	0.51	0.13	0.55	2.40	0.59	2.21	-	-	-	-
	A52	MT	NSSB	14	1.70	0.56	0.15	1.05	3.15	1.12	2.89	-	-	-	-
	A8	MT	NSSB	182	1.48	0.46	0.03	0.60	3.25	0.83	2.55	1.48	0.03	1.42	1.55
	B25	MT	NSSB	26	1.64	0.72	0.14	0.96	3.60	1.03	3.37	1.64	0.14	1.39	1.93
	B31	MT	NSSB	2	1.15	0.03	0.02	1.13	1.17	1.13	1.17	1.15	0.01	1.13	1.17
	B34	MT	NSSB	47	1.43	0.58	0.08	0.58	3.40	0.61	2.67	1.43	0.08	1.27	1.60
	B36	MT	NSSB	9	1.36	0.35	0.12	0.66	1.73	0.74	1.72	1.36	0.11	1.13	1.56
	B37	MT	NSSB	3	2.20	0.08	0.05	2.11	2.27	2.12	2.27	2.20	0.04	2.11	2.27
	B38	MT	NSSB	5	0.85	0.31	0.14	0.64	1.40	0.65	1.34	0.85	0.12	0.69	1.13
	B5	MT	NSSB	23	1.12	0.35	0.07	0.69	1.83	0.72	1.70	-	-	-	-
	B6	MT	NSSB	38	1.13	0.31	0.05	0.68	1.80	0.70	1.76	1.13	0.05	1.03	1.23
	B61	MT	NSSB	1	1.60	-	-	1.60	1.60	1.60	1.60	-	-	-	-
	B62	MT	NSSB	20	1.74	0.40	0.09	1.38	2.97	1.38	2.67	1.69	-	1.69	1.69
	E10	MT	NSSB	6	1.63	0.31	0.13	1.30	2.16	1.31	2.12	1.63	0.12	1.42	1.87
	E11	MT	NSSB	22	1.80	0.50	0.11	0.85	3.17	1.03	2.82	1.80	0.10	1.61	2.00
	E12	MT	NSSB	66	2.07	0.86	0.11	0.61	3.57	0.64	3.51	2.07	0.10	1.87	2.27

Year	Waterbody Name	Capture Method	Species	Standard Total Weight (g)						Bootstrap Total Weight (g)					
				n	Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2020	E4	MT	NSSB	57	0.96	0.22	0.03	0.60	1.65	0.63	1.52	0.96	0.03	0.91	1.02
	E5	MT	NSSB	83	0.99	0.26	0.03	0.60	1.90	0.65	1.67	-	-	-	-
2021	A9	MT	NSSB	2	1.15	0.07	0.05	1.10	1.20	1.10	1.20	1.15	0.04	1.10	1.20
	D31	MT	NSSB	1	1.70	-	-	1.70	1.70	1.70	1.70	-	-	-	-
	W1	MT	NSSB	45	1.58	0.66	0.10	0.10	2.80	0.60	2.78	1.58	0.10	1.39	1.77

Notes:
n = sample size
SD = standard deviation of the mean
SE = standard error of the mean
CI = 95% confidence interval
Dashes indicate data not available.
ARGR= Arctic Grayling; NSSB= Ninespine Stickleback; TSSB= Threespine Stickleback; SLSC= Slimy Sculpin; BURB= Burbot
Method: EF= Electrofishing; MT= Minnow Trapping; DN= Drift Netting

Table 6.3-12: Condition Summary Statistics of Small-bodied Fish Captured, 2020-2021

Year	Waterbody Name	Capture Method	Species	Standard Condition (K)								Bootstrap Condition (K)			
				n	Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2020	A19	MT	NSSB	4	0.79	0.11	0.05	0.68	0.94	0.69	0.92	0.79	0.05	0.71	0.89
	A3	MT	NSSB	18	0.80	0.15	0.03	0.57	1.07	0.58	1.04	0.80	0.03	0.73	0.86
	A4	MT	NSSB	13	0.71	0.15	0.04	0.47	1.08	0.50	1.00	0.71	0.04	0.63	0.79
	A40	MT	NSSB	6	0.83	0.14	0.06	0.65	1.07	0.67	1.05	0.83	0.05	0.74	0.94
	A5	MT	NSSB	23	0.70	0.12	0.03	0.42	0.89	0.49	0.89	-	-	-	-
	A50	MT	NSSB	58	0.74	0.15	0.02	0.45	1.29	0.48	0.99	0.74	0.02	0.70	0.78
	A51	MT	NSSB	16	0.68	0.23	0.06	0.30	1.11	0.31	1.07	-	-	-	-
	A52	MT	NSSB	14	0.75	0.10	0.03	0.47	0.86	0.54	0.85	-	-	-	-
	A8	MT	NSSB	181	0.77	0.12	0.01	0.48	1.29	0.54	1.05	0.77	0.01	0.76	0.79
	B25	MT	NSSB	26	0.73	0.08	0.01	0.56	0.86	0.59	0.85	0.73	0.01	0.71	0.76
	B31	MT	NSSB	2	0.69	0.02	0.01	0.68	0.70	0.68	0.70	0.69	0.01	0.68	0.70
	B34	MT	NSSB	47	0.67	0.11	0.02	0.39	0.99	0.47	0.89	0.67	0.02	0.63	0.70
	B36	MT	NSSB	9	0.82	0.06	0.02	0.73	0.94	0.73	0.93	0.82	0.02	0.78	0.86
	B37	MT	NSSB	3	0.75	0.10	0.06	0.67	0.87	0.67	0.86	0.75	0.05	0.67	0.87
	B38	MT	NSSB	5	0.78	0.09	0.04	0.65	0.88	0.66	0.87	0.78	0.03	0.70	0.84
	B5	MT	NSSB	23	0.67	0.11	0.02	0.43	0.94	0.50	0.87	-	-	-	-
	B6	MT	NSSB	38	0.71	0.13	0.02	0.44	0.94	0.48	0.92	0.71	0.02	0.67	0.75
	B61	MT	NSSB	1	1.02	-	-	1.02	1.02	1.02	1.02	-	-	-	-
	B62	MT	NSSB	20	0.72	0.10	0.02	0.52	0.93	0.57	0.93	-	-	-	-
	E10	MT	NSSB	6	0.67	0.03	0.01	0.63	0.72	0.63	0.72	0.67	0.01	0.65	0.70
	E11	MT	NSSB	22	0.60	0.09	0.02	0.47	0.85	0.47	0.80	0.60	0.02	0.56	0.64
	E12	MT	NSSB	66	0.65	0.08	0.01	0.48	0.88	0.51	0.81	0.65	0.01	0.63	0.66

Year	Waterbody Name	Capture Method	Species	Standard Condition (K)								Bootstrap Condition (K)			
				n	Mean	SD	SE	Min	Max	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
2020	E4	MT	NSSB	57	0.65	0.09	0.01	0.51	0.89	0.53	0.88	0.65	0.01	0.62	0.67
	E5	MT	NSSB	83	0.60	0.08	0.01	0.39	0.80	0.44	0.76	-	-	-	-
2021	A9	MT	NSSB	2	0.61	0.06	0.04	0.56	0.65	0.57	0.65	0.6057	0.0298	0.5638	0.648
	D31	MT	NSSB	1	0.79	-	-	0.79	0.79	0.79	0.79	-	-	-	-
	W1	MT	NSSB	45	0.75	0.13	0.02	0.46	1.06	0.50	0.98	0.7536	0.0191	0.7166	0.7913

Notes:
n = sample size
SD = standard deviation of the mean
SE = standard error of the mean
CI = 95% confidence interval
Dashes indicate data not available.
ARGR= Arctic Grayling; NSSB= Ninespine Stickleback; TSSB= Threespine Stickleback; SLSC= Slimy Sculpin; BURB= Burbot
Method: EF= Electrofishing; MT= Minnow Trapping; DN= Drift Netting

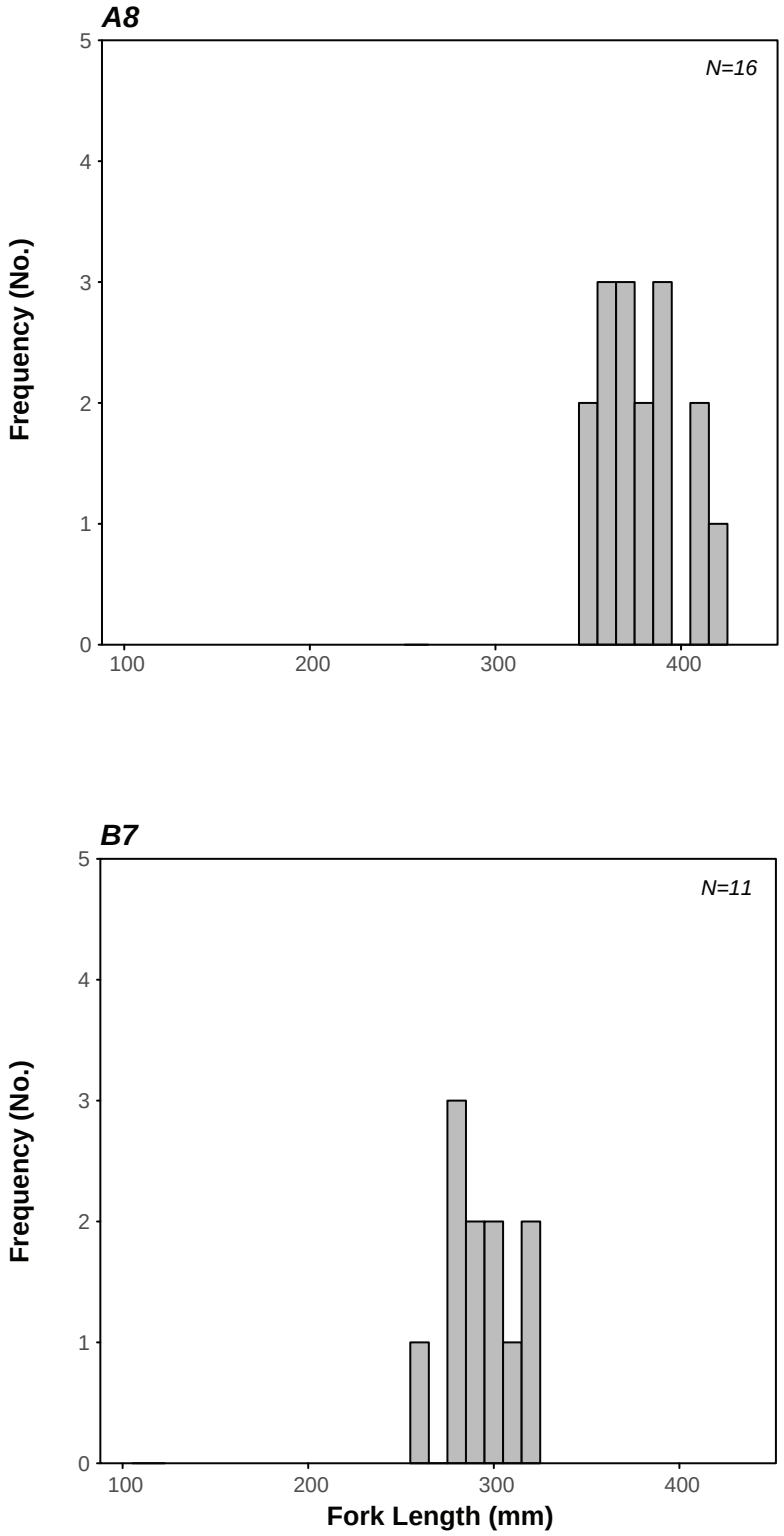


Figure 6.3-1: Length-Frequency Distributions of Arctic Grayling Sampled, 2020

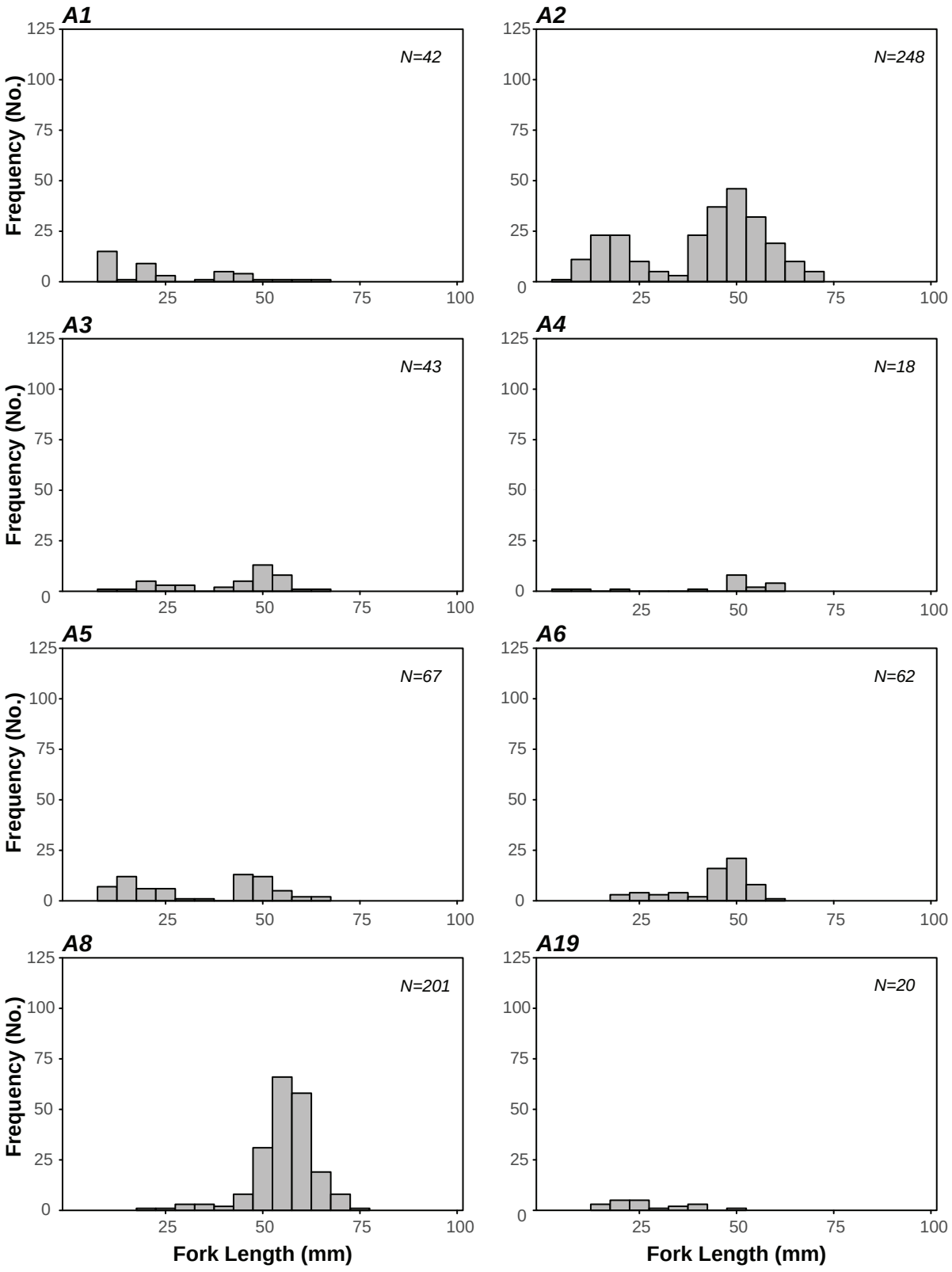


Figure 6.3-2a: Length-Frequency Distribution of Ninespine Stickleback Sampled, 2020-2021

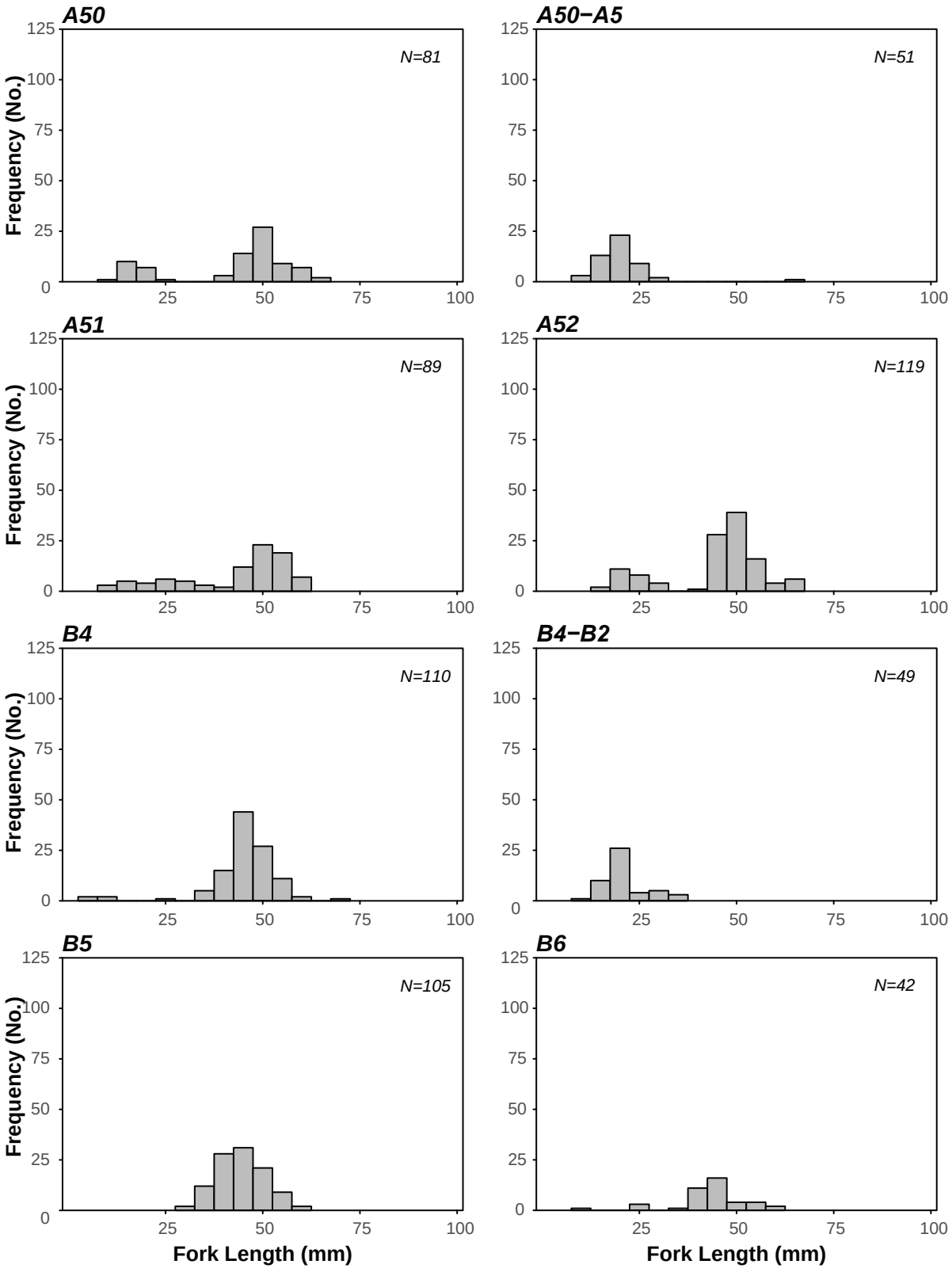


Figure 6.3-2b: Length-Frequency Distribution of Ninespine Stickleback Sampled, 2020-2021

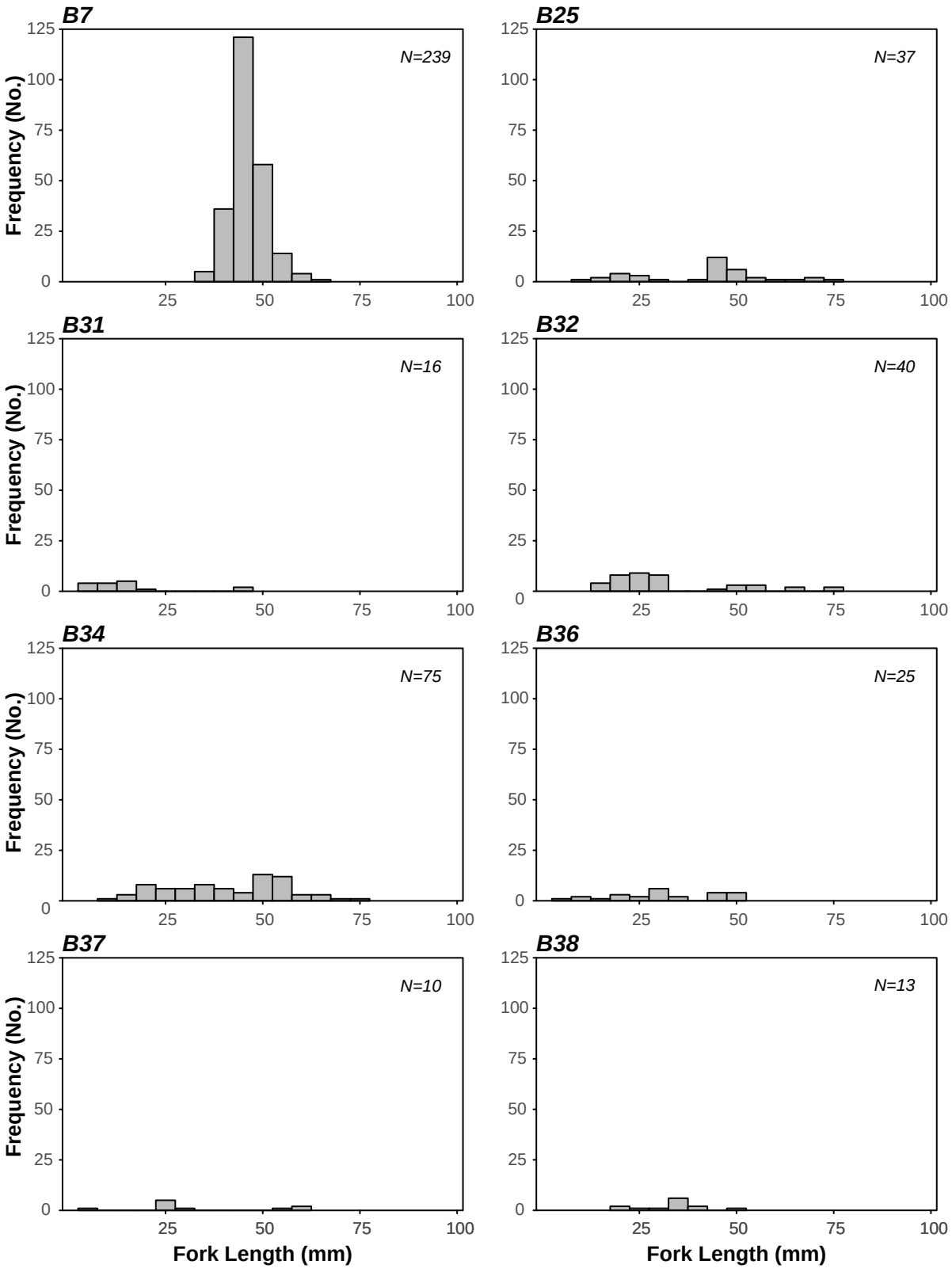


Figure 6.3-2c: Length-Frequency Distribution of Ninespine Stickleback Sampled, 2020-2021

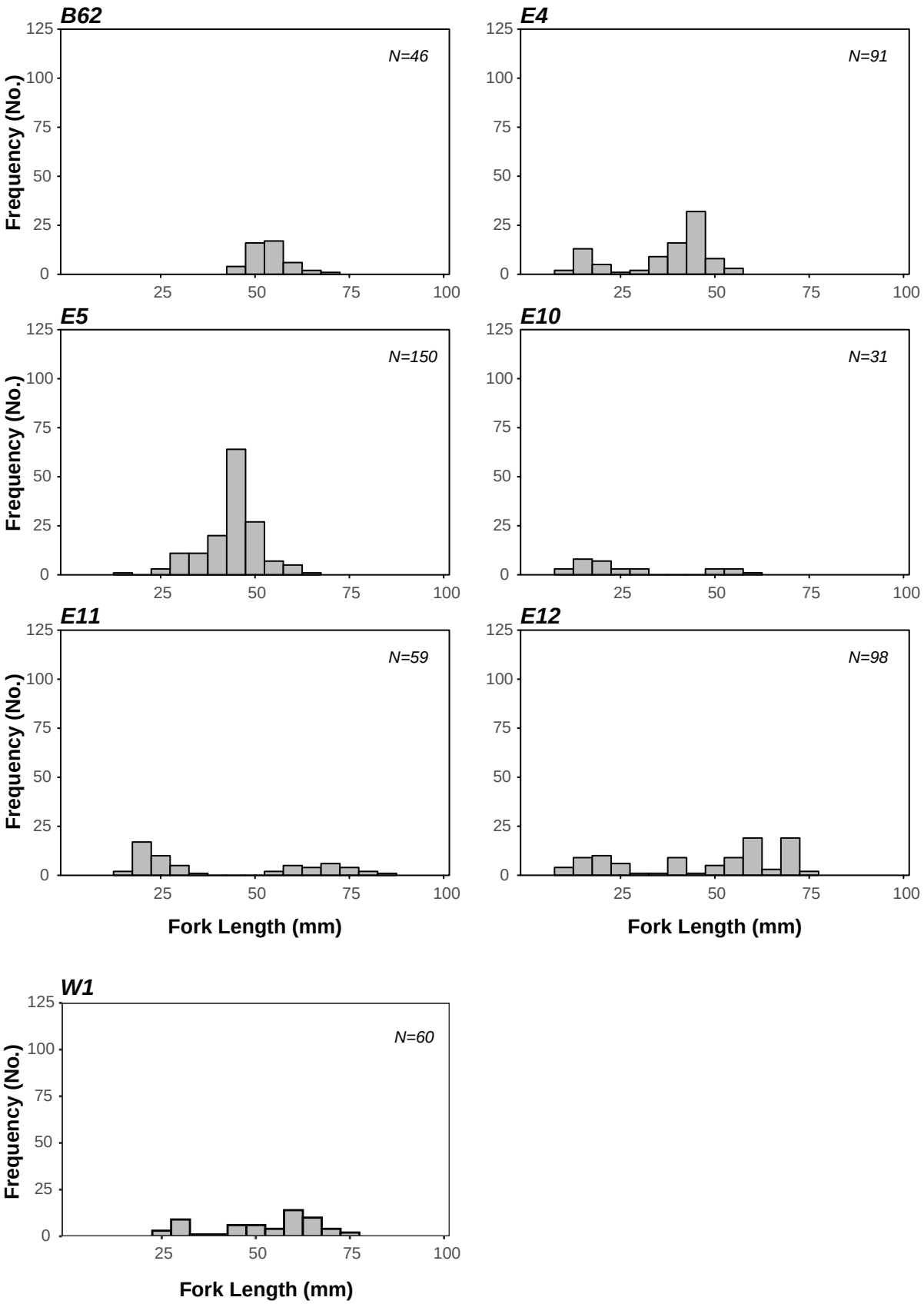


Figure 6.3-2d: Length-Frequency Distribution of Ninespine Stickleback Sampled, 2020-2021

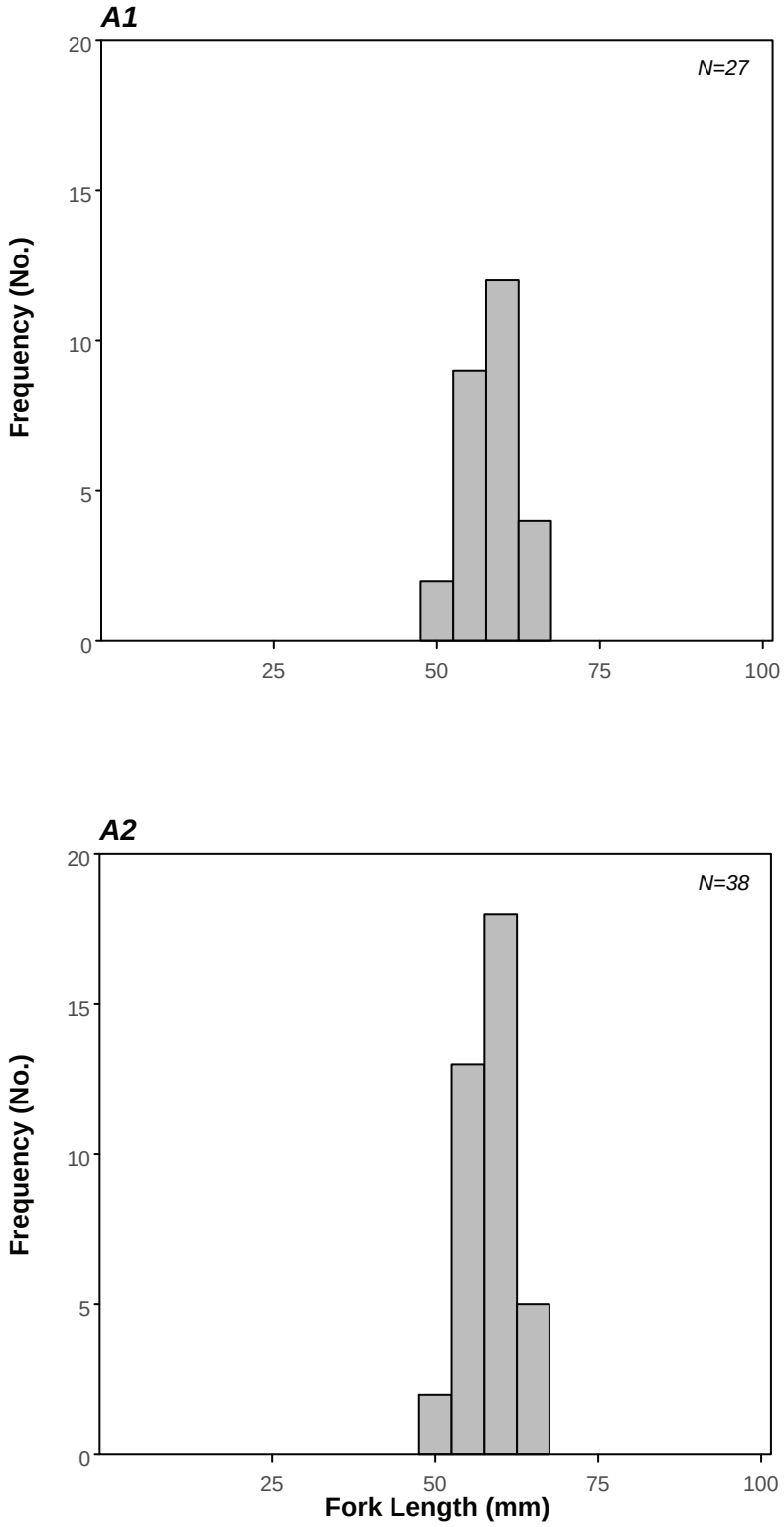


Figure 6.3-3: Length-Frequency Distributions of Threespine Stickleback Sampled, 2020

Length-frequency distributions for Ninespine Stickleback were variable between sampled lakes, ponds, and streams (Figure 6.3-2a to 6.3-2d). The majority of Ninespine Stickleback fell into size classes ranging from 45 to 65 mm. However, the lengths of Ninespine Stickleback captured in A1, A2, A5, A50, A52, B25, E4, E11, E12, and W1 were bimodally distributed, with modes 15 to 25 mm and 45 to 50 mm, indicating two distinct age classes. The lengths of Ninespine Stickleback from A50-A5, B4-B2, B31, B32, B36, E10 were negatively skewed by the presence of a large proportion of YOY, with a mode around 15 to 25 mm.

The length-frequency distributions for Threespine Stickleback were highly consistent between A1 and A2 (Figure 6.3-3). The majority of Threespine Stickleback captured at A1 and A2 were in the 50 to 75 mm size class.

Figures 6.3-4 to 6.3-7 show weight-length regressions for all species for which six or more individuals were sampled from a waterbody. Weight-length regressions were used to analyze condition in Arctic Grayling, Ninespine Stickleback, Threespine Stickleback, and Slimy Sculpin, which serves as a health indicator for energy reserves and storage.

Weight-length regressions for Arctic Grayling were statistically significant (p-values <0.05; Figure 6.3-4), suggesting a positive relationship between weight and length. Adjusted R^2 values were moderate to high with R^2 values ranging from 0.710 (A6) to 0.935 (B7; Figure 6.3-4). Condition, expressed as the slope of the weight-length relationship (b), was highest at B7 (3.23) and lowest at A6 (1.84; Figure 6.3-4). In general, the slope of the weight-length regression for healthy fish is roughly 3.0. The reduced strength of the relationship between fork length and weight for fish at A6 (R^2= 0.710) is likely due to measurement error (e.g., high winds affecting the accuracy of the balance as well as excess water on the scale), and low sample size. As such, the measure of condition (slope) for A6 is likely inaccurate.

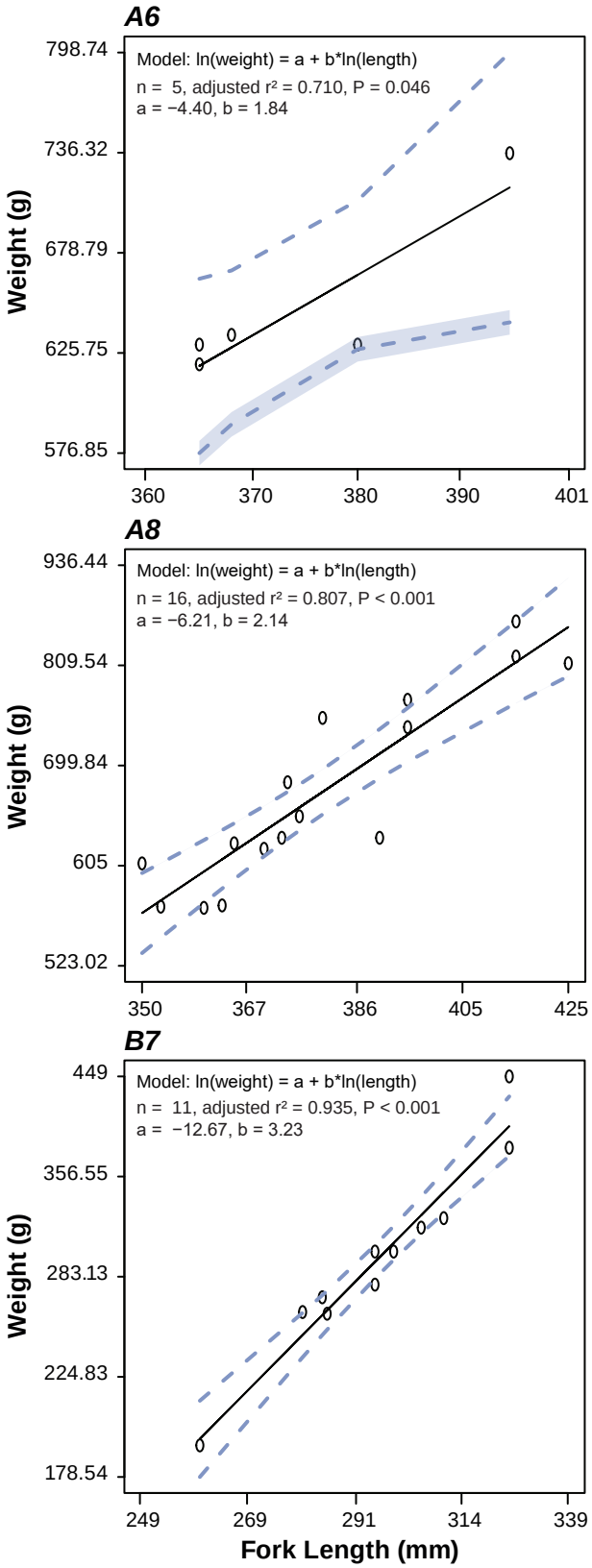
Weight-length regressions for Ninespine Stickleback were statistically significant (p-values <0.05) in all waterbodies with the exception of A40 (Figures 6.3-5a to 6.3-5e). Adjusted R^2 values were low to high with R^2 values ranging from 0.286 (A40) to 0.987 (E10; Figures 6.3-5a to 6.3-5e). Condition, expressed as the slope of the weight-length relationship (b), was highest at A52 (3.23) and lowest at A40 (1.56; Figures 6.3-5a to 6.3-5e). The reduced strength of the relationship between fork length and weight for fish at A40 (R^2= 0.286) is likely due to measurement error (e.g., high winds affecting the accuracy of the balance as well as excess water on the scale), and low sample size. As such, the measure of condition (slope) for A40 is likely inaccurate.

The weight-length regression for Threespine Stickleback captured in A50-A5 was statistically significant (p-value < 0.05; Figure 6.3-6), suggesting a positive relationship between weight and length. The Adjusted R^2 value was high (R^2 = 0.996), and condition, expressed as the slope of the weight-length relationship was high (3.41; Figure 6.3-6).

The weight-length regression for Slimy Sculpin captured in B6 was statistically significant (p-value < 0.05; Figure 6.3-7), suggesting a positive relationship between weight and length. The Adjusted R^2 value was moderate (R^2= 0.879), and condition, expressed as the slope of the weight-length relationship was high (2.93; Figure 6.3-7).

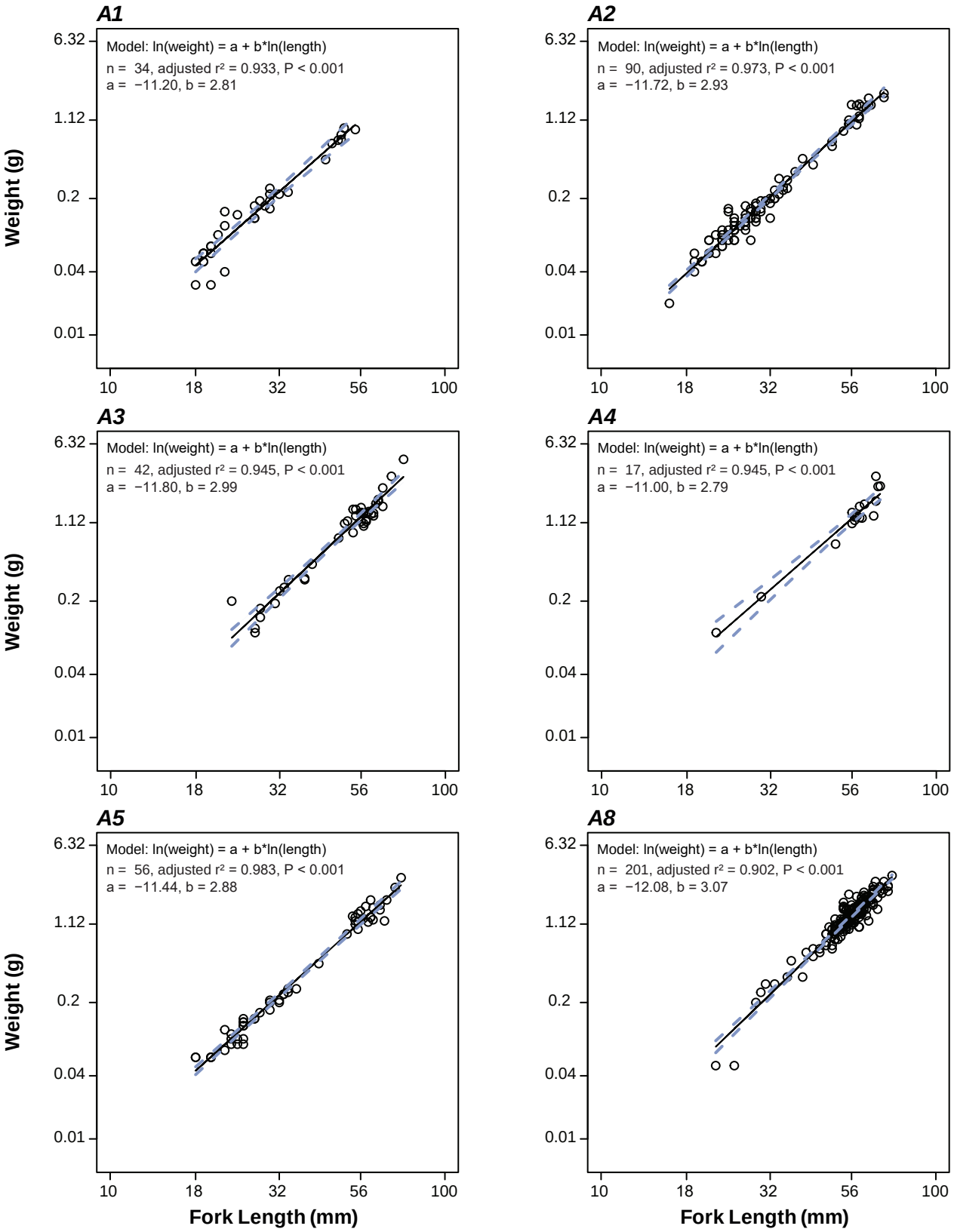
Age and Maturity

Age-frequency distributions were plotted for surveyed waterbodies and large-bodied species, where a minimum of 10 fish were captured (Figure 6.3-8). The age-frequency distributions for Arctic Grayling were generally consistent between A8 and AB7 (Figure 6.3-8), with the majority of Arctic Grayling falling within the 5 to 6 year age class. In these lakes, as well as lakes where fewer than 10 Arctic Grayling were captured, captured individuals ranged in age from 2 years (B5) to 8 years (B7 and A8), and the majority of Arctic Grayling were 5 to 7 years in age (Table 6.3-9). This could reflect size selectivity in the fish sampling gear, since smaller fish are not captured as easily using gillnets.



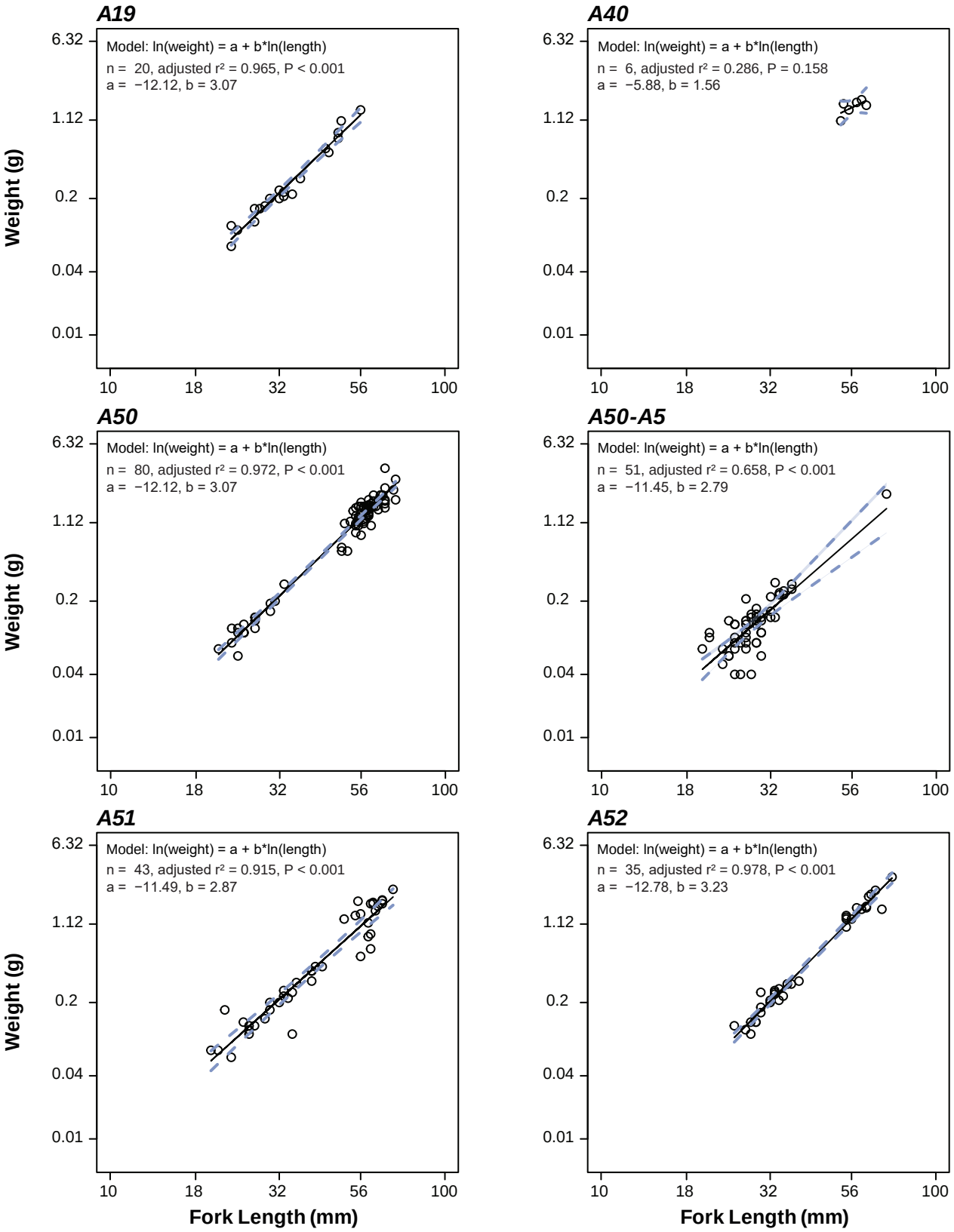
Notes: Axis values have been backtransformed from the natural log (Ln)
Open circles represent individual observations, solid line represents the weight-length regression, dotted lines represent 95% confidence intervals

Figure 6.3-4 Weight-Length Regressions of Arctic Grayling Sampled, 2020



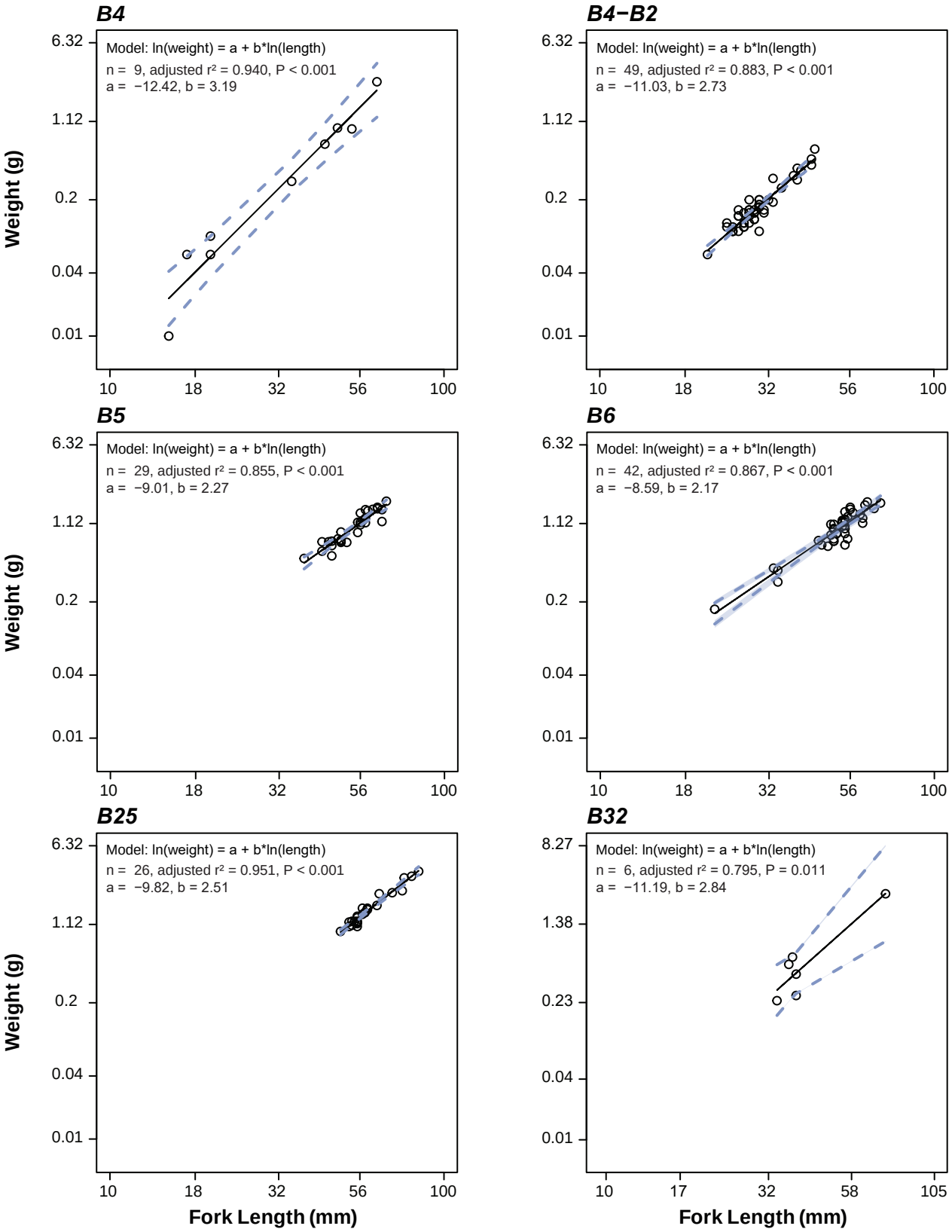
Notes: Axis values have been backtransformed from the natural log (Ln)
Open circles represent individual observations, solid line represents the weight-length regression, dotted lines represent 95% confidence intervals

Figure 6.3-5a: Weight-Length Regressions of Ninespine Stickleback Sampled, 2020-2021



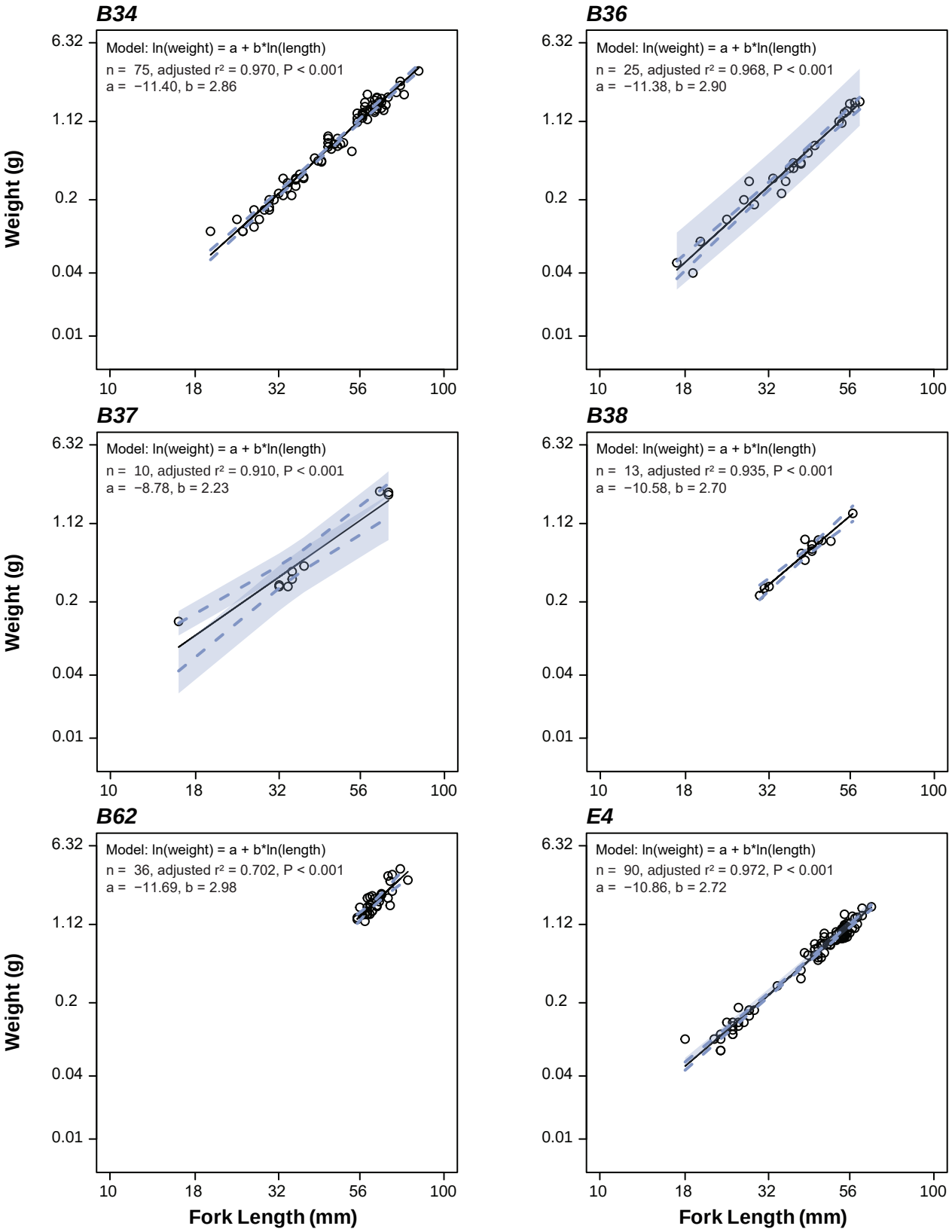
Notes: Axis values have been backtransformed from the natural log (Ln)
Open circles represent individual observations, solid line represents the weight-length regression, dotted lines represent 95% confidence intervals

Figure 6.3-5b: Weight-Length Regressions of Ninespine Stickleback Sampled, 2020-2021



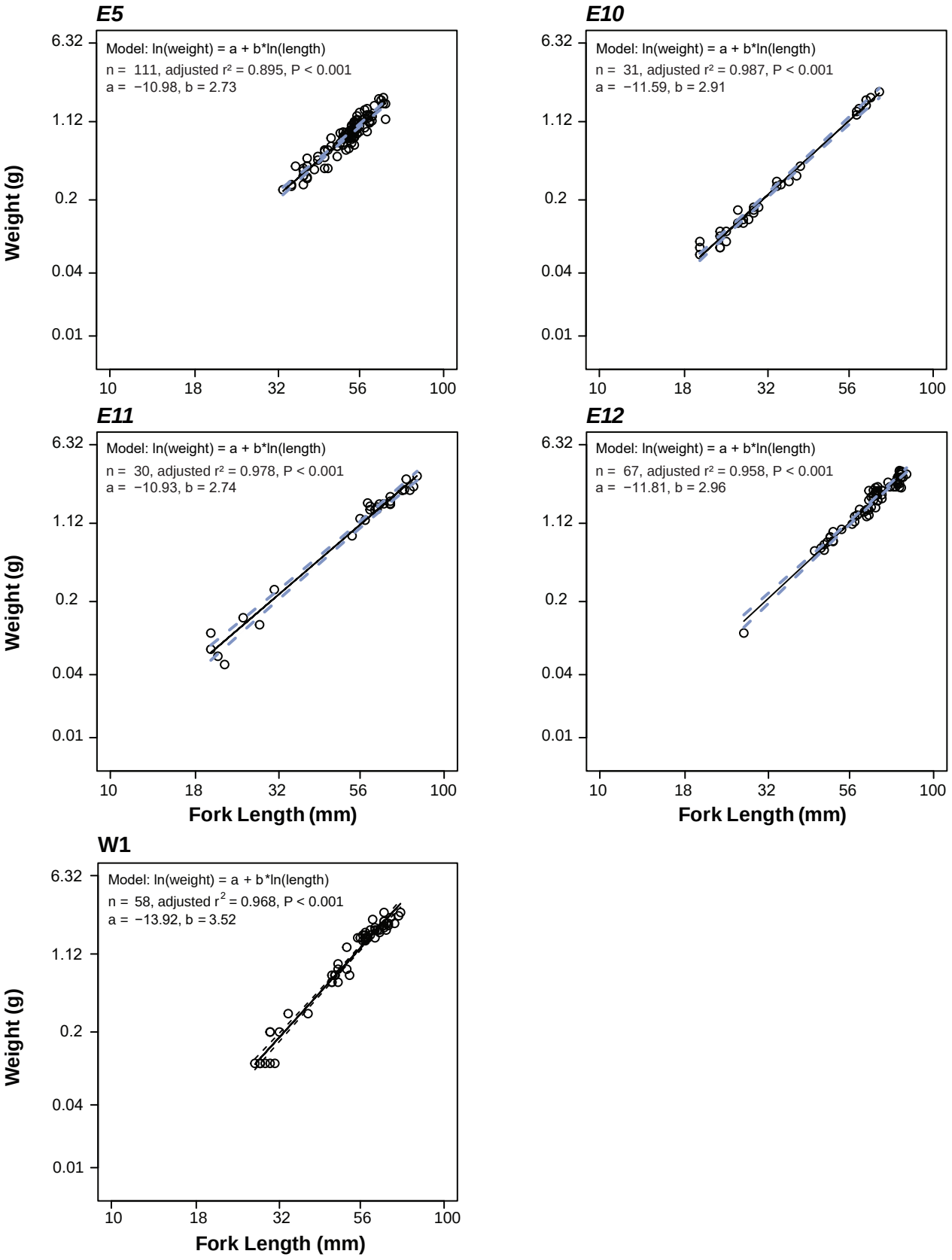
Notes: Axis values have been backtransformed from the natural log (Ln)
Open circles represent individual observations, solid line represents the weight-length regression, dotted lines represent 95% confidence intervals

Figure 6.3-5c: Weight-Length Regressions of Ninespine Stickleback Sampled, 2020-2021



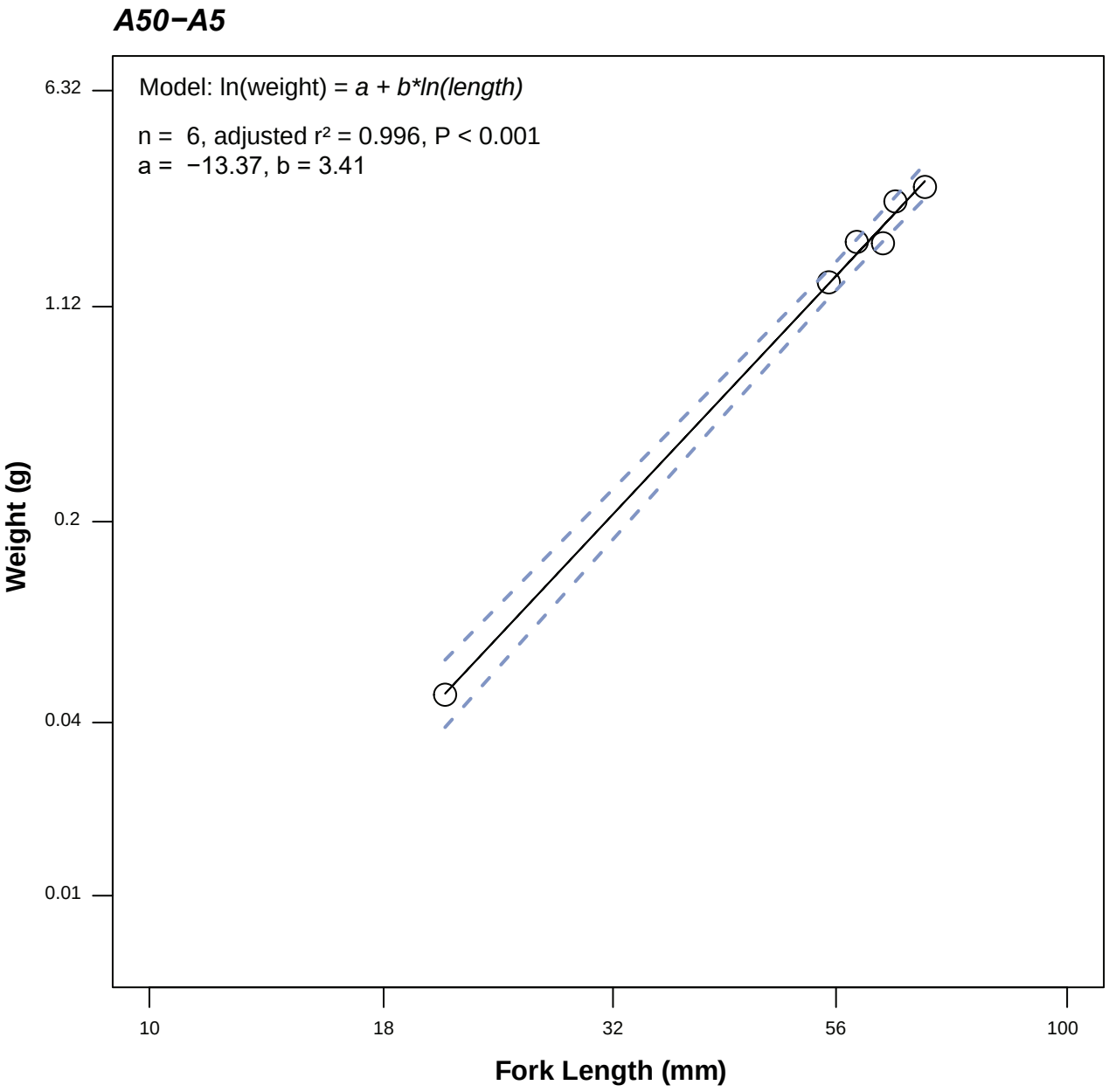
Notes: Axis values have been backtransformed from the natural log (Ln)
Open circles represent individual observations, solid line represents the weight-length regression, dotted lines represent 95% confidence intervals

Figure 6.3-5d: Weight-Length Regressions of Ninespine Stickleback Sampled, 2020-2021



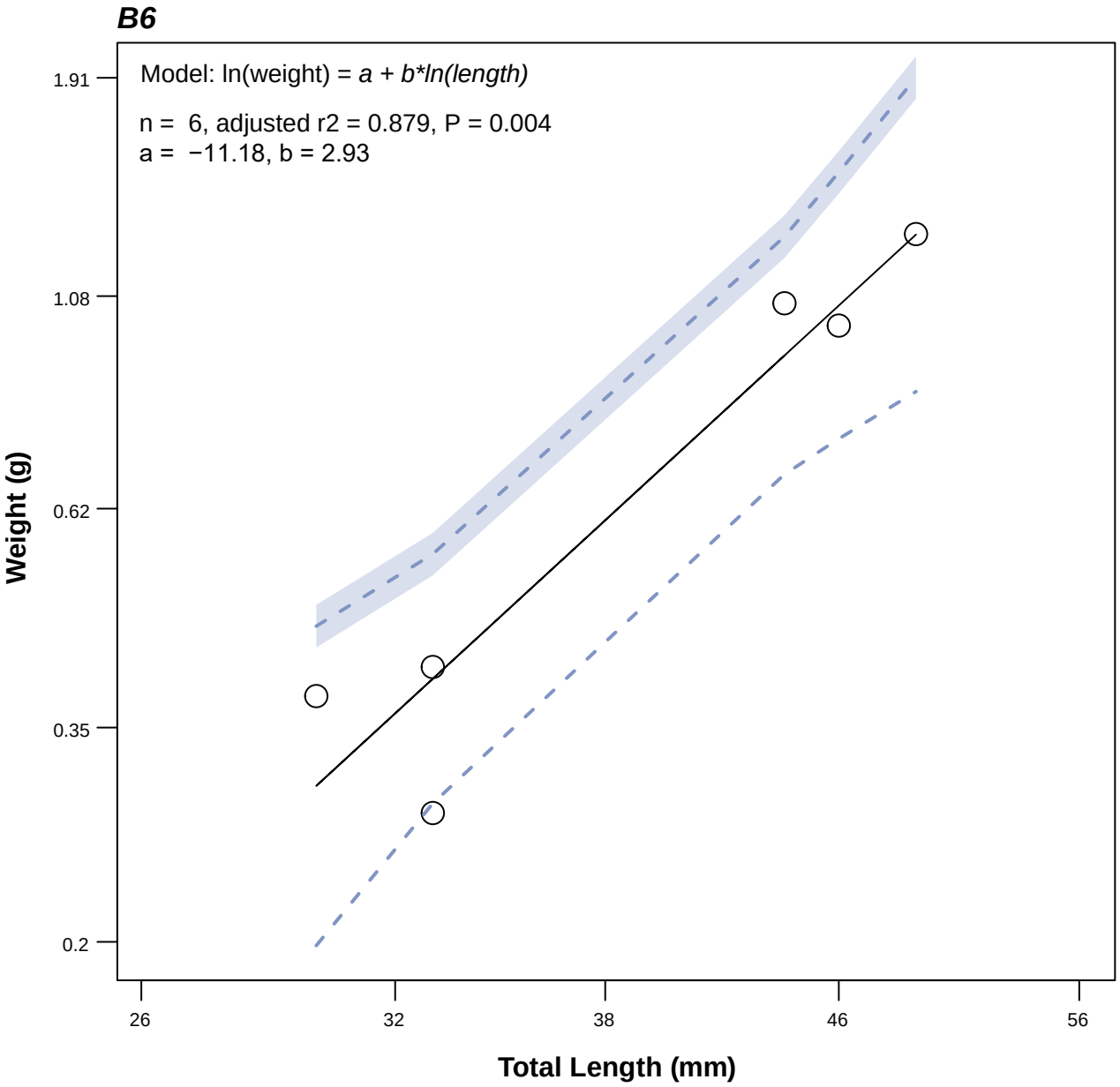
Note: Axis values have been backtransformed from the natural log (Ln)
Open circles represent individual observations, solid line represents the weight-length regression, dotted lines represent 95% confidence intervals.

Figure 6.3-5e: Weight-Length Regressions of Ninespine Stickleback Sampled, 2020-2021



Notes: Axis values have been backtransformed from the natural log (Ln)
Open circles represent individual observations, solid line represents the weight-length regression, dotted lines represent 95% confidence intervals

Figure 6.3-6: Weight-Length Regressions of Threespine Stickleback Sampled, 2020



Notes: Axis values have been backtransformed from the natural log (Ln)
Open circles represent individual observations, solid line represents the weight-length regression, dotted lines represent 95% confidence intervals

Figure 6.3-7: Weight-Length Regressions of Slimy Sculpin Sampled, 2020

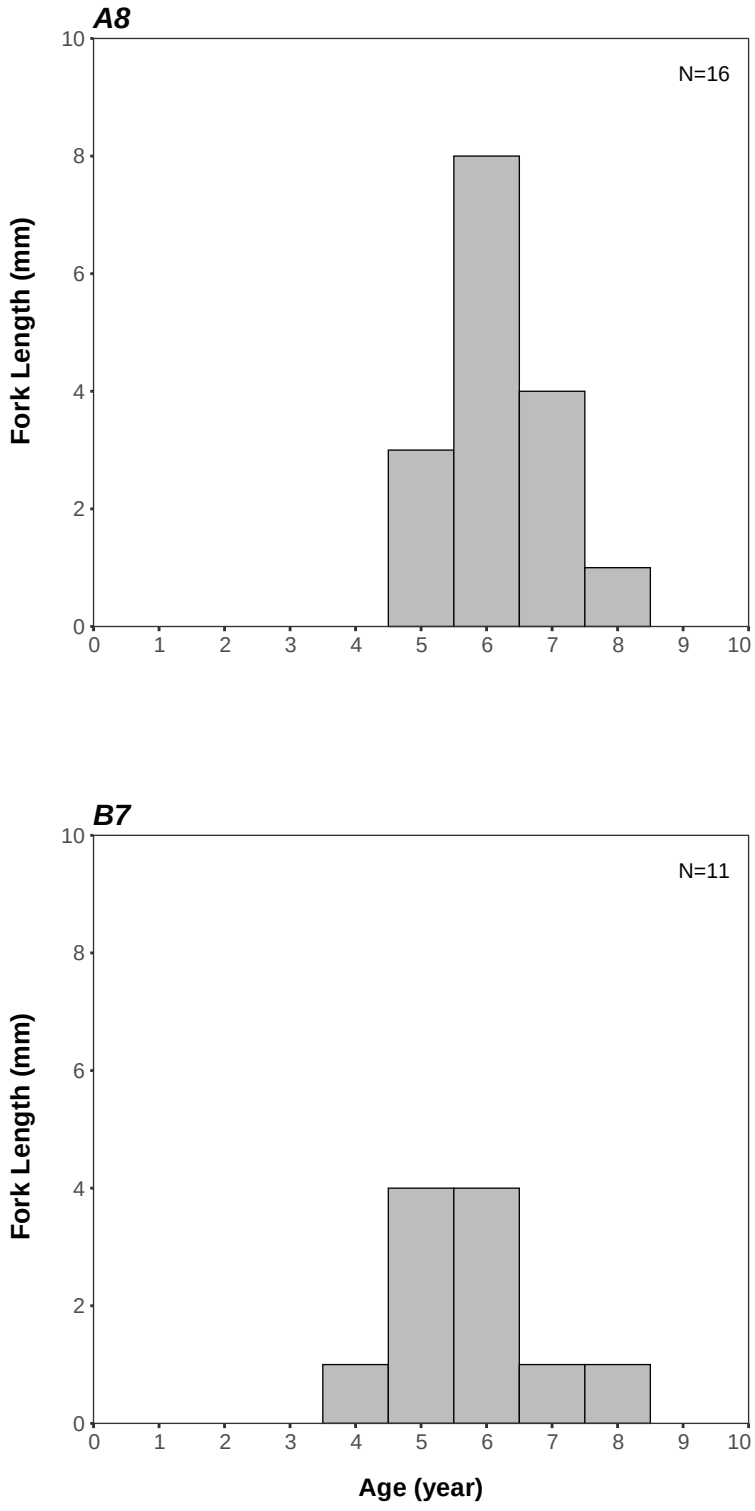


Figure 6.3-8: Age-Frequency Distributions of Arctic Grayling Sampled, 2020

Age-frequency distributions could not be created and interpreted for select waterbodies (i.e., A1, A6, B34, B4, B5, and E4) and species (i.e., Cisco, and Arctic Char) due to low sample sizes. Cisco (n = 5) ranged in age from 0 years (A1) to 5 (B7) years. The ages of captured Arctic Char (n = 3) ranged between 2 years (A1) and 4 (A1) years.

Growth models were created to characterize the relationship between fish length and fish age for all waterbodies and all species in which at least ten fish were captured (Figure 6.3-9). Insufficient numbers of Cisco and Arctic Char were captured to allow growth models to be created.

Creating representative growth models requires age data from individuals from a large range of body lengths and ages. Limited sample sizes for select waterbodies and species prevented growth models from being included in the analyses. Figure 6.3-9 shows growth models relating length and age for Arctic Grayling at A8 and B7, and Table 6.3-13 presents the model of best fit. The growth of Arctic Grayling in A8 and B7 was best described by the modified von Bertalanffy model.

Table 6.3-13: Statistical Results for Von Bertalanffy Growth Curves of Arctic Grayling among A8 and B7, 2020

Waterbody Name	Model of Best Fit	AICw	R2	n	Parameter	Estimate	SE	P Value
A8	VB zero	0.52	0.45	16	L∞	435	28	<0.001
					K	0.34	0.08	<0.001
B7	VB zero	0.55	0.58	11	L∞	331	16.9	<0.001
					K	0.41	0.08	<0.001

Notes:
AICw = Akaike Information Criteria weight
n = sample size
SE = standard error of the estimate
VB zero = modified von Bertalanffy model
L ∞ = the length (mm) that the fish would attain if it were allowed to grow for an infinite time
K = a growth constant (year-1)

6.4 Offsetting Site Reconnaissance

An aerial-based reconnaissance survey was conducted on August 28, 2021 at Nipissar Lake. Photos associated with this survey are presented in Appendix C. At the time of the August survey, the water level at Nipissar Lake was low compared to the high water mark (Photo 6.4-1). Nipissar Lake currently serves as the primary water source for the community of Rankin Inlet. Water levels in the lake have decreased over time as water demand increases as a result of a growing population (Golder 2016). Local consultation has suggested that Nipissar Lake once contained resident Arctic char, but that as water levels decreased in the lake, the char disappeared. It is currently unknown if any other fish species are present in the lake. Some of the options being explored at Nipissar Lake include increasing the water level and restoring/enhancing fish habitat (ERM 2021).

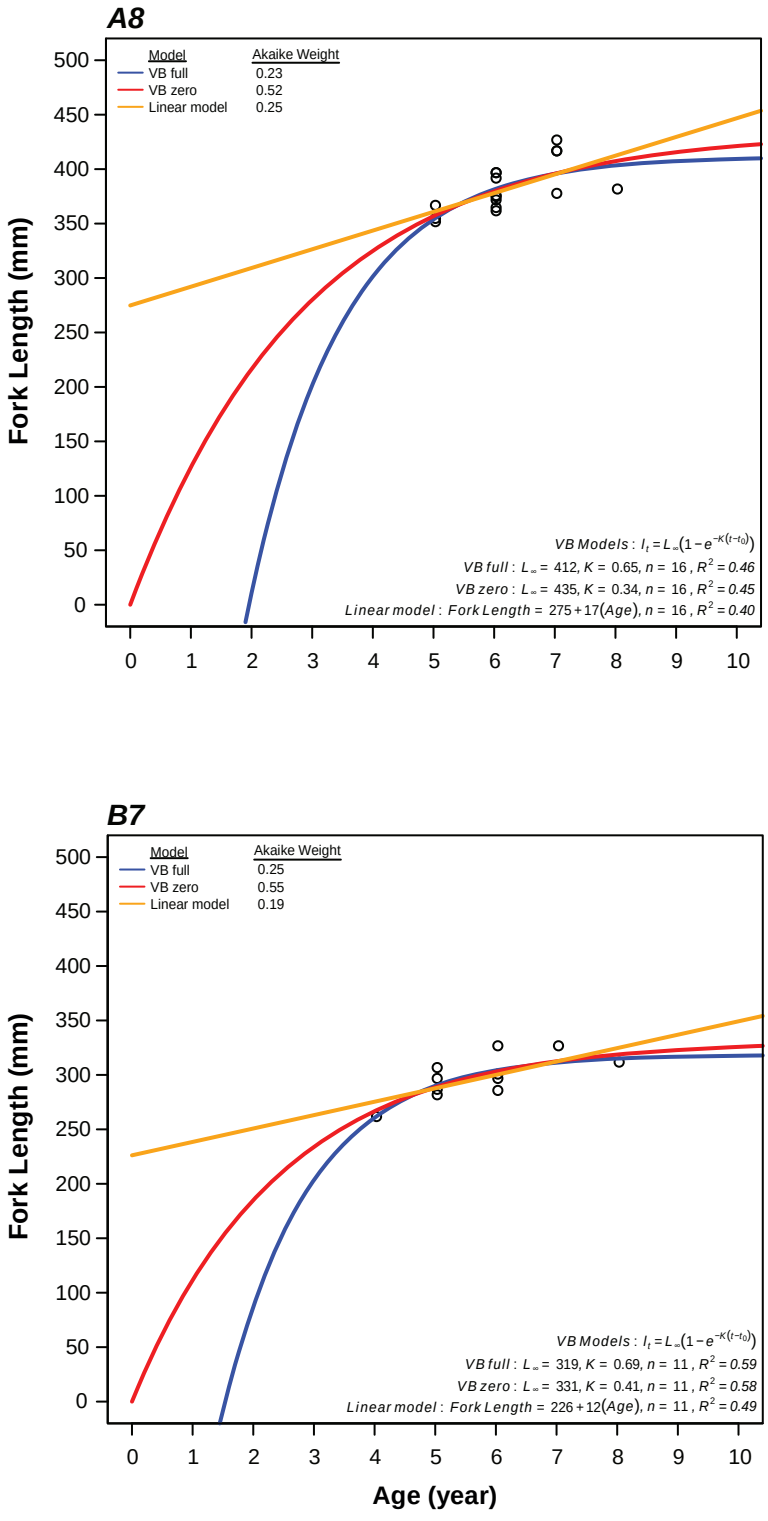


Figure 6.3-9: Von Bertalanffy Growth Model for Arctic Grayling Sampled, 2020

Photo 6.4-1: Aerial image of the east-side shoreline at Nipissar Lake, facing southeast towards Rankin Inlet (approximately one km away), August 28, 2021.

The Km 10 and Suluppqugaliit sites, are located 15 km and 50 km south of the main Meliadine camp, respectively. The watersheds are comprised of multiple lakes with smaller, shallower ponds in a somewhat confined area of esker and bedrock. In general, the large lakes are connected by wide, cobble and boulder dominated channels. Based on their connectivity and depth (inferred from aerial imagery), these sites are likely to support common fish species local to the Kivalliq region. Following the initial field trip in June, Suluppqugaliit and KM 10 sites were removed from consideration as offsetting sites, and no additional data were collected. Photos of the hydrometric monitoring stations and stream discharge measurement locations at each site are presented in Photos 6.4-2 to 6.4-8. Analysis of the hydrological data was not performed as the amount of data collected are currently insufficient to meet national guidelines for the development of robust stage-discharge relationships. Stage and discharge measurement data collected in the field in 2021 are presented in Appendix D.

Photo 6.4-2: KM 10 Station 1 hydrometric monitoring station, facing southwest, June 22, 2021.

Photo 6.4-3: Stream discharge measurement location at KM 10 Station 1, facing southwest, June 26, 2021.

Photo 6.4-4: KM 10 Station 2 hydrometric monitoring station, facing west, June 23, 2021.

Photo 6.4-5: Stream discharge measurement location at KM 10 Station 2, facing west, June 23, 2021.

Photo 6.4-6: Suluppqugaliit Station 1 hydrometric monitoring station, facing north, September 26, 2021.

Photo 6.4-7: Stream discharge measurement location at Suluppqugaliit, facing southeast, September 26, 2021.

Photo 6.4-8: Suluppqugaliit Station 2 hydrometric monitoring station, facing south, September 26, 2021.

7. SUMMARY

The objectives of the 2020-2021 fisheries assessment were to identify critical habitat features, that may be affected by the Meliadine Extension, validate and augment historical baseline data through sampling of Project area waterbodies, and collect data to inform measures to avoid or mitigate potential impacts, including potential offsetting.

To meet these objectives, the field work included:

- fish community assessments to augment existing baseline datasets and provide an understanding of existing conditions around the Meliadine Extension area;
- Arctic Grayling spawning assessments in A-Chain streams;
- fish habitat assessments at waterbodies with limited data; and
- aerial surveys and hydrological data collection to support offsetting site selection.

Overall, the 2020-2021 survey results are generally consistent with those presented in previous baseline aquatic resources studies (Golder 2012, Agnico Eagle 2014). The following sections summarize the results of the 2020-2021 fisheries assessment.

7.1 Arctic Grayling Spawning Assessment

Visual surveys were conducted along A-Chain streams from Meliadine Lake to A6. Arctic Grayling spawners were observed in five of the 10 surveyed streams. The results of the spawning assessment suggests that A-Chain streams provide important spawning, rearing and migratory habitat for Arctic Grayling. Suitable spawning habitat was more limited in the smaller tributaries (i.e., A5-A19, A51-A52, and A50-A51) compared to the larger tributaries (i.e., A1-A2, A2-A3, A4-A5, A50-A6). 2020 represents the first year of Arctic Grayling spawning assessments in Peninsula streams.

7.2 Fish Habitat

Fish habitat assessments were conducted at nine streams within the B-Chain, and three streams along the H-Chain. A total of 1,637 linear metres of fish habitat were assessed. These sites were broken down into a total of 25 habitat units. Each unit was classified as a glide, riffle, pool, flat, or cascade habitat type. Four sites had overall high habitat quality, four had moderate habitat quality, three had low habitat quality, and one was assessed to have no fish habitat at the time of the survey.

For streams that were previously assessed (i.e., H5-H4, H4-H3, H3-H2, B6-B30, B30-B31, B7-B6, and B31-B5), the results of the 2020 stream habitat assessments are consistent with findings in previous baseline aquatic resources studies (Golder 2012, Agnico Eagle 2014). Stream habitat assessments conducted in 2012 determined that upper H-Chain streams were primarily seasonal, with flows relying on snowmelt or large precipitation events (Agnico Eagle 2014). Studies conducted in 2011 found that B6-B30, B30-B31, B31-B5 provide suitable rearing habitat for Ninespine Stickleback and Arctic Char, and suggested that B31-B5 and B30-B31 are likely used by Arctic Grayling for spawning during the spring (Golder 2012).

Lake/pond habitat was evaluated using visual observations to assess fish habitat in the littoral zone of 26 ponds and one lake (i.e., E5). Fines were the predominant substrate types in the surveyed waterbodies with the exception of A20, A32, A33, A34, J6, I1, and E5, where cobble comprised the largest percentage of littoral substrate. When accessible, all surveyed waterbodies provide seasonal fish habitat. E5 may provide perennial fish habitat depending on the duration and extent of ice cover in a given year. Seasonal fish use of J6 and J7 is restricted by mine infrastructure which overprints J6, and the stream (J5-J6) that would connect J6 and J7 to downstream waterbodies.

For lakes/ponds that were previously assessed (i.e., I1, J4, J6, and J7), the results of the 2020-2021 habitat assessments are generally consistent with those presented in previous baseline aquatic resources studies (Agnico Eagle 2014), with the exception of I1, which was determined to be comprised predominantly of fine substrates (Agnico Eagle 2014). This discrepancy may be due to differences in the survey method used and the total area surveyed. Substrate composition was evaluated in 2012 across the whole wetted area of the waterbody using underwater camera surveys, and an Ekman dredge, while surveys in 2020 were visual-based and focused on littoral areas around the perimeter of the waterbody. Taken together, these results improve the characterization of substrate composition at I1, both around the perimeter of the waterbody, and further offshore.

7.3 Fish Community

Fish communities in 52 lakes, ponds, and streams were assessed during the 2020-2021 field programs. Large-bodied fish communities were assessed using sinking gillnets and angling. A total of 66 gillnet sets were conducted at nine lakes and one pond amounting to a total of 58.7 h of gillnetting effort. Small-bodied fish communities were assessed using a backpack electrofisher, minnow traps, and drift nets. A total of 660 minnow traps were deployed at 43 lakes and ponds, resulting in a total of 14,699 h of minnow trapping effort. A total of 40,541 seconds of electrofishing effort was exerted at 44 lakes and ponds. A total of 13 drift nets were deployed at eight streams sites, amounting to a total of 229.73 h of drift netting effort.

This fishing effort resulted in the capture of 2,917 fish (not including fish captured by drift netting) from surveyed lakes and ponds. A total of seven species were identified within the waterbodies surveyed, including Arctic Char, Arctic Grayling, Cisco, Ninespine Stickleback, Threespine Stickleback, Slimy Sculpin, and Burbot. Across all waterbodies, Ninespine Stickleback were the most prevalent (95.6%) followed by Threespine Stickleback (2.3%), and Arctic Grayling (1.5%). Slimy Sculpin, Burbot, Cisco, and Arctic Char each comprised < 1% of the total catch (not including fish captured by drift netting).

Species diversity was highest in A1 in which five species were captured, followed by A6 and B7, in which four species were captured. Ninespine Stickleback were the most widespread species, followed by Arctic Grayling. Arctic Char distribution was limited and mainly confined to areas close to Meliadine Lake (i.e., A1). However, one Arctic Char was captured at A6, suggesting that given suitable conditions, Arctic Char may periodically migrate further upstream than previously identified in the FEIS baseline studies.

Overall, the 2020-2021 survey results are generally consistent with those presented in previous baseline aquatic resources studies (Golder 2012, Agnico Eagle 2014), with some exceptions. Ninespine Stickleback were captured in six ponds (i.e., A19, A3, A4, A50, A9, B61) in which no fish had previously been captured, and in three ponds and one lake (i.e., E5) which had not been previously sampled (i.e., E5, D31, D33, W1). One Cisco was captured in E4, a lake in which this species had not been previously captured. Slimy Sculpin were captured in three lakes (i.e., A6, A8, B6) in which they had not been previously captured. Ninespine Stickleback were captured in three lakes (i.e., A8, B5, B6) which had not been previously sampled using methods that target small bodied fish species (i.e., minnow trapping, electrofishing).

Approximately 35,604 fish were captured across eight streams sampled using drift nets. Ninespine Stickleback made up approximately 99% of the catch. Threespine Stickleback and Arctic Grayling each comprised < 1% of the total catch. Arctic Grayling captured in drift nets deployed at A50-A5, A1-MEL, and B4-B2 indicates that juvenile Arctic Grayling utilize these stream sections as rearing and migratory habitats. The high abundance and wide distribution of Ninespine Stickleback in stream sections within the A-Chain and B-Chain suggests that small, ephemeral streams provide important migratory habitat for all life stages of Ninespine Stickleback, which may have a large contribution to downstream productivity for larger-bodied species. 2020 represents the first year that drift nets were used to assess fish movement prior to freeze up.

7.4 Offsetting Site Reconnaissance

The information collected during offsetting site reconnaissance was used to inform the offsetting memo (ERM, 2021). The KM 10 and Suluppqugaliit sites were removed from consideration as offsetting options.

8. REFERENCES

Armstrong, R.H. 1986. A review of arctic grayling studies in Alaska, 1952-1982. *Biol. Pap. Univ. Alsk.* 23: 3-17.

Beauchamp, D.A. 1990. Movements, habitat use, and spawning strategies of Arctic grayling in a subalpine lake tributary. *Northwest Sci.* 64: 195-207.

Bishop, F.G. 1971. Observations on spawning habits and fecundity of the Arctic grayling. *Prog. Fish-Cult.* 27: 12-19.

Craig PC, and Wells J. 1976. Life history notes for a population of slimy sculpin (*Cottus cognatus*) in an Alaskan arctic stream. *Journal of the Fisheries Research Board of Canada*, 33: 1639–1642. DOI: 10.1139/f76-206

Environment Canada. 2011. 2011 *Metal Mining Environmental Effects Monitoring (EEM) Technical Guidance Document*. Ottawa: Environment Canada.

ERM. 2020. *Meliadine Mine Expansion Data Gap Assessment Summary Report*. Prepared for Agnico Eagle Mines Limited by ERM Consultants Canada Ltd.: Vancouver, BC.

ERM. 2021. *Meliadine Mine Expansion: Preliminary Evaluation of Fish Habitat Offsetting Options.* Prepared for Agnico Eagle Mines Limited by ERM Consultants Canada Ltd.: Toronto, ON.

Evans, C.E., Reist, J.D., and Minns, C.K. 2002. Life history characteristics of freshwater fishes occurring in the Northwest Territories and Nunavut, with major emphasis on riverine habitat requirements. *Can. Manuscr. Rep. Fish. Aquat. Sci*. 2614: 169 p.

Ford, B.S., Higgins, P.S., Lewis, A.F., Cooper, K.L., Watson, T.A., Gee, C.M., Ennis, G.L., and Sweeting, R.L. 1995. Literature reviews of the life history, habitat requirements and mitigation/compensation strategies for thirteen sport fish species in the Peace, Liard, and Columbia River drainages of British Columbia. *Can. Manuscr. Rep. Fish. Aquat. Sci.* 2321: xxiv + 342 p.

Golder Associates Ltd. 2012. *SD 7-1 Aquatics Baseline Synthesis Report, 1994 to 2009 – Meliadine Gold Project, Nunavut*. Submitted to Agnico Eagle Mines Limited.

Golder Associates Ltd. 2016. *Nipissar Lake and Lower Landing Lake Water Balance Assessment.* Prepared for Department of Community and Government Services, Kivalliq Region, Government of Nunavut. February 2016.

Agnico Eagle. 2014. F*inal Environmental Impact Statement (FEIS) – Meliadine Gold Project, Nunavut.*

Hubert, W. A., R. S. Helzner, L. A. Lee, and P. C. Nelson. 1985. Habitat suitability index models and instream flow suitability curves: Arctic grayling riverine populations. *U.S. Fish and Wildlife Service Biological Report* 82(10.110).

Johnson, D. H., B. M. Shrier, J. S. O'Neal, J. A. Knutzen, X. Augerot, T. A. O'Neil, and T. N. Pearsons. 2007. *Salmonid field protocols handbook: Techniques for assessing status and trends in salmon and trout populations.* Maryland: American Fisheries Society.

Johnston, N. T. and P. A. Slaney. 1996. Fish Habitat Assessment Procedures. *Watershed Technical Circular* 8.

Kratt, L.F., and Smith, R.J.F. 1977. A post-hatching sub-gravel stage in the life history of the Arctic grayling, *Thymallus arcticus. Trans. Am. Fish. Soc.* 106: 241-243.

Larocque, S.M., Hatry, C., and Enders, E.C. 2014. Development of habitat suitability indices and bioenergetics models for Arctic grayling (*Thymallus arcticus*). *Can. Tech. Rep. Fish. Aquat. Sci.* 3097: vi + 57 p.

Scott, W.B., and Crossman, E.J. 1973. Freshwater fishes of Canada. *Fish. Res. Board Can. Bull*. 184: xi + 966 p.

Stewart, D. B., N. J. Mochnacz, J. D. Reist, T. J. Carmichael, and C. D. Sawatzky. 2007. Fish life history and habitat use in the Northwest Territories: Arctic grayling (*Thymallus arcticus*). *Canadian Manuscript Report of Fisheries and Aquatic Sciences* 2797.

APPENDIX A FISH COMMUNITY SAMPLING LOCATIONS

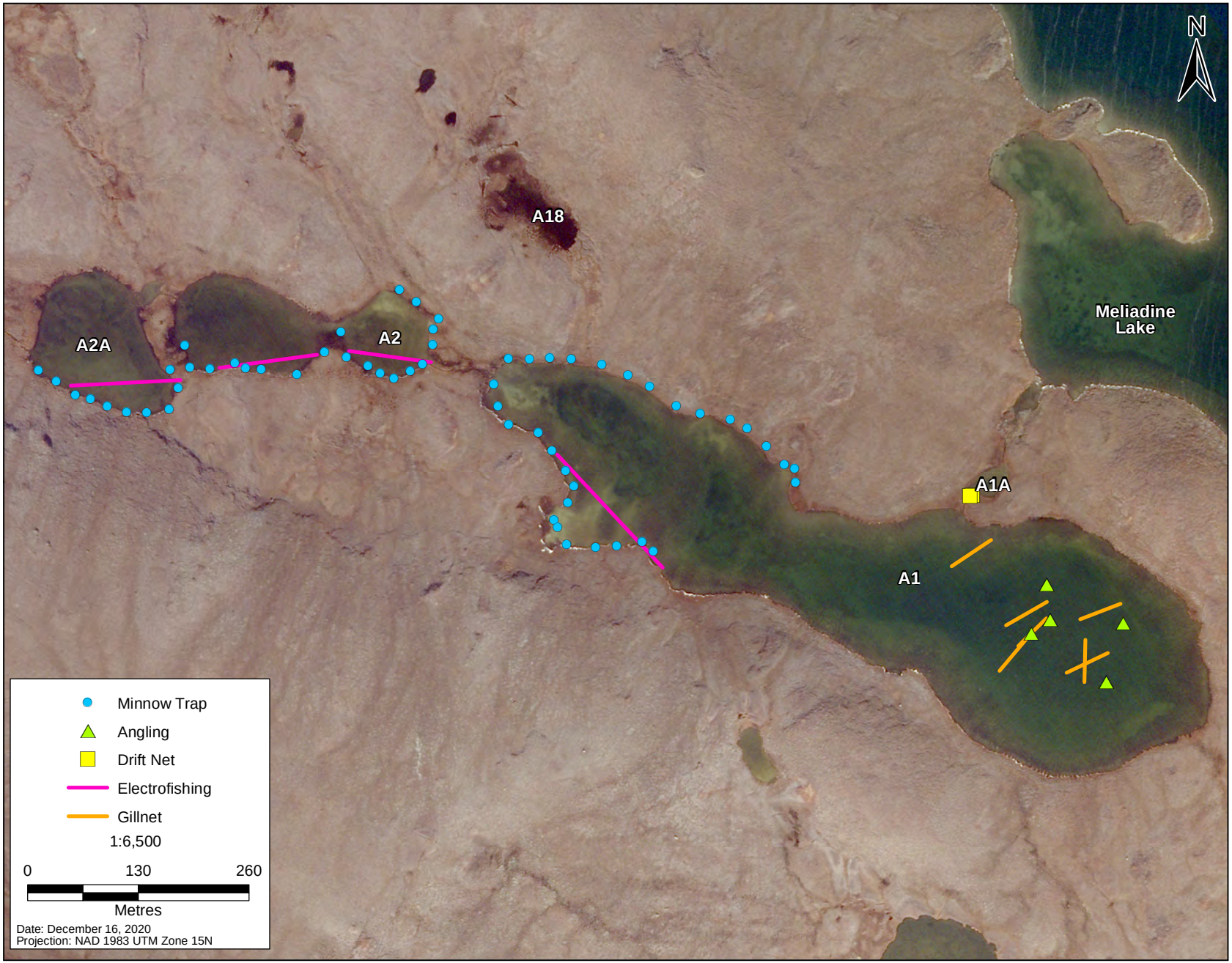


Figure A-1: Fish Community Sampling Locations in A1 and A2, 2020

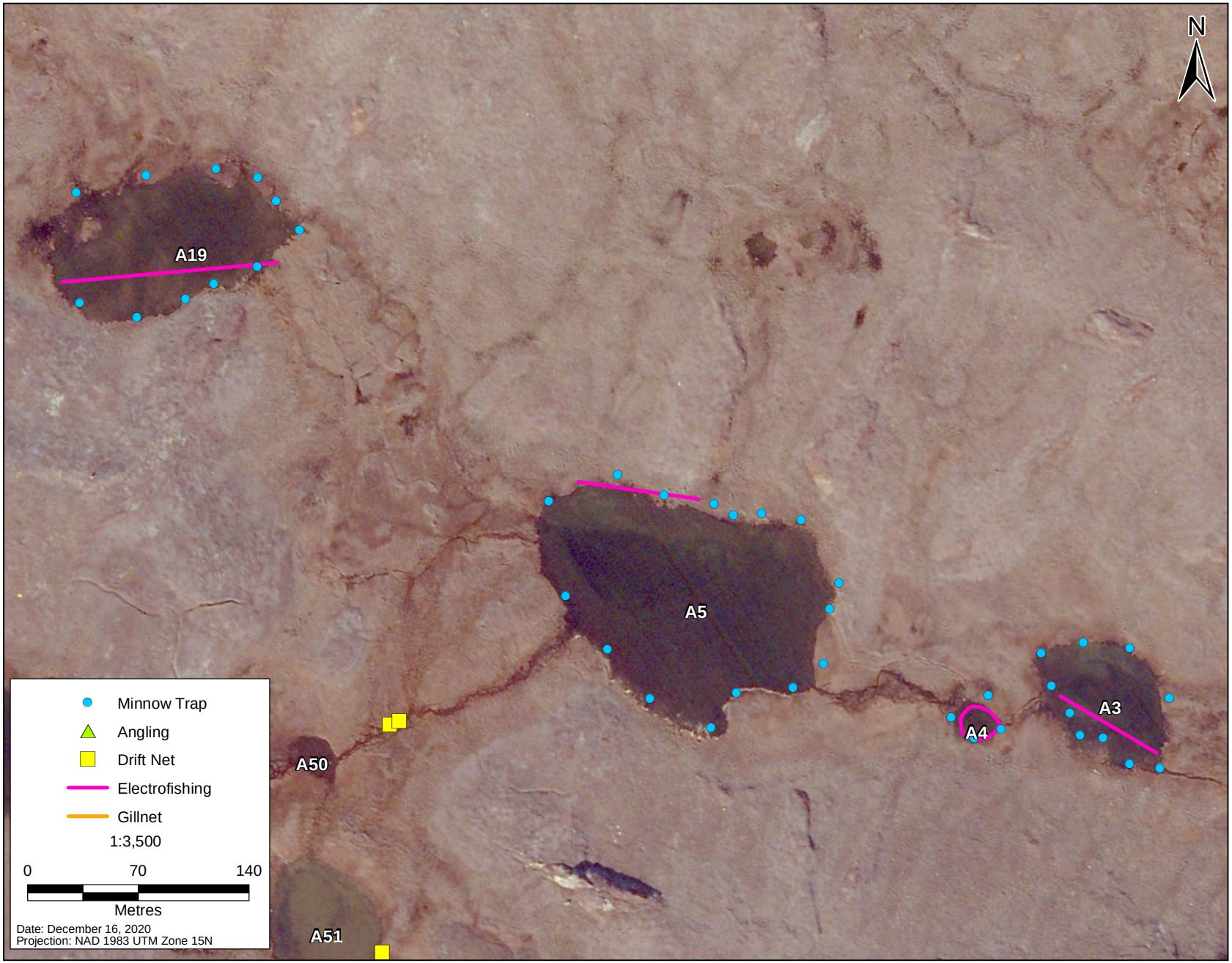


Figure A-2: Fish Community Sampling Locations in A3, A4, A5, and A19, 2020

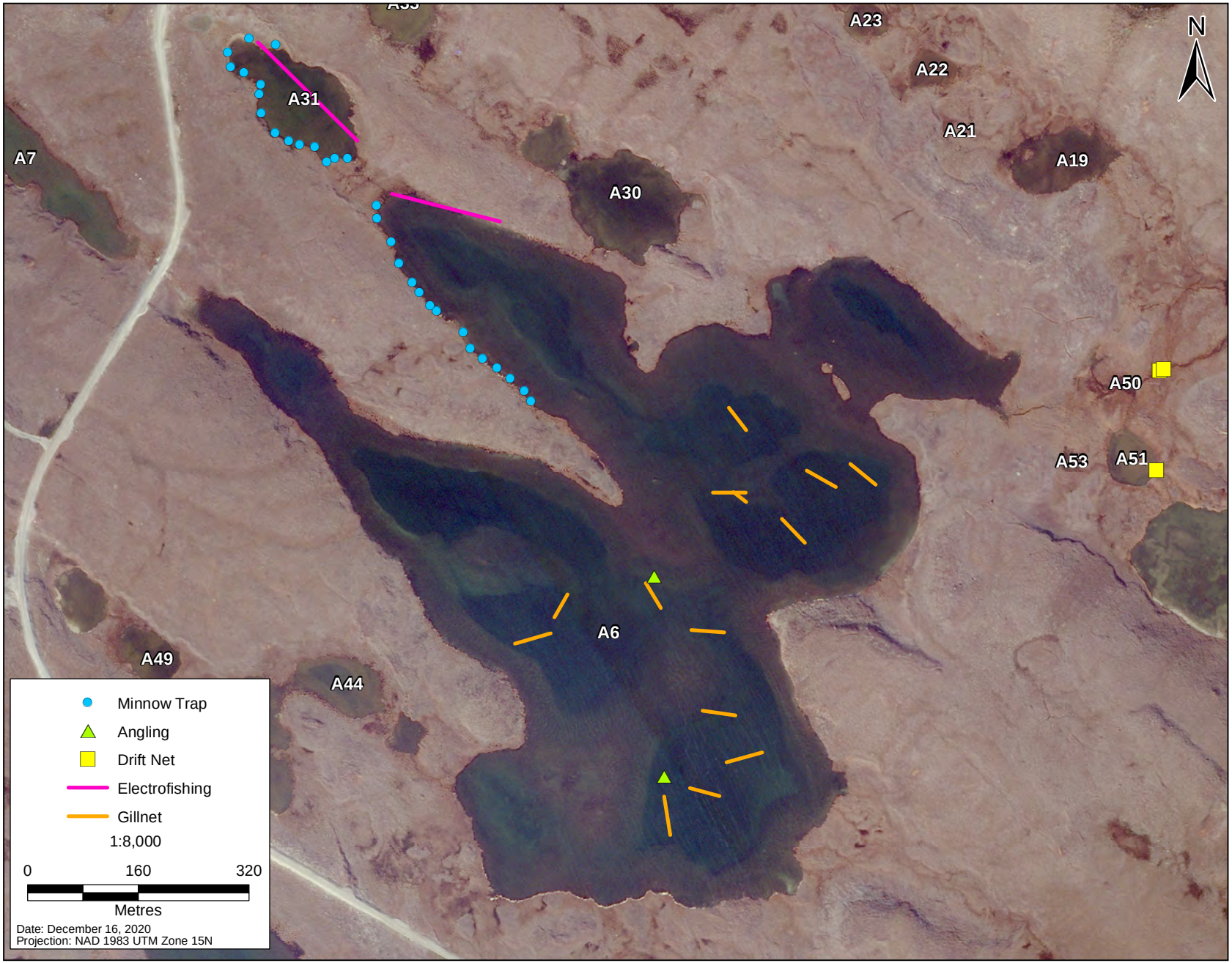


Figure A-3: Fish Community Sampling Locations in A6 and A31, 2020

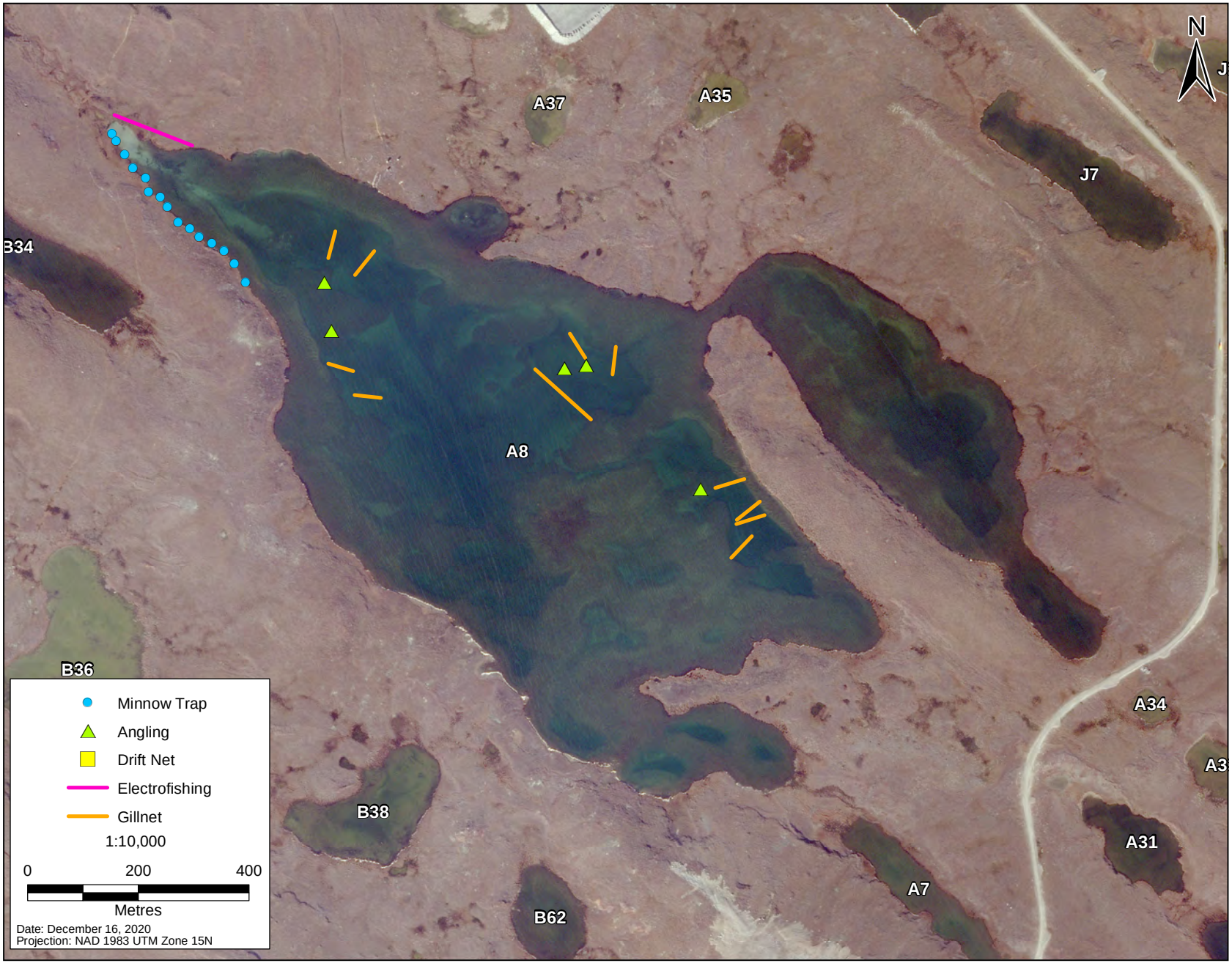


Figure A-4: Fish Community Sampling Locations in A8, 2020

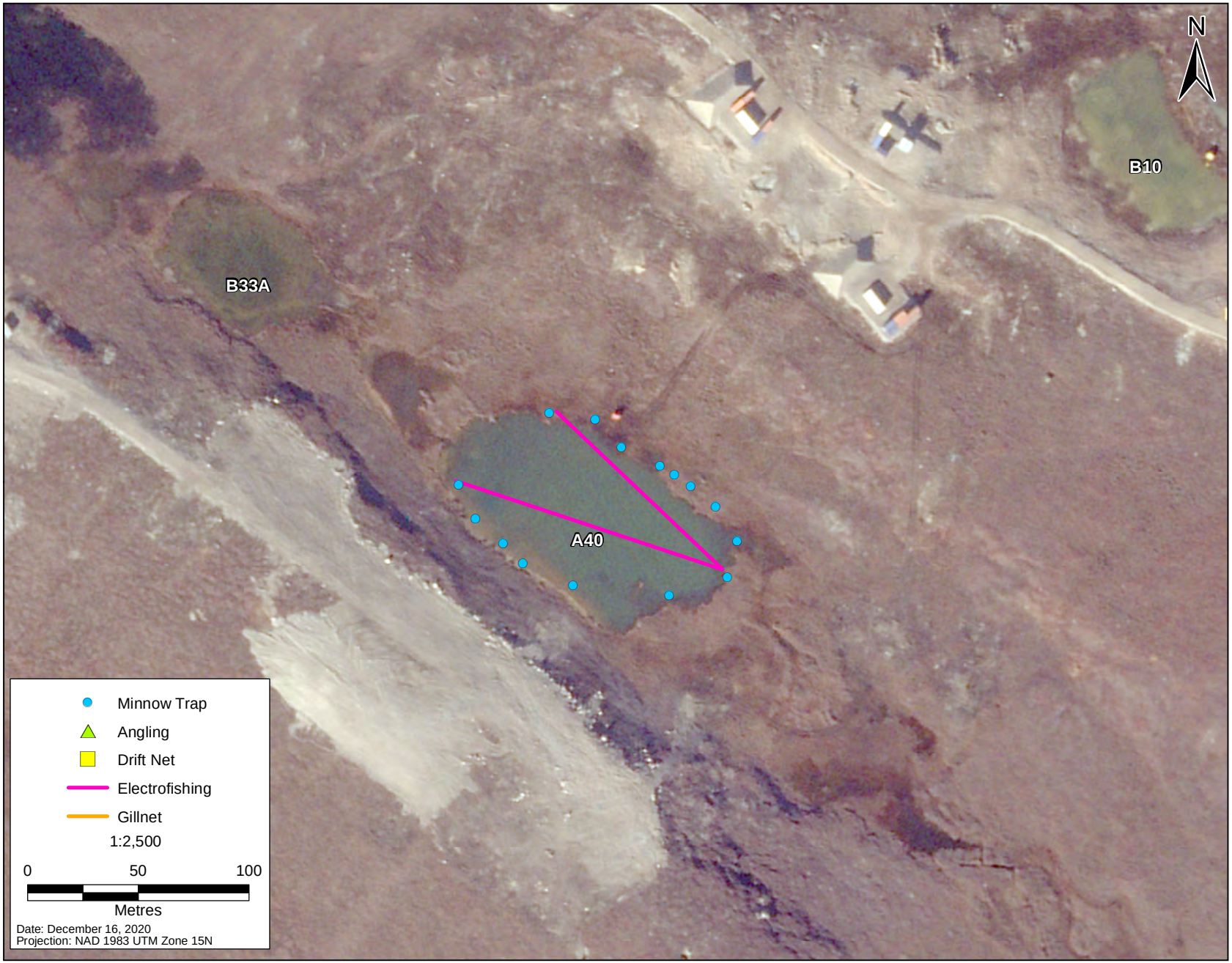


Figure A-5: Fish Community Sampling Locations in A40, 2020

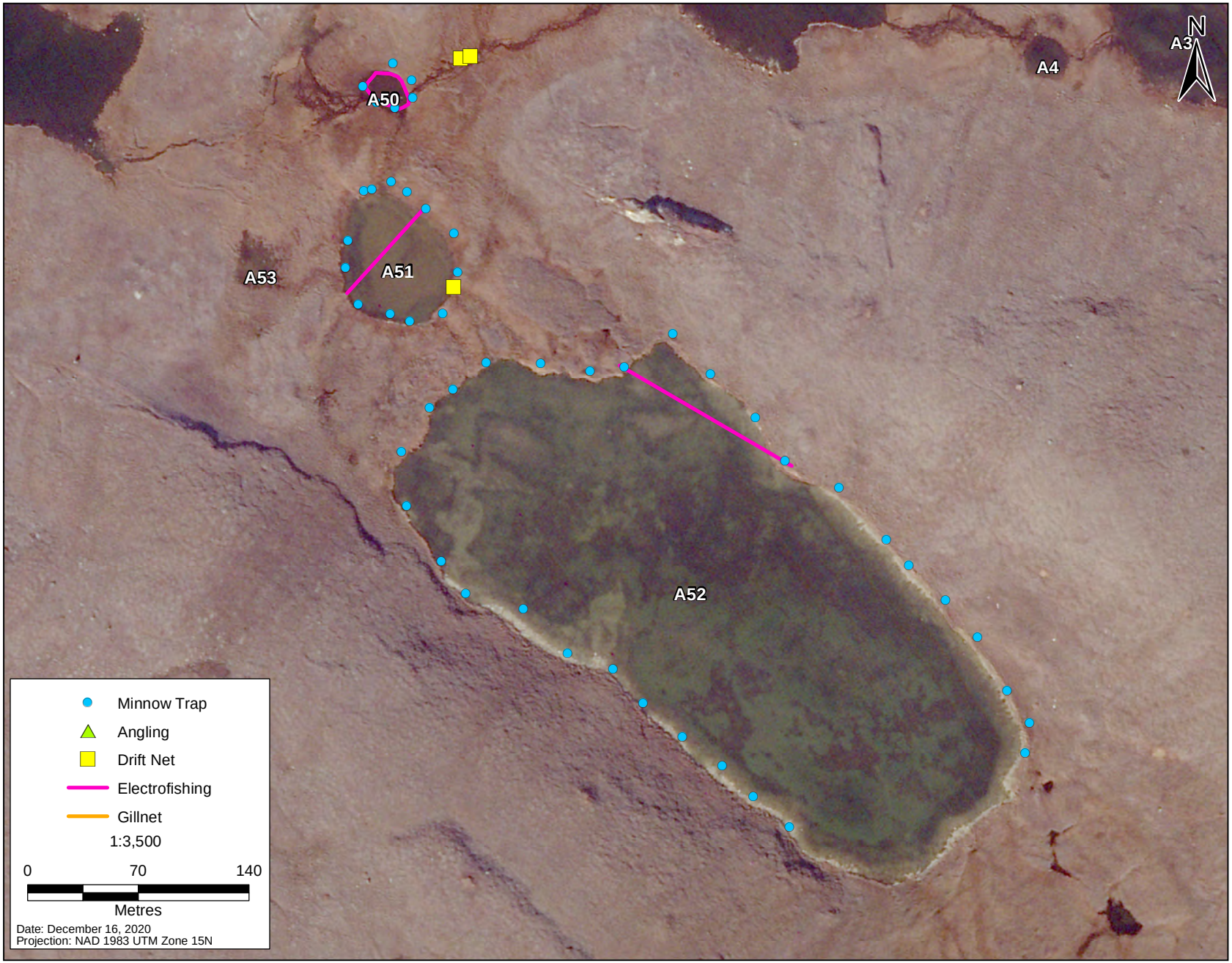


Figure A-6: Fish Community Sampling Locations in A50, A51, and A52, 2020

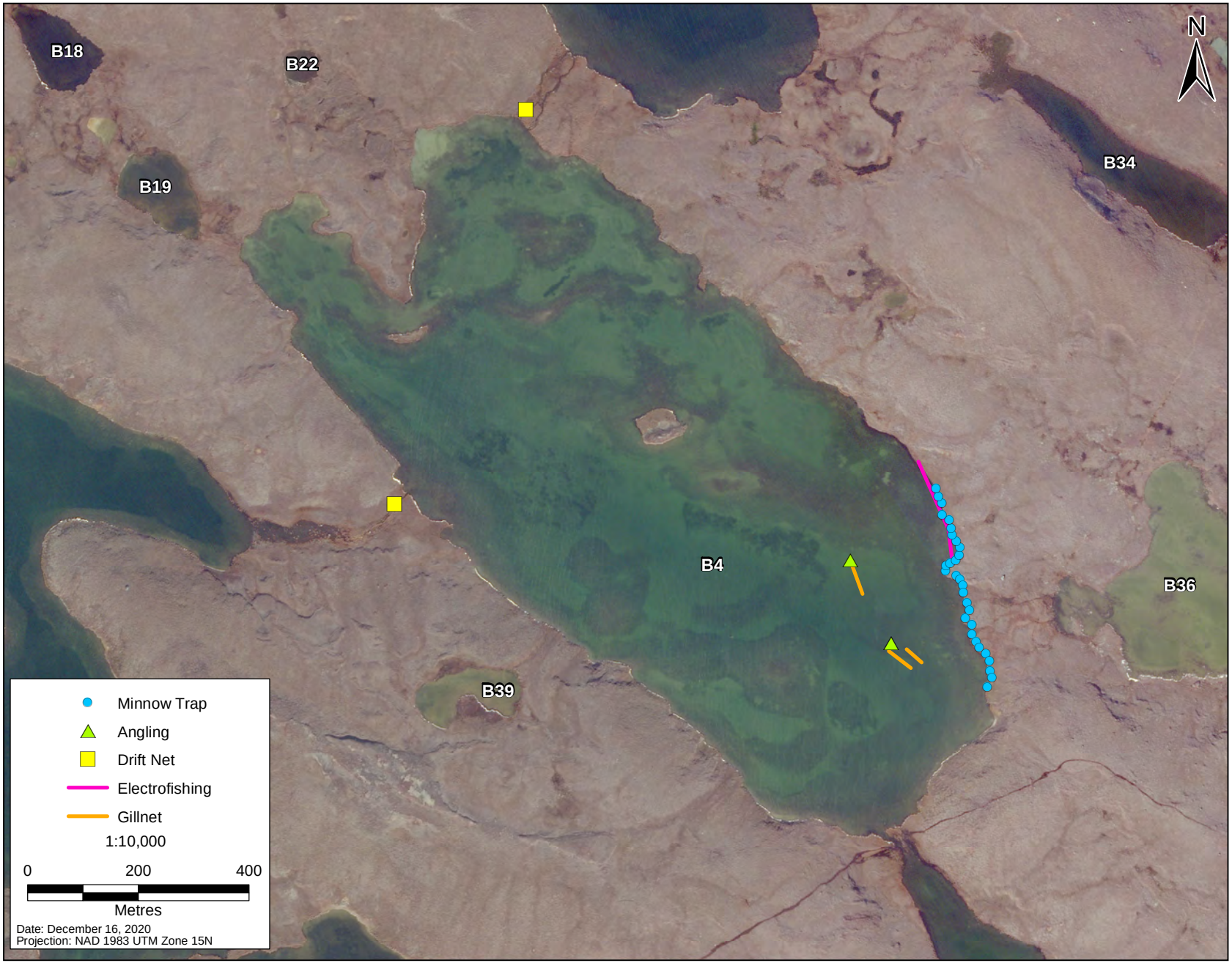


Figure A-7: Fish Community Sampling Locations in B4, 2020

Figure A-8: Fish Community Sampling Locations in B5, 2020

Figure A-9: Fish Community Sampling Locations in B6 and B7, 2020

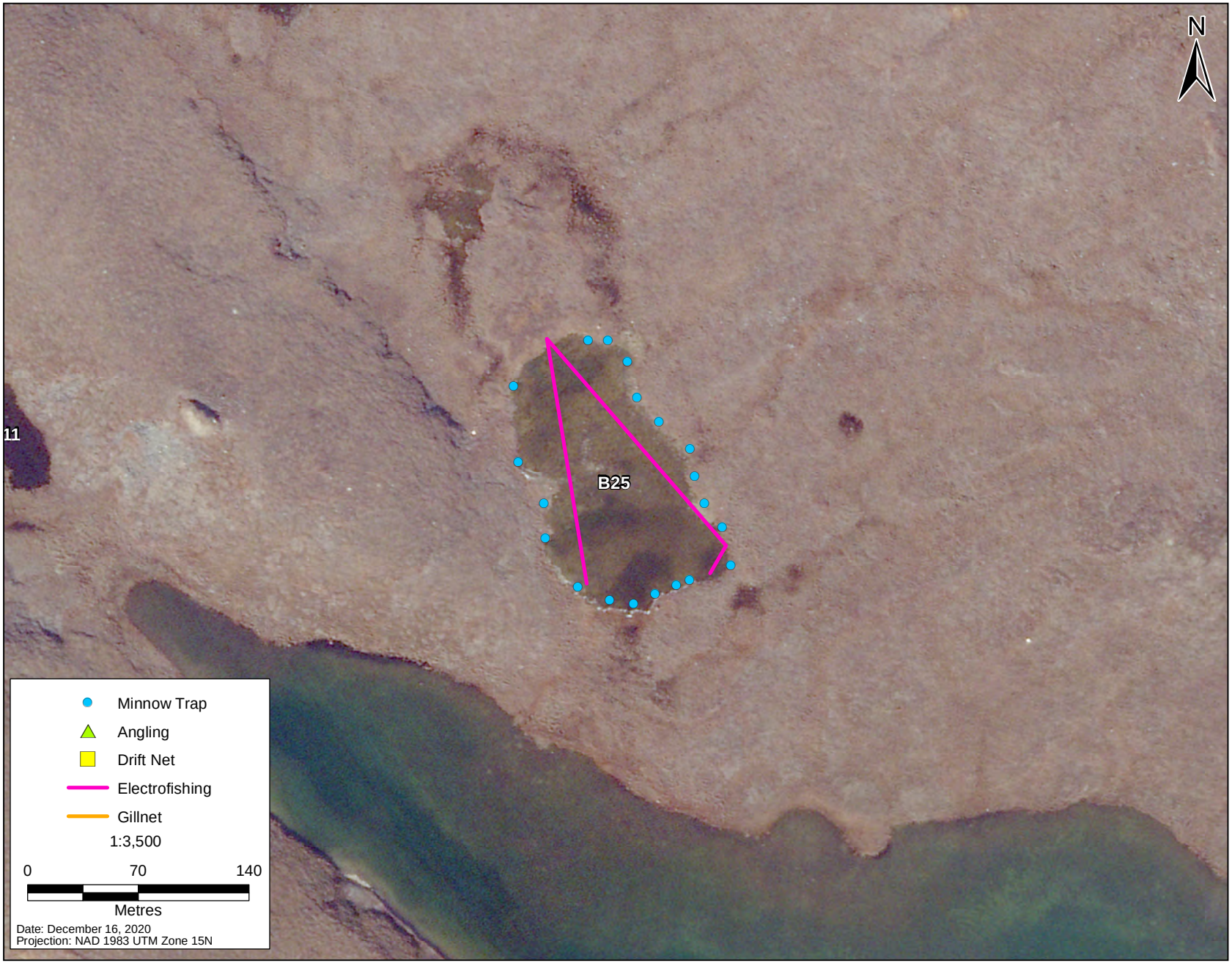


Figure A-10: Fish Community Sampling Locations in B25, 2020

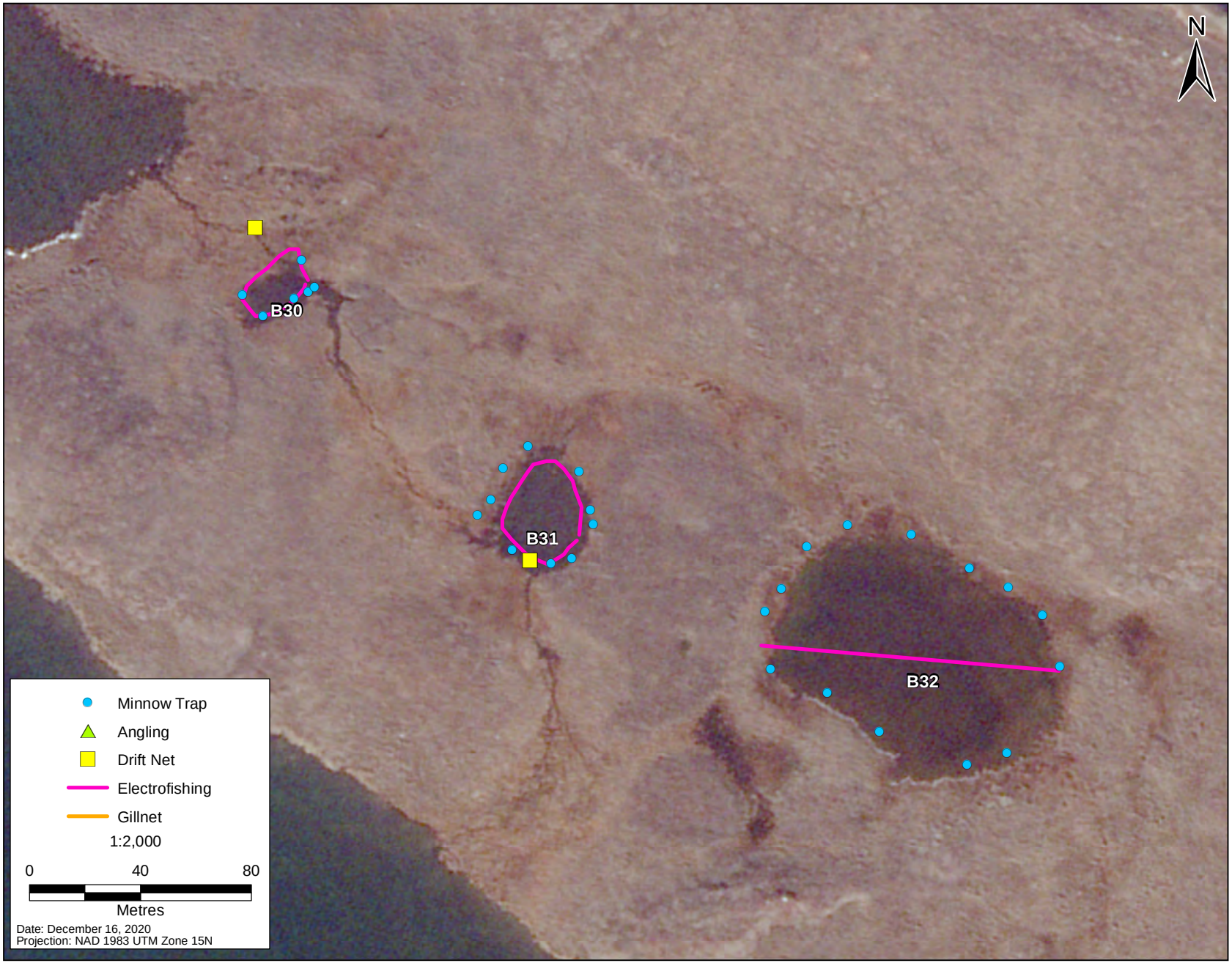


Figure A-11: Fish Community Sampling Locations in B30, B31, and B32, 2020

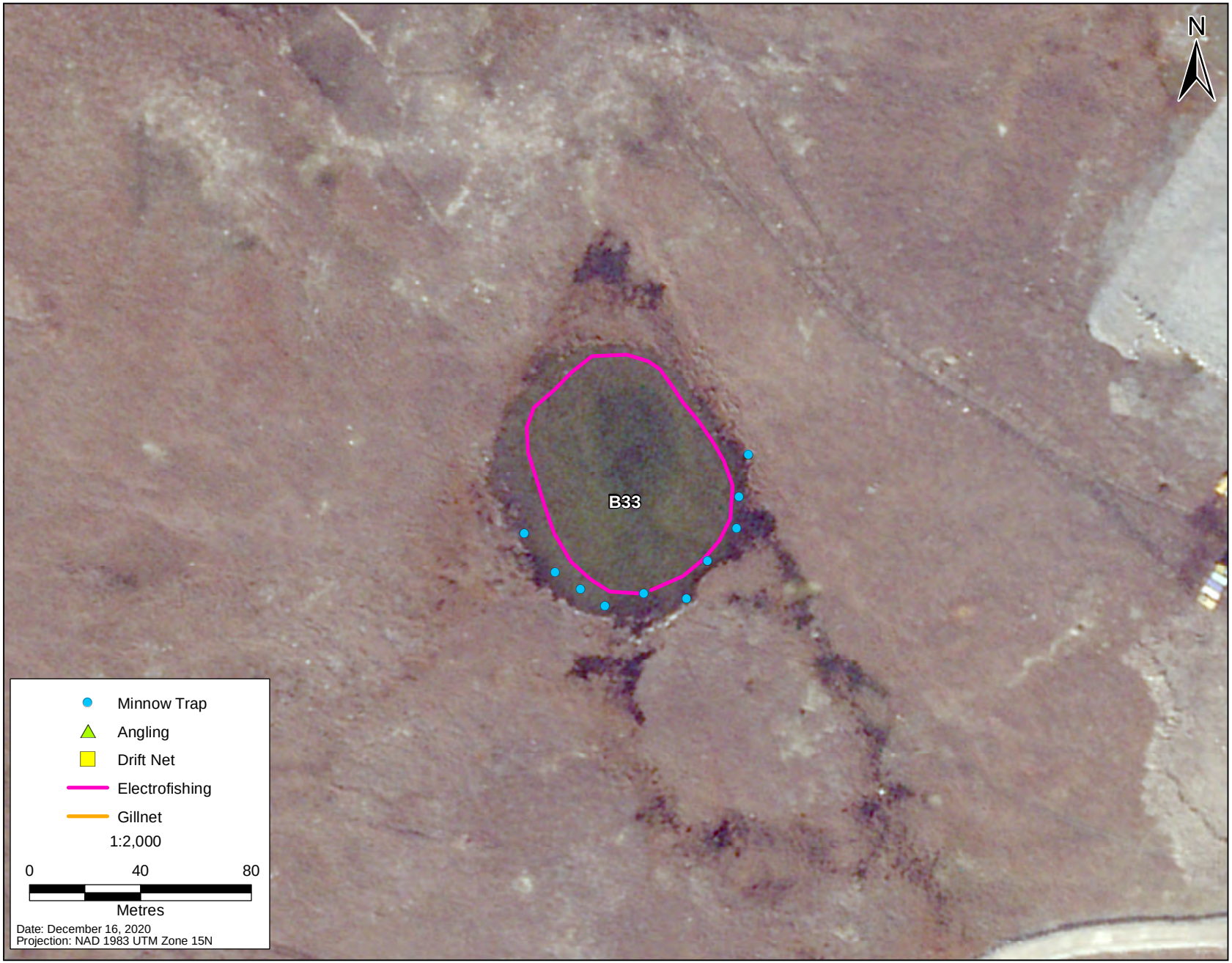


Figure A-12: Fish Community Sampling Locations in B33, 2020

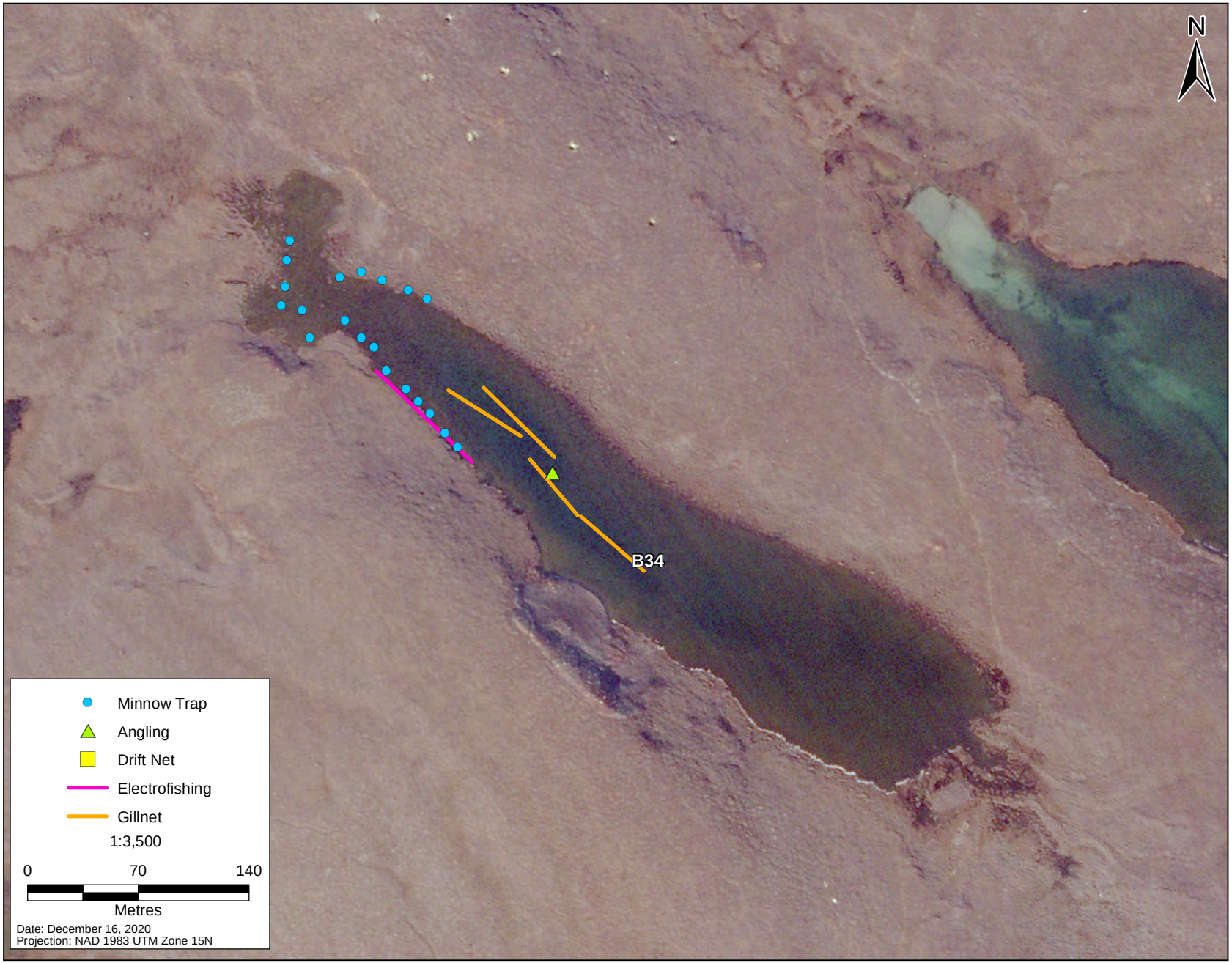


Figure A-13: Fish Community Sampling Locations in B34, 2020

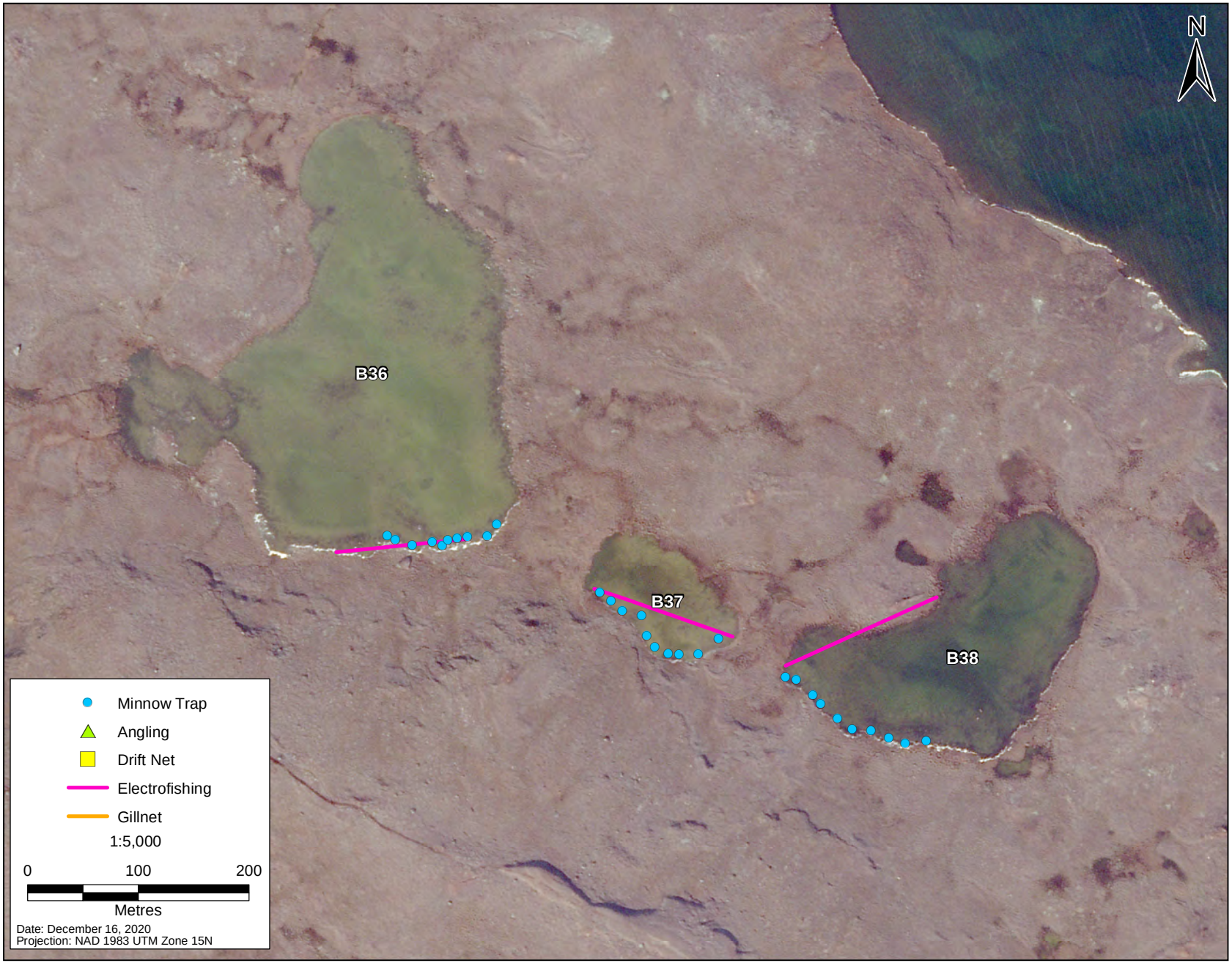


Figure A-14: Fish Community Sampling Locations in B36, B37, and B38, 2020

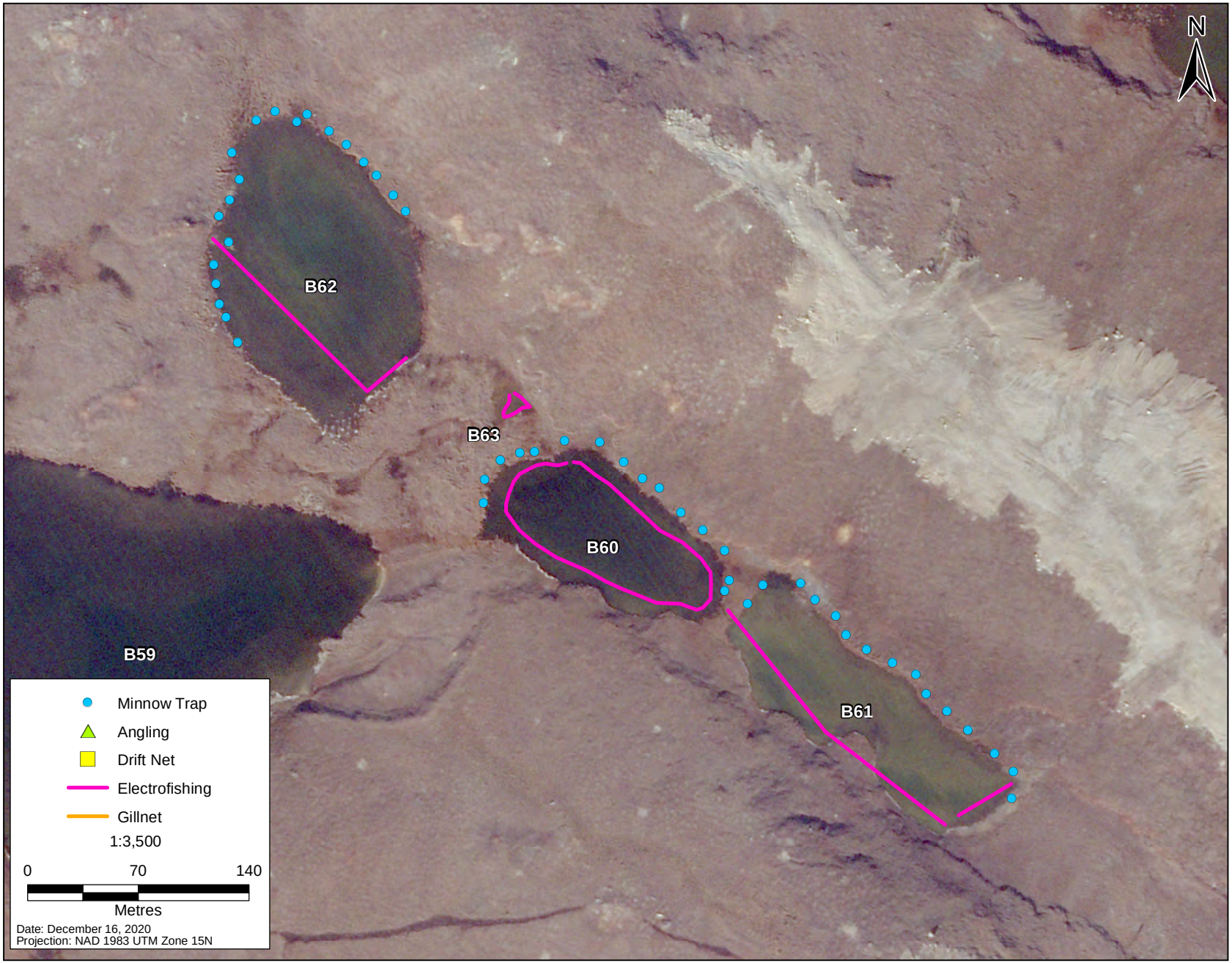


Figure A-15: Fish Community Sampling Locations in B60, B61, B62, and B63, 2020

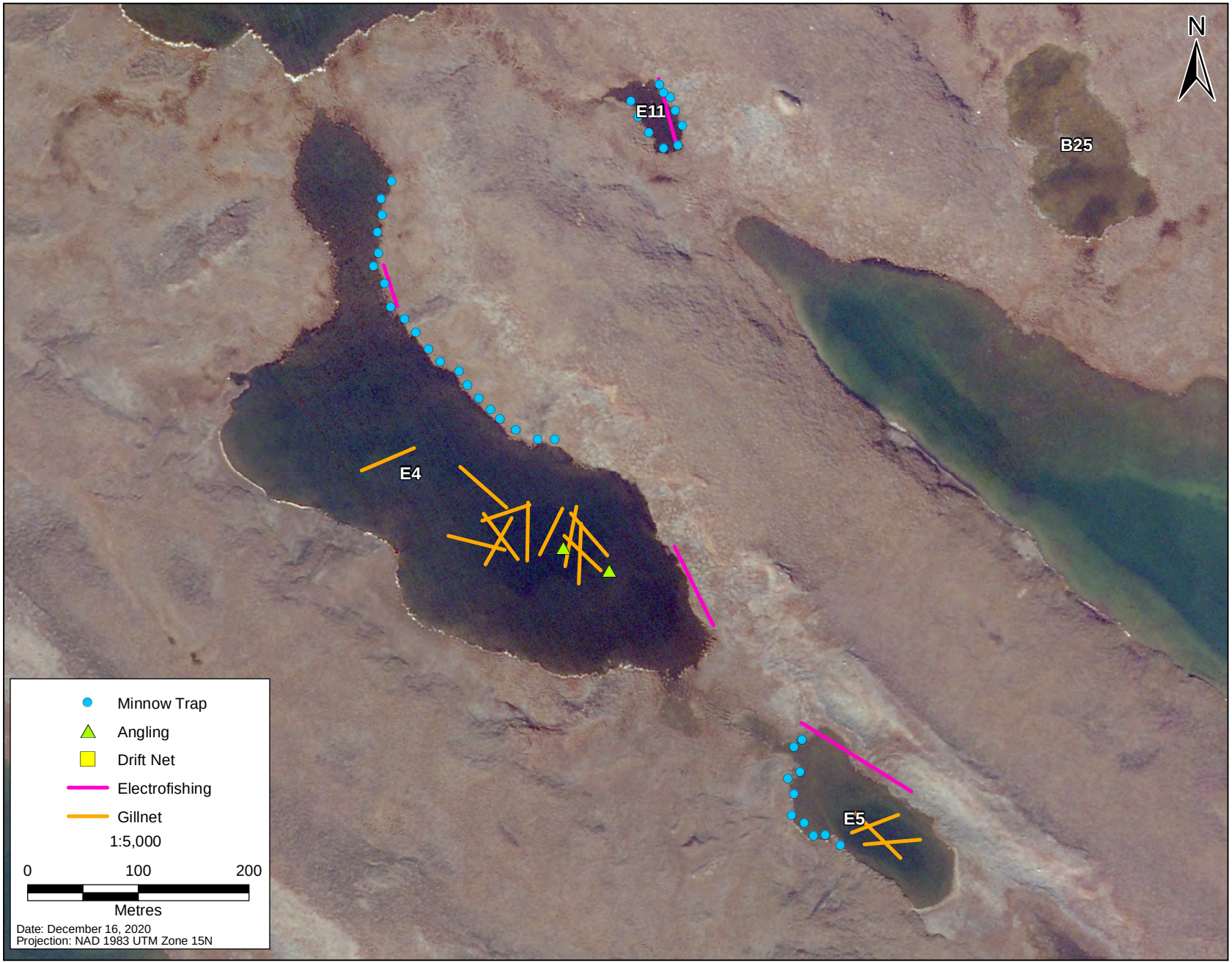


Figure A-16: Fish Community Sampling Locations in E4, E5, and E11, 2020

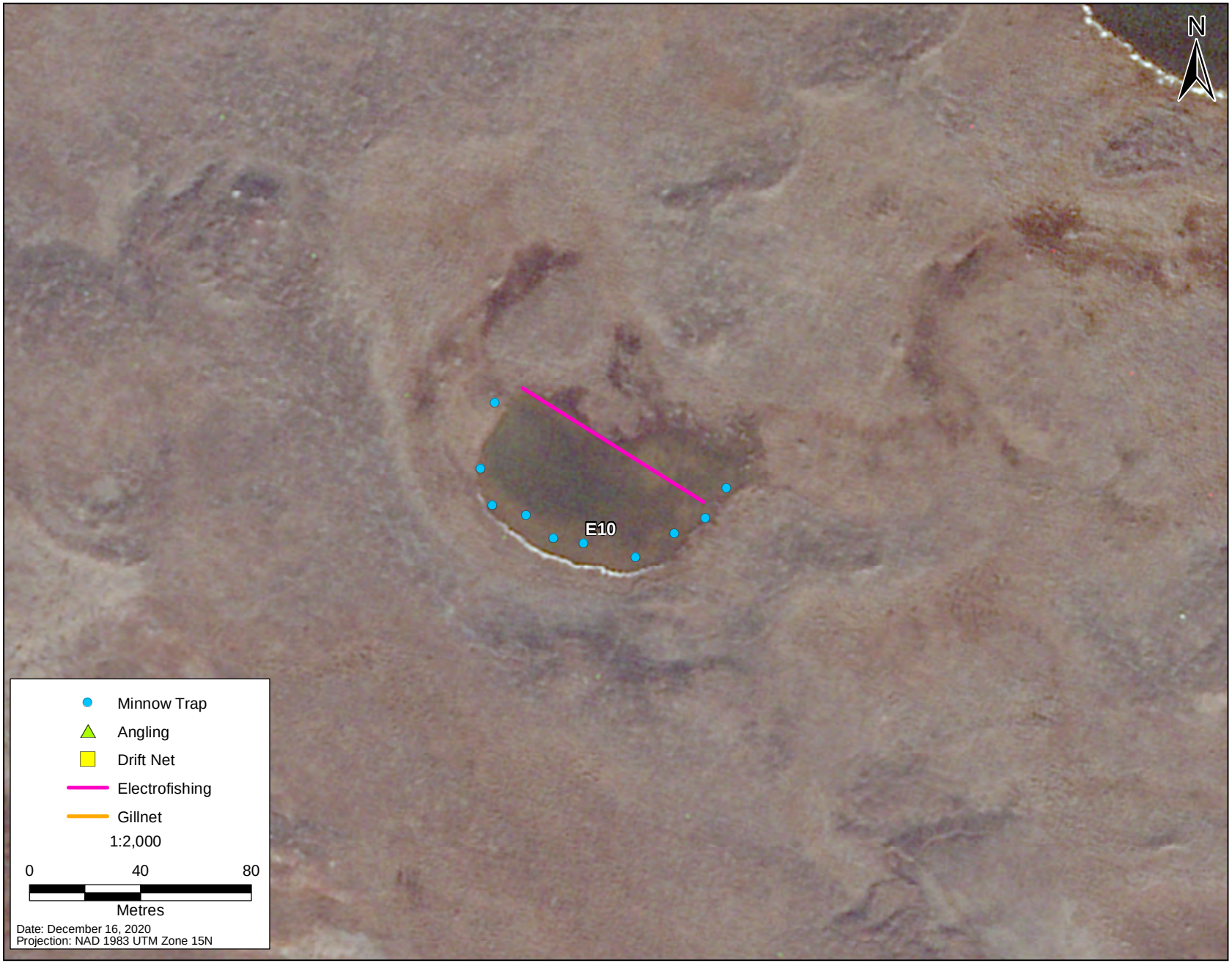


Figure A-17: Fish Community Sampling Locations in E10, 2020

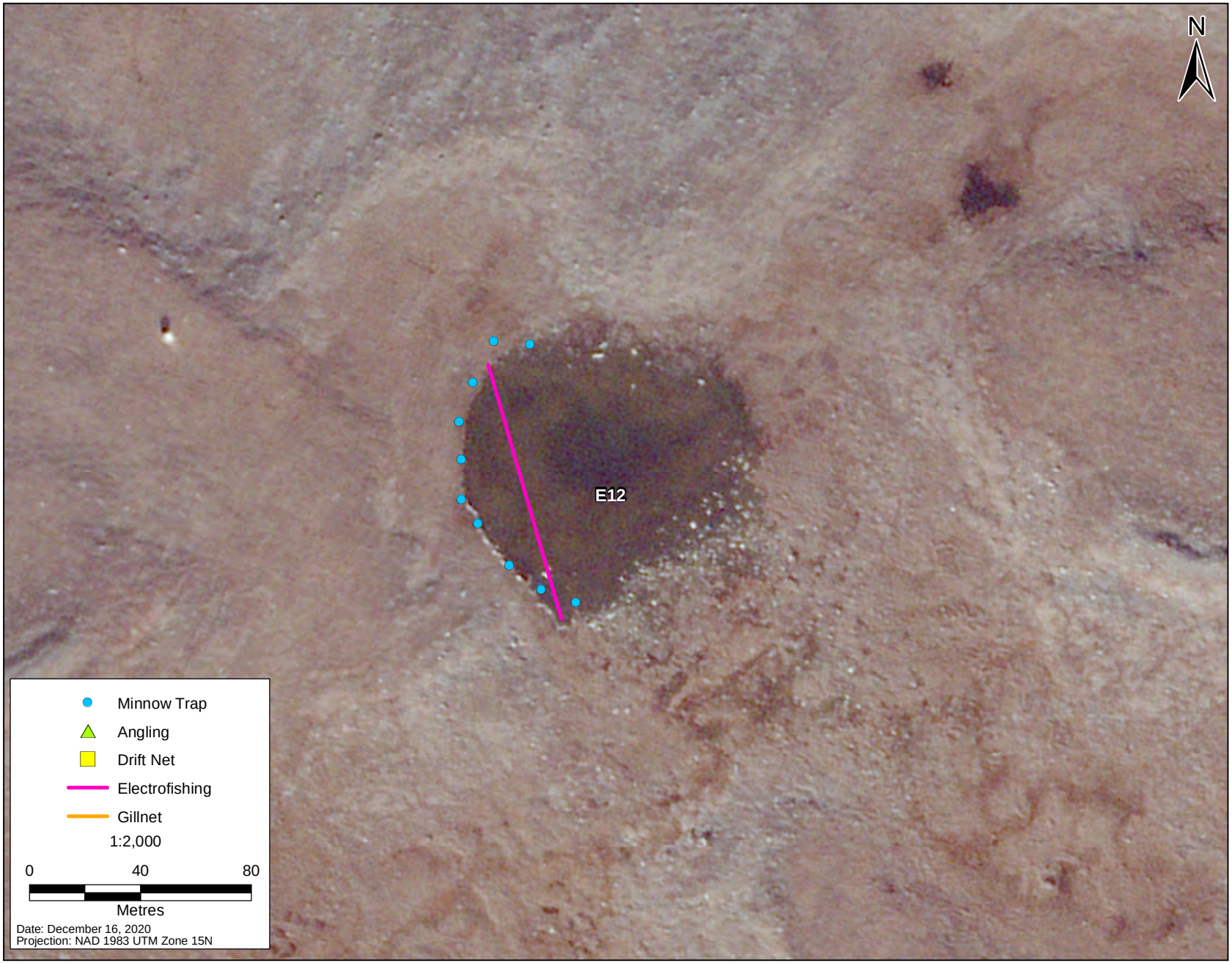


Figure A-18: Fish Community Sampling Locations in E12, 2020

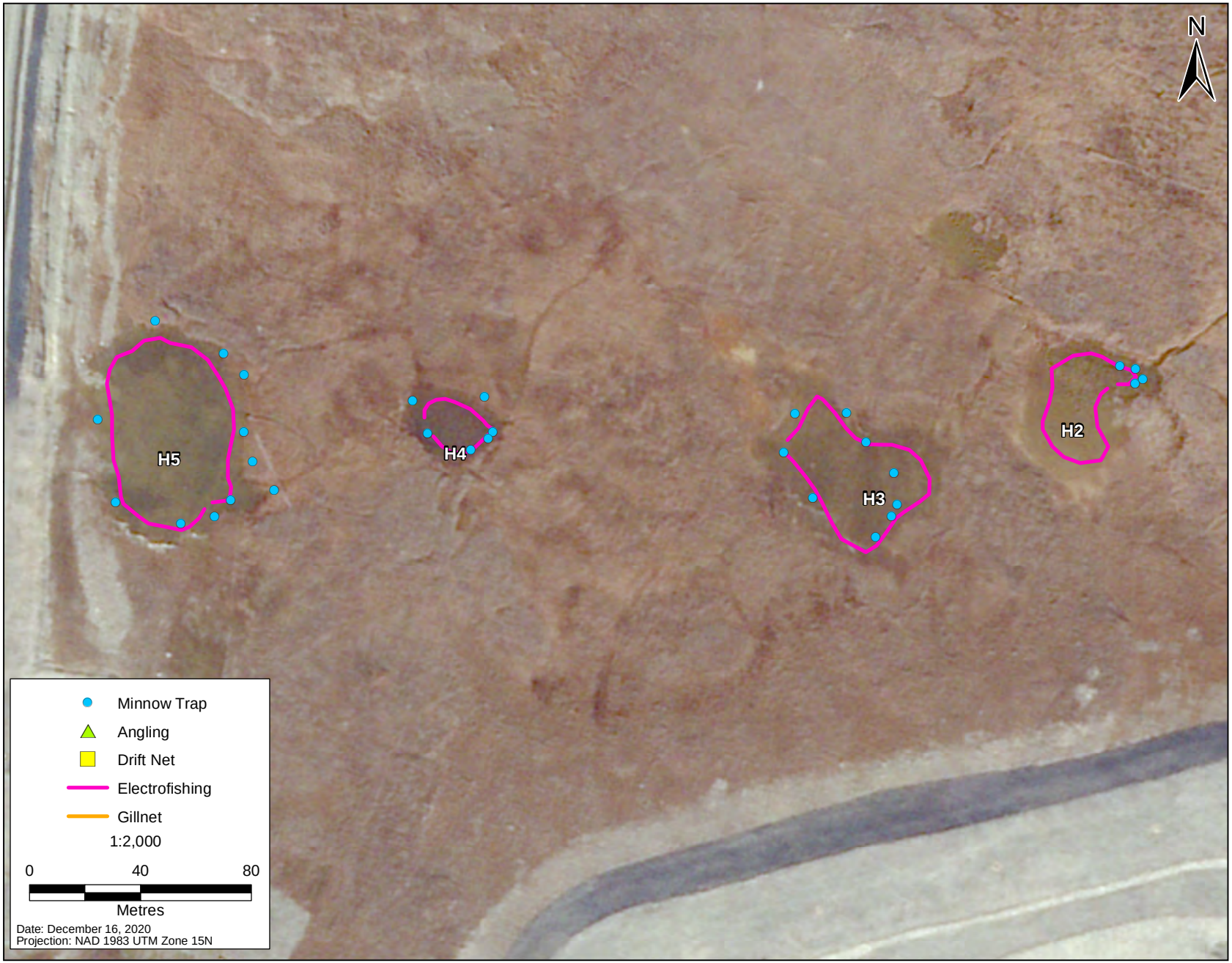


Figure A-19: Fish Community Sampling Locations in H2, H3, H4, and H5, 2020

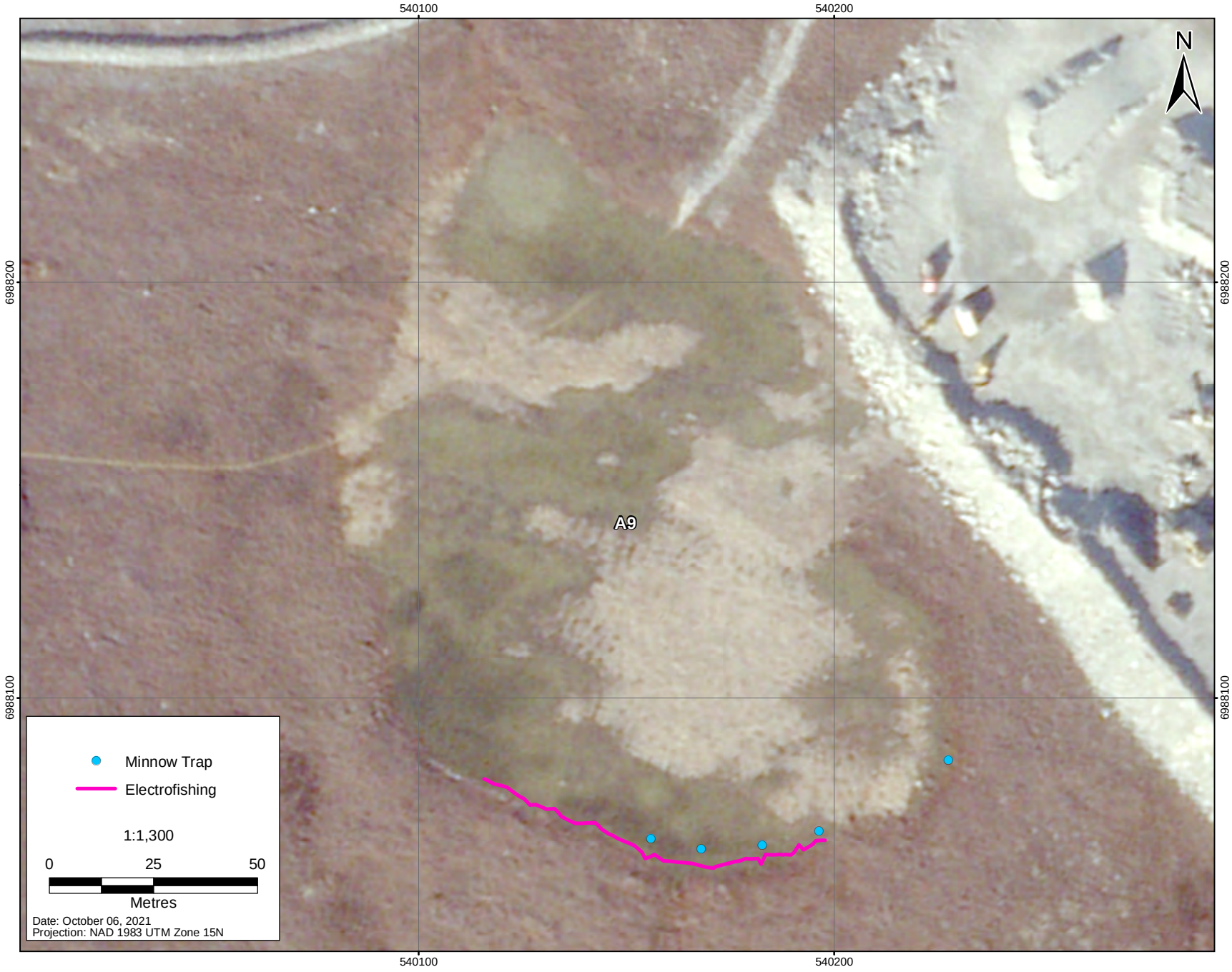


Figure A-20: Fish Community Sampling Locations in A9, 2021

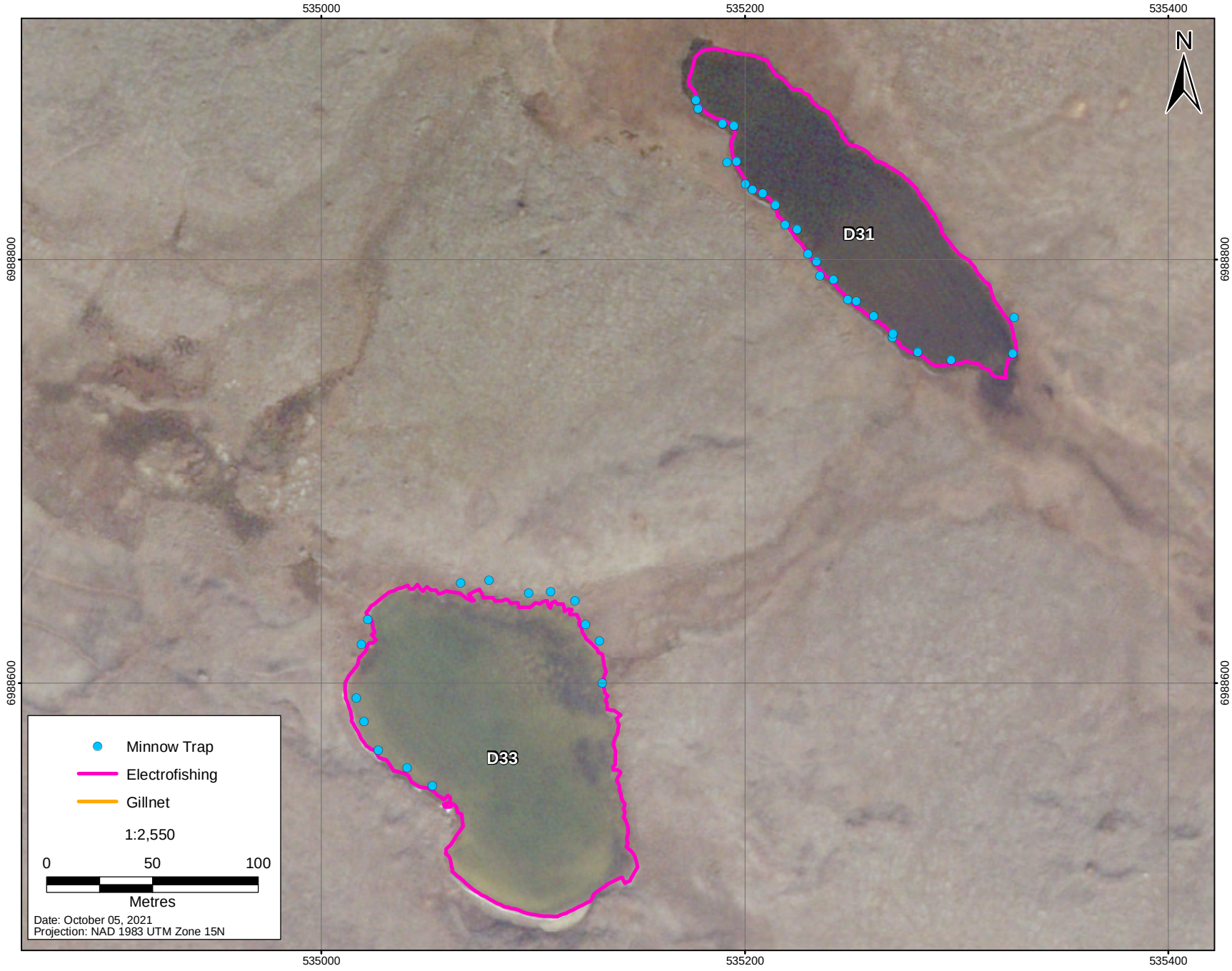


Figure A-21: Fish Community Sampling Locations in D31 and D33, 2021

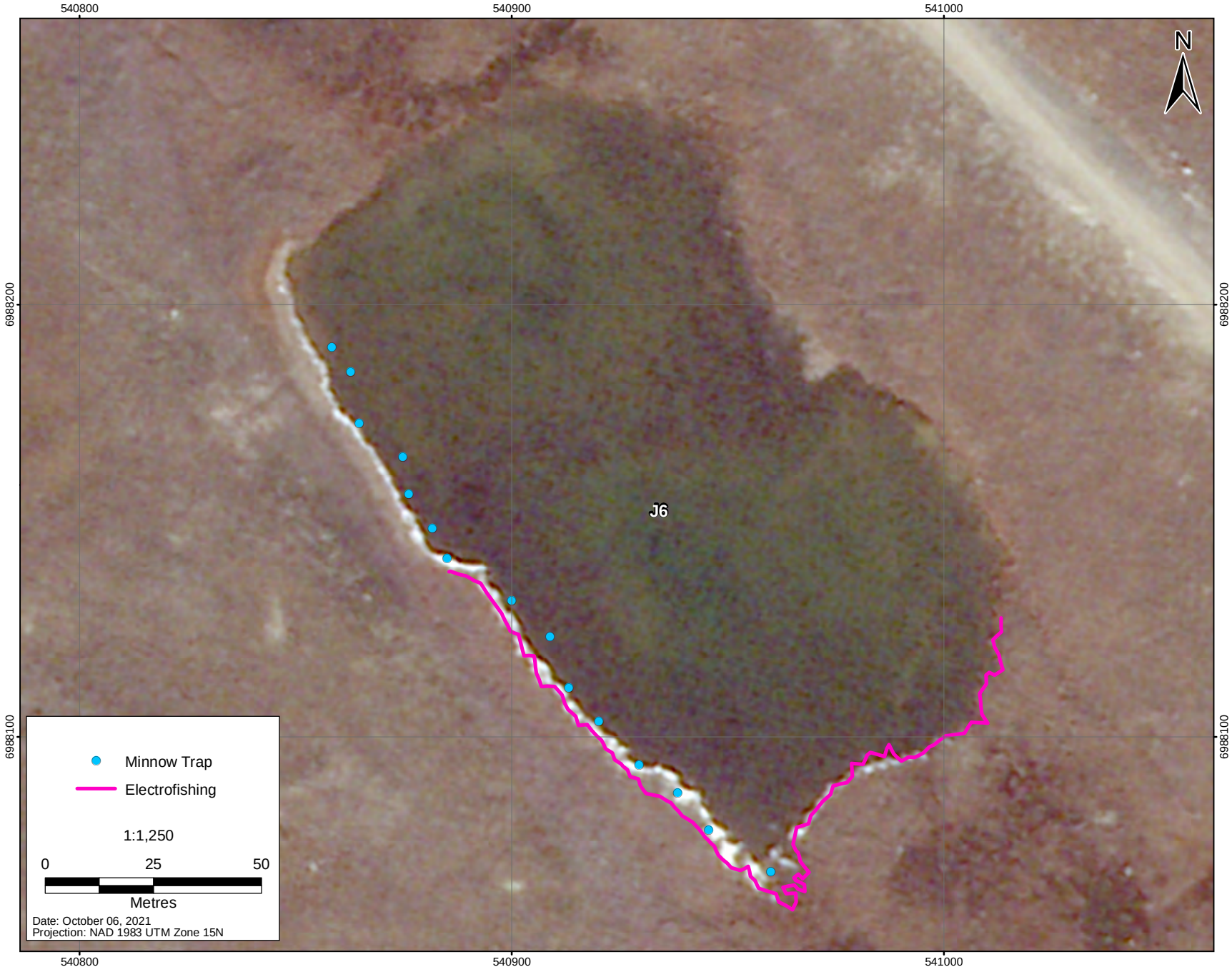


Figure A-22: Fish Community Sampling Locations in J6, 2021

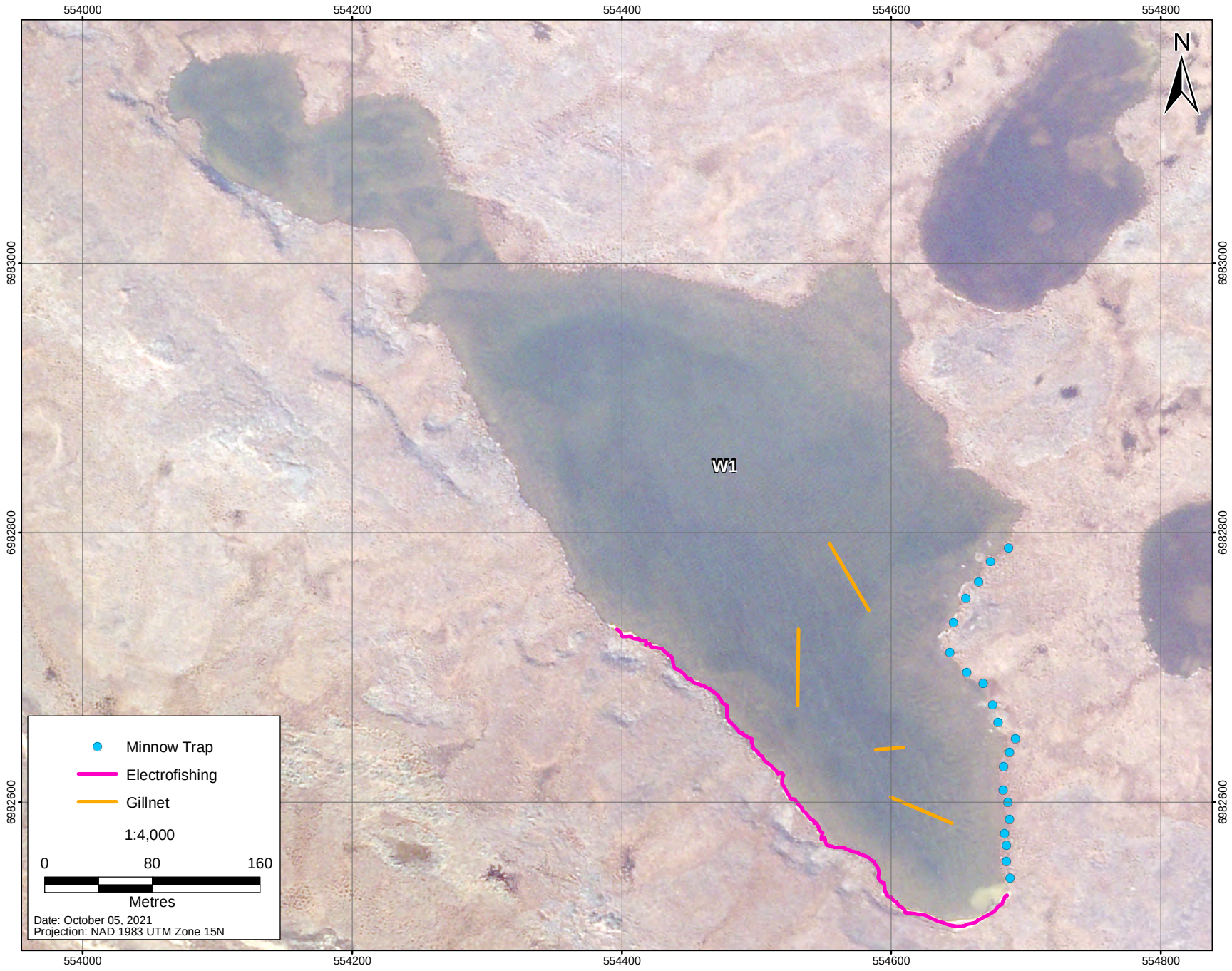


Figure A-23: Fish Community Sampling Locations in W1, 2021

APPENDIX B FISH HABITAT AND COMMUNITY SAMPLING DATA

Table B-1: Arctic Grayling Spawner Survey Observations, 2020

Stream	Date	No. of Arctic Grayling		No. of Other Species	Type of Other Species	GPS Coordinates		Comments
		Spawner	Juvenile			Easting	Northing	
Mel to A1	20-Jun-20	1	0	0		544264	6985973	Moving upstream
A1 to A2	20-Jun-20	5	0	0		543705	6986131	Pairing
A1 to A2	20-Jun-20	2	0	0		543674	6986128	
A1 to A2	20-Jun-20	1	0	0		543669	6986133	
A2 to A3	20-Jun-20	2	0	0		543158	6986135	
A2 to A3	20-Jun-20	2	0	0		543143	6986165	Pairing
A2 to A3	20-Jun-20	1	0	0		543134	6986169	Moving UPST
A2 to A3	20-Jun-20	1	0	0		543092	6986178	@Confluence w/ A3
A3 to A4	20-Jun-20	0	0	0				No fish observed
A4 to A5	20-Jun-20	1	0	0		542906	6986232	
A4 to A5	20-Jun-20	1	0	0		542886	6986233	Saw 4 ARGR when setting minnow traps at Confluence w/ A5
A5 to A19	22-Jun-20	0	0	2	NSSB	542652	6986333	Also includes NoName to A50
A5 to A19	22-Jun-20	0	0	1	NSSB	542562	6986294	
A5 to A19	22-Jun-20	0	0	1	NSSB	542550	6986280	
A5 to A19	22-Jun-20	0	0	1	NSSB	542548	6986277	
A5 to A50	22-Jun-20	0	0	0				Relatively shallow, a few good deeper holding spots
A50 to A6	23-Jun-20	3	0	5	NSSB	542367	6986154	Near outlet of A6
A50 to A51	23-Jun-20	0	0	0		542554	6986144	
A51 to A52	23-Jun-20	0	0	0		542620	6986025	

Notes:

NSSB = Ninespine Stickleback

All UTM coordinates in Zone 15V

Table B-2: Detailed Stream Habitat Assessment Data, 2020

Date	Stream Name	Upstream Location (UTM)		Downstream Location (UTM)		Temperature (˚C)	pH	Conductivity (µS)	Turbidity (NTU)	Discharge	No Vis. Channel	Dry/ Intermittent	Habitat Unit	Habitat Type	Unit Length (m)	Gradient (%)	Width (m)	
		Easting	Northing	Easting	Northing												Wetted	Bankfull
11-Sep	B6-B30	537976	6988930	538012	6988900	7	8.69	213	152	M	N	N	1	Glide	55	0.1	1.8	50
11-Sep	B30-B31	538040	6988874	538053	6988846	7.2	8.38	216	154	M	N	N	1	Glide	40	0.1	1.2	20
11-Sep	B30-B31	538053	6988846	538081	6988802	7.2	8.38	216	154	M	N	N	2	Riffle	65	1	0.9	15
11-Sep	B31-B5	538103	6988786	538103	6988767	7.2	8.38	216	154	M	N	N	1	Riffle	20	1	1.3	20
11-Sep	B31-B5	538103	6988767	538110	6988765	7.2	8.38	216	154	M	N	N	2	Cascade	10	5	0.8	20
11-Sep	B31-B5	538110	6988765	538114	6988734	7.2	8.38	216	154	M	N	N	3	Glide	37	0.2	3	20
11-Sep	B31-B5	538114	6988734	538097	6988702	7.2	8.38	216	154	M	N	N	4	Riffle	45	2	1	30
11-Sep	B31-B5	538097	6988702	538092	6988699	7.2	8.38	216	154	M	N	N	5	Cascade	8	10	0.75	20
11-Sep	B31-B5	538092	6988699	538072	6988693	7.2	8.38	216	154	M	N	N	6	Riffle	22	2	0.7	25
12-Sep	B26-B25	537258	6990353	537283	6990305	2.2	8.73	294	206	M	N	N	1	Flat	65	0.01	12	27
12-Sep	B25-B7	537355	6990154	537360	6990119	-	-	-	-	M	N	N	1	Flat	40	0.01	10.2	17
12-Sep	B25-B7	537360	6990119	537344	6990057	-	-	-	-	M	N	N	2	Flat	56	0.2	21	35
12-Sep	B7-B6 (a)	537928	6989387	537888	6989323	3	8.41	252	176	M	N	N	1	Glide	95	0.2	1.3	20
12-Sep	B7-B6 (a)	537888	6989323	537874	6989299	-	-	-	-	M	N	N	2	Riffle	30	2	1	15
12-Sep	B7-B6 (b)	537903	6989365	537848	6989316	-	-	-	-	M	N	N	1	Flat	106	1	2	12
12-Sep	B61-B60 (a)	540562	6986250	540555	6986259	5.2	8.8	519	376	M	N	N	1	Glide	13	0.01	1.1	50
12-Sep	B61- B60 (b)	540578	6986280	540558	6986284	-	-	-	-	M	N	N	1	Flat	23	0.01	6	50
12-Sep	B34-B5	539068	6987902	538791	6987888	6.7	9.3	194.7	139	L	N	N	1	Flat	270	1	5	40
12-Sep	B33-B5	538722	6988623	538377	6988467	8.9	8.56	1248	890	L	N	N	1	Flat	370	3	4	20
12-Sep	H5-H4	540292	6989411	540340	6989427	7.7	8.54	1031	732	L	N	Y	1	Flat	55	0.1	-	20
12-Sep	H4-H3	540375	6989438	540417	6989500	-	-	-	-	L	N	N	1	Flat	55	0.1	0.75	40
12-Sep	H4-H3	540417	6989500	540448	6989467	-	-	-	-	L	N	N	2	Glide	110	0.1	0.5	15
12-Sep	H3-H2	540541	6989439	540545	6989443	10.3	8.29	586	422	L	N	N	1	Riffle	9	3	0.3	10
12-Sep	H3-H2	540545	6989443	540559	6989450	-	-	-	-	L	N	N	2	Glide	31	0.1	1.1	15
12-Sep	H3-H2	540559	6989450	540564	6989449	-	-	-	-	L	N	N	3	Cascade	7	20	0.3	15

Notes:
Residual pool depth = (max depth - crest height)
Discharge: Low = <30%, Medium = 30-90%; High = >90%
Substrate: F = Fines (< 2 mm), G = Gravel (2 - 64 mm), C = Cobble (64 - 256 mm), B = Boulders (256 - 4000 mm), R = Bedrock (>4000 mm), O = Other
Bank Shape: U = undercut, V = vertical, S = sloping, O = overhanging
Bank Texture: dominant substrate type
Barriers: F = impassable falls, BG = impassable boulder garden, D = dry channel, OF = overland flow, SF = subsurface flow, WQ = water quality barrier, G - gradient, O = other (list in Comments column)
Classification: list barriers as either T = temporary, P = permanent
Cover: OV = overhanging vegetation, IV = instream vegetation; DP = deep pools; U = undercut banks; B = boulders; OD = Organic Debris
Dashes indicate data not collected
All UTM coordinates in Zone 15V
** = refer to comments*

Table B-2: Detailed Stream Habitat Assessment Data, 2020

Date	Stream Name	Depth (m)			Substrate Composition (%)					Bank Height (m)		Bank		Barriers							
		Wetted	Bankfull	Residual Pool	F	G	C	B	R	Left	Right	Shape	Texture	F	BG	D	OF	SF	WQ	G	O
11-Sep	B6-B30	0.19	0.3	-	20	20	45	15	0	0.3	0.3	Vertical	Fines	-	-	-	-	-	-	-	-
11-Sep	B30-B31	0.25	0.5	-	30	40	30	0	0	0.3	0.3	Vertical	Fines	-	-	-	-	-	-	-	-
11-Sep	B30-B31	0.15	0.35	0.25	5	50	40	5	0	0.4	0.4	Vertical	Fines	-	-	-	-	-	-	-	-
11-Sep	B31-B5	0.12	0.5	-	5	40	50	5	0	0.3	0.3	Sloping	Fines	-	-	-	-	-	-	-	-
11-Sep	B31-B5	0.1	0.5	0.2	0	25	70	5	0	0.3	0.3	Vertical	Fines	-	-	-	-	-	-	-	-
11-Sep	B31-B5	0.2	0.4	-	60	25	10	5	0	0.5	0.5	Sloping	Fines	-	-	-	-	-	-	-	-
11-Sep	B31-B5	0.2	0.4	0.2	30	30	40	0	0	0.3	0.3	Sloping	Fines	-	-	-	-	-	-	-	-
11-Sep	B31-B5	0.2	0.5	0.3	10	45	40	5	0	0.4	0.4	Vertical	Fines	-	-	-	-	-	-	-	-
11-Sep	B31-B5	0.2	0.5	0.3	60	25	15	0	0	0.3	0.3	Sloping	Fines	-	-	-	-	-	-	-	-
12-Sep	B26-B25	0.15	0.5	-	95	0	0	5	0	0.3	0.3	Vertical	Fines	-	-	-	T	-	-	-	-
12-Sep	B25-B7	0.15	0.3	-	95	0	0	5	0	0.25	0.25	Sloping	Fines	-	-	-	T	-	-	-	-
12-Sep	B25-B7	0.15	0.3	-	95	0	0	5	0	0.25	0.25	Sloping	Fines	-	-	-	T	-	-	-	-
12-Sep	B7-B6 (a)	0.24	0.5	-	10	20	50	20	0	0.5	0.5	Vertical	Fines	-	-	-	-	-	-	-	-
12-Sep	B7-B6 (a)	0.15	0.2	-	0	10	60	30	0	0.5	0.5	Vertical	Fines	-	-	-	-	-	-	-	-
12-Sep	B7-B6 (b)	0.2	0.4	-	90	5	5	0	0	0.3	0.3	Vertical	Fines	-	-	-	T	-	-	-	-
12-Sep	B61-B60 (a)	0.16	0.4	-	40	15	40	5	0	0.4	0.4	Sloping	Fines	-	-	-	-	-	-	-	-
12-Sep	B61- B60 (b)	0.1	0.3	-	95	0	5	0	0	0.2	0.2	Vertical	Fines	-	-	-	T	T	-	-	-
12-Sep	B34-B5	0.1	0.5	-	96	0	2	2	0	0.2	0.2	Sloping	Fines	-	-	-	T	-	-	-	-
12-Sep	B33-B5	0.05	0.5	-	96	0	2	2	0	0.2	0.2	Sloping	Fines	-	-	-	T	-	P*	-	-
12-Sep	H5-H4	-	0.3	-	95	0	5	0	0	0.3	0.3	Sloping	Fines	-	-	T	T	-	-	-	T*
12-Sep	H5-H4	-	0.3	-	95	0	5	0	0	0.3	0.3	Sloping	Fines	-	-	T	T	-	-	-	T*
12-Sep	H4-H3	0.05	0.3	-	95	0	5	0	0	0.3	0.3	Vertical	Fines	-	-	-	T	-	-	-	T*
12-Sep	H4-H3	0.03	0.5	-	40	25	25	10	0	0.2	0.2	Sloping	Fines	-	-	-	-	-	-	-	-
12-Sep	H3-H2	0.05	0.5	-	0	30	60	10	0	0.2	0.2	Vertical	Fines	-	-	-	-	-	-	-	-
12-Sep	H3-H2	0.15	0.5	-	30	20	50	0	0	0.2	0.2	Vertical	Fines	-	-	-	-	-	-	-	-
12-Sep	H3-H2	0.07	0.5	-	0	0	80	20	0	0.3	0.3	Vertical	Fines	-	-	-	-	T	-	-	-

Notes:
Residual pool depth = (max depth - crest height)
Discharge: Low = <30%, Medium = 30-90%; High = >90%
Substrate: F = Fines (< 2 mm), G = Gravel (2 - 64 mm), C = Cobble (64 - 256 mm), B = Boulders (256 - 4000 mm), R = Bedrock (>4000 mm), O = Other
Bank Shape: U = undercut, V = vertical, S = sloping, O = overhanging
Bank Texture: dominant substrate type
Barriers: F = impassable falls, BG = impassable boulder garden, D = dry channel, OF = overland flow, SF = subsurface flow, WQ = water quality barrier, G - gradient, O = other (list in Comments column)
Classification: list barriers as either T = temporary, P = permanent
Cover: OV = overhanging vegetation, IV = instream vegetation; DP = deep pools; U = undercut banks; B = boulders; OD = Organic Debris
Dashes indicate data not collected
All UTM coordinates in Zone 15V
** = refer to comments*

Table B-2: Detailed Stream Habitat Assessment Data, 2020

Date	Stream Name	Instream Cover (%)						Riparian Cover		Overall Habitat				
		Total	OV	IV/OD	DP	U	B	Canopy (%)	DomVeg	Spawning	Rearing	Overwintering	Migration	Comments
11-Sep	B6-B30	50		90			10	2	Sedge	G	G	N	G	Assessed mainly for Arctic Grayling
11-Sep	B30-B31	40		100				5	Sedge	G	G	N	G	Assessed mainly for Arctic Grayling
11-Sep	B30-B31	50	5	90		5		5	Sedge	G	G	N	G	Assessed mainly for Arctic Grayling
11-Sep	B31-B5	50	5	90			5	5	Sedge	G	G	N	G	Assessed mainly for Arctic Grayling
11-Sep	B31-B5	30		95			5	0	-	N	P	N	G	Assessed mainly for Arctic Grayling
11-Sep	B31-B5	50		95			5	2	Sedge	G	G	N	G	Assessed mainly for Arctic Grayling
11-Sep	B31-B5	50		100				2	Sedge	G	G	N	G	Assessed mainly for Arctic Grayling
11-Sep	B31-B5	50		100				5	Sedge	P	P	N	P	Assessed mainly for Arctic Grayling; poor migratory habitat due to drop
11-Sep	B31-B5	50		100				5	Sedge	P	P	N	G	Assessed mainly for Arctic Grayling
12-Sep	B26-B25	70	20	80				20	Sedge	E	E	N	G	Ratings for NSSB
12-Sep	B25-B7	70	20	80				30	Sedge	E	E	N	G	Ratings for NSSB
12-Sep	B25-B7	70	20	80				30	Sedge	E	E	N	G	Ratings for NSSB
12-Sep	B7-B6 (a)	40		30			70	2	Sedge	G	G	N	G	Ratings for Grayling
12-Sep	B7-B6 (a)	40		10		10	80	2	Sedge	G	G	N	G	Ratings for Grayling
12-Sep	B7-B6 (b)	70		100				40	Sedge	G	G	N	G	Ratings for NSSB
12-Sep	B61-B60 (a)	20		20			80	0	-	G	G	N	G	Ratings for NSSB
12-Sep	B61- B60 (b)	60		100				40	Sedge	P	P	N	N	Ratings for NSSB
12-Sep	B34-B5	80	10	90			1	30	Sedge	G	G	N	G	Ratings for NSSB
12-Sep	B33-B5	80	10	90			1	30	Sedge	G	G	N	N	Ratings for NSSB; currently discontinuous
12-Sep	H5-H4	50		95		5		5	Sedge	N	N	N	N	Dry
12-Sep	H5-H4	50		95		5		5	Sedge	N	N	N	N	Dry
12-Sep	H4-H3	50		0				5	Sedge	G	G	N	N	Rating for NSSB
12-Sep	H4-H3	20		100				3	Sedge	G	G	N	G	Rating for NSSB
12-Sep	H3-H2	30		10			90	5	Sedge	P	G	N	G	Rating for NSSB
12-Sep	H3-H2	50		80		10	10	5	Sedge	G	G	N	G	Rating for NSSB
12-Sep	H3-H2	60		10		20	70	50	willow	P	P	N	N	Rating for NSSB

Notes:
Residual pool depth = (max depth - crest height)
Discharge: Low = <30%, Medium = 30-90%; High = >90%
Substrate: F = Fines (< 2 mm), G = Gravel (2 - 64 mm), C = Cobble (64 - 256 mm), B = Boulders (256 - 4000 mm), R = Bedrock (>4000 mm), O = Other
Bank Shape: U = undercut, V = vertical, S = sloping, O = overhanging
Bank Texture: dominant substrate type
Barriers: F = impassable falls, BG = impassable boulder garden, D = dry channel, OF = overland flow, SF = subsurface flow, WQ = water quality barrier, G - gradient, O = other (list in Comments column)
Classification: list barriers as either T = temporary, P = permanent
Cover: OV = overhanging vegetation, IV = instream vegetation; DP = deep pools; U = undercut banks; B = boulders; OD = Organic Debris
Dashes indicate data not collected
All UTM coordinates in Zone 15V
** = refer to comments*

Table B-2: Detailed Stream Habitat Assessment Data, 2020

Date	Stream Name	Overall Habitat Additional Habitat Unit Comments
11-Sep	B6-B30	possibly ephemeral, ~0.3 m/s velocity
11-Sep	B30-B31	Grayling observed, ~0.3 m/s velocity, possibly ephemeral
11-Sep	B30-B31	Braided riffles
11-Sep	B31-B5	
11-Sep	B31-B5	
11-Sep	B31-B5	
11-Sep	B31-B5	
11-Sep	B31-B5	Drop may be barrier but there are alternate wetted routes currently
11-Sep	B31-B5	
12-Sep	B26-B25	Ephemeral OF connection, top of water frozen
12-Sep	B25-B7	Ephemeral OF connection
12-Sep	B25-B7	
12-Sep	B7-B6 (a)	
12-Sep	B7-B6 (a)	
12-Sep	B7-B6 (b)	Ephemeral drainage through terrestrial veg
12-Sep	B61-B60 (a)	Short connection
12-Sep	B61- B60 (b)	OF, not currently continuous, only connected via subsurface flow and rain input, ephemeral
12-Sep	B34-B5	Low flow, lake outlet photo @ 13:17, ephemeral flow through tundra, dense clouds of stickleback throughout entire HU (see video), all life stages, check during freshet with regards to connection to A8 (verify). 0.05- 0.1 m depth
12-Sep	B33-B5	Ephemeral OF, currently discontinuous, walked US (B5 to B33), conductivity very high (metals?), WQ issues? Check @ freshet, intermittent dry section (patchy wetted sections towards US end @B33
12-Sep	H5-H4	Outlet @WPT 102, photo of erosion prevention and sediment control measures (EPSC) @3:06, currently dry, ephemeral OF, *man-made EPSC measures create temporary barrier, defined channel.
12-Sep	H4-H3	Outlet blocked by epsc, defined channel, braided sections, OF
12-Sep	H4-H3	Defined channel
12-Sep	H3-H2	Multiple channels @ outlet, currently one wetted channel
12-Sep	H3-H2	Multiple braided channels, currently one wetted
12-Sep	H3-H2	Sub-surface boulder garden flow, flowing through boulders under tundra.

Notes:
Residual pool depth = (max depth - crest height)
Discharge: Low = <30%, Medium = 30-90%; High = >90%
Substrate: F = Fines (< 2 mm), G = Gravel (2 - 64 mm), C = Cobble (64 - 256 mm), B = Boulders (256 - 4000 mm), R = Bedrock (>4000 mm), O = Other
Bank Shape: U = undercut, V = vertical, S = sloping, O = overhanging
Bank Texture: dominant substrate type
Barriers: F = impassable falls, BG = impassable boulder garden, D = dry channel, OF = overland flow, SF = subsurface flow, WQ = water quality barrier, G - gradient, O = other (list in Comments column)
Classification: list barriers as either T = temporary, P = permanent
Cover: OV = overhanging vegetation, IV = instream vegetation; DP = deep pools; U = undercut banks; B = boulders; OD = Organic Debris
Dashes indicate data not collected
All UTM coordinates in Zone 15V
** = refer to comments*

Table B-3: Littoral Substrate Data Collected from Ground-Based and Aerial (for W1 only) Visual Surveys, 2020-2021

Waterbody Name	Date	Habitat Unit	Start Coordinates		Shoreline Length (m)	Relative Composition (%)					Aquatic Vegetation			Vegetation Type			Comments
			Easting	Northing		Fines	Gravel	Cobble	Boulder	Bedrock	None	Sparse	Abundant	Moss	Sedge/Reeds	Vascular	
B38	30-Jul-20	1	540075	6986776	9.66	80	0	5	15	0		X			X		decomposing sedge
B38	30-Jul-20	2	540068	6986780	10.69	35	0	65	0	0		X			X		decomposing sedge
B38	30-Jul-20	3	540064	6986784	25.48	75	0	10	15	0		X			X		decomposing sedge
B38	30-Jul-20	4	540037	6986788	24.01	30	10	60	0	0		X			X		decomposing sedge
B38	30-Jul-20	5	540016	6986779	13.97	60	0	35	5	0		X			X		decomposing sedge
B38	30-Jul-20	6	540009	6986774	45.04	5	35	60	0	0		X			X		decomposing sedge
B38	30-Jul-20	7	539990	6986747	19.71	95	5	0	0	0		X			X		decomposing sedge
B38	30-Jul-20	8	539977	6986744	19.40	50	20	10	20	0		X			X		decomposing sedge
B38	30-Jul-20	9	539965	6986742	17.07	60	25	15	0	0		X			X		decomposing sedge
B38	30-Jul-20	10	539960	6986726	34.15	100	0	0	0	0		X			X		decomposing sedge
B38	30-Jul-20	11	539955	6986700	35.70	80	0	0	20	0		X			X		decomposing sedge
B38	30-Jul-20	12	539942	6986693	18.71	0	0	80	20	0		X			X		decomposing sedge
B38	30-Jul-20	13	539924	6986688	8.34	80	0	0	20	0		X			X		decomposing sedge
B38	30-Jul-20	14	539917	6986685	27.28	100	0	0	0	0		X			X		decomposing sedge
B38	30-Jul-20	15	539895	6986674	47.15	0	20	70	10	0		X			X		decomposing sedge
B38	30-Jul-20	16	539859	6986686	52.87	80	0	10	10	0		X			X		decomposing sedge
B38	30-Jul-20	17	539828	6986667	21.77	100	0	0	0	0		X			X		decomposing sedge
B38	30-Jul-20	18	539821	6986648	39.81	70	20	10	0	0		X			X		decomposing sedge
B38	30-Jul-20	19	539837	6986627	46.40	5	10	80	5	0		X			X		decomposing sedge
B38	30-Jul-20	20	539867	6986600	28.27	95	0	5	0	0		X			X		decomposing sedge
B38	30-Jul-20	21	539886	6986594	25.75	40	10	40	10	0		X			X		decomposing sedge
B38	30-Jul-20	22	539907	6986589	59.35	2	26	70	2	0		X			X		decomposing sedge
B38	30-Jul-20	23	539956	6986581	11.03	80	0	18	2	0		X			X		decomposing sedge
B38	30-Jul-20	24	539966	6986580	103.10	95	0	5	0	0		X			X		decomposing sedge
B38	30-Jul-20	25	540033	6986599	52.06	5	10	55	30	0		X			X		decomposing sedge
B38	30-Jul-20	26	540054	6986631	59.58	50	0	25	25	0		X			X		decomposing sedge
B38	30-Jul-20	27	540084	6986678	112.74	0	10	70	20	0		X			X		decomposing sedge; hose in pond 7:42 (PH)
Total					**969.07**	**59**	**8**	**32**	**9**	**0**							
B37	30-Jul-20	1	539763	6986704	42.21	90	0	5	5	0		X			X		
B37	30-Jul-20	2	539739	6986741	74.15	95	5	0	0	0		X			X		
B37	30-Jul-20	3	539697	6986766	57.28	10	40	40	10	0		X			X		
B37	30-Jul-20	4	539672	6986769	72.16	100	0	0	0	0		X			X		
B37	30-Jul-20	5	539645	6986716	223.87	20	20	50	10	0		X			X		
Total					**469.67**	**62.0079**	**12.7953**	**18.7008**	**4.9212598**	**0**							
E10	23-Aug-20	1	536367	6990191	44.98	70	0	25	5	0		X			X		
E10	23-Aug-20	2	536354	6990203	45.71	15	0	60	25	0		X			X		
E10	23-Aug-20	3	536332	6990207	46.92	100	0	0	0	0			X		X		
E10	23-Aug-20	4	536294	6990221	9.39	35	0	60	5	0		X			X		
E10	23-Aug-20	5	536284	6990223	19.45	100	0	0	0	0		X			X		
E10	23-Aug-20	6	536270	6990206	10.80	40	0	60	0	0		X			X		
E10	23-Aug-20	7	536267	6990195	153.24	10	5	80	5	0		X			X		Lots of dead organic material in clumps/mats over pond bottom covering rocky substrate
Total					**330.48**	**53**	**1**	**41**	**6**	**0**							
E5	23-Aug-20	1	537128	6989614	72.03	0	0	80	20	0		X			X		
E5	23-Aug-20	2	537182	6989577	10.92	0	0	50	50	0	X						
E5	23-Aug-20	3	537190	6989570	55.32	0	30	60	10	0	X						
E5	23-Aug-20	4	537229	6989558	166.22	0	10	60	30	0	X						
E5	23-Aug-20	5	537164	6989668	30.82	5	5	70	20	0		X			X		
E5	23-Aug-20	6	537151	6989677	421.34	0	10	60	30	0		X			X		
Total					**756.66**	**1**	**9**	**63**	**27**	**0**							

Table B-3: Littoral Substrate Data Collected from Ground-Based and Aerial (for W1 only) Visual Surveys, 2020-2021

Waterbody Name	Date	Habitat Unit	Start Coordinates		Shoreline Length (m)	Relative Composition (%)					Aquatic Vegetation			Vegetation Type			Comments
			Easting	Northing		Fines	Gravel	Cobble	Boulder	Bedrock	None	Sparse	Abundant	Moss	Sedge/Reeds	Vascular	
E11	23-Aug-20	1	536972	6990290	25.41	80	0	15	5	0		X			X		2 to 6" of deep muck over more stable rock substrate
E11	23-Aug-20	2	536986	6990271	14.28	100	0	0	0	0		X			X		
E11	23-Aug-20	3	536993	6990258	7.33	80	0	10	10	0		X			X		
E11	23-Aug-20	4	536993	6990252	45.63	10	20	30	40	0		X			X		
E11	23-Aug-20	5	536973	6990236	175.20	100	0	0	0	0		X			X		soupy, mucky, deceptive bottom; organic sludge ~6" deep; soft bottom
Total					**267.84**	**74.0056**	**4.0003**	**11.0008**	**11.000827**	**0**							
E12	23-Aug-20	1	537170	6991052	140.47	25	0	5	70	0		X			X		
E12	23-Aug-20	2	537257	6991045	29.27	100	0	0	0	0		X			X		TECK cable running through pond (see PH photo)
E12	23-Aug-20	3	537265	6991029	242.93	30	0	20	50	0		X			X		
E12	23-Aug-20	4	537196	6990960	114.51	95	0	0	5	0		X			X		
Total					**527.17**	**62**	**0**	**6**	**31**	**0**							
J4	10-Sep-20	1	541140	6988254	134.87	98	0	2	0	0		X			X		New GPS WPT List as of 9-10-2020; J4 connects to US/DS ponds via ephemeral OF
J4	10-Sep-20	2	541114	6988242	26.90	95	2	2	1	0		X			X		
J4	10-Sep-20	3	541122	6988228	84.29	97	0	2	1	0		X			X		
J4	10-Sep-20	4	541151	6988236	41.07	100	0	0	0	0		X			X		
Total					**287.14**	**98**	**1**	**2**	**1**	**0**							
I1	10-Sep-20	1	541974	6987573	38.46	98	0	1	1	0		X			X		Low likelihood of connection DS to Meliadine Lake; no visible inflow (isolated)
I1	10-Sep-20	2	541958	6987547	149.53	5	10	75	10	0		X			X		
I1	10-Sep-20	3	542053	6987466	219.72	0	5	80	15	0		X			X		
I1	10-Sep-20	4	542216	6987343	45.40	0	5	90	5	0		X			X		
I1	10-Sep-20	5	542258	6987334	46.06	5	30	60	5	0		X			X		
I1	10-Sep-20	6	542280	6987370	92.76	0	15	75	10	0		X			X		
I1	10-Sep-20	7	542345	6987418	190.87	10	10	70	10	0		X			X		
I1	10-Sep-20	8	542517	6987405	126.52	80	0	15	5	0		X			X		
I1	10-Sep-20	9	542512	6987458	12.13	100	0	0	0	0		X			X		
I1	10-Sep-20	10	542506	6987464	11.68	75	0	20	5	0		X			X		
I1	10-Sep-20	11	542497	6987472	88.94	5	10	75	10	0		X			X		
I1	10-Sep-20	12	542419	6987509	30.97	0	5	75	20	0		X			X		
I1	10-Sep-20	13	542392	6987517	145.33	10	20	60	10	0		X			X		
I1	10-Sep-20	14	542267	6987583	29.48	30	20	45	5	0		X			X		
I1	10-Sep-20	15	542242	6987578	137.27	5	15	70	10	0		X			X		
I1	10-Sep-20	16	542114	6987572	29.32	0	5	75	20	0		X			X		
I1	10-Sep-20	17	542095	6987570	152.39	20	25	50	5	0		X			X		
Total					**1546.83**	**26**	**10**	**55**	**9**	**0**							
J7	11-Sep-20	1	541177	6987905	56.19	20	30	45	5	0			X		X		
J7	11-Sep-20	2	541142	6987918	12.50	90	2	3	5	0		X			X		
J7	11-Sep-20	3	541144	6987932	13.21	30	25	40	5	0		X			X		
J7	11-Sep-20	4	541149	6987937	54.38	100	0	0	0	0		X			X		
J7	11-Sep-20	5	541146	6987956	7.04	30	25	43	2	0		X			X		
J7	11-Sep-20	6	541144	6987962	8.69	94	0	5	1	0		X			X		
J7	11-Sep-20	7	541135	6987967	108.18	100	0	0	0	0			X		X		
J7	11-Sep-20	8	541076	6987894	25.44	80	15	5	0	0		X			X		
J7	11-Sep-20	9	541089	6987879	81.06	95	5	0	0	0		X			X		
J7	11-Sep-20	10	541155	6987838	14.96	30	25	40	5	0		X			X		
J7	11-Sep-20	11	541165	6987836	7.68	100	0	0	0	0		X			X		
J7	11-Sep-20	12	541168	6987830	10.63	10	45	45	0	0		X			X		
J7	11-Sep-20	13	541174	6987828	12.01	95	0	0	5	0		X			X		
J7	11-Sep-20	14	541185	6987818	21.31	20	20	50	10	0		X			X		
J7	11-Sep-20	15	541193	6987812	22.07	100	0	0	0	0		X			X		
J7	11-Sep-20	16	541211	6987801	24.55	70	10	20	0	0		X			X		
J7	11-Sep-20	17	541230	6987788	25.60	20	20	50	10	0		X			X		
J7	11-Sep-20	18	541245	6987773	24.27	95	0	5	0	0		X			X		
J7	11-Sep-20	19	541262	6987756	46.60	20	35	40	5	0		X			X		

Table B-3: Littoral Substrate Data Collected from Ground-Based and Aerial (for W1 only) Visual Surveys, 2020-2021

Waterbody Name	Date	Habitat Unit	Start Coordinates		Shoreline Length (m)	Relative Composition (%)					Aquatic Vegetation			Vegetation Type			Comments
			Easting	Northing		Fines	Gravel	Cobble	Boulder	Bedrock	None	Sparse	Abundant	Moss	Sedge/Reeds	Vascular	
J7	11-Sep-20	20	541287	6987724	107.01	85	5	5	5	0		X			X		
J7	11-Sep-20	21	541372	6987683	48.88	35	40	20	5	0		X			X		
J7	11-Sep-20	22	541409	6987687	33.31	65	10	20	5	0		X			X		
J7	11-Sep-20	23	541428	6987698	42.56	5	20	65	10	0		X			X		
J7	11-Sep-20	24	541452	6987726	58.15	70	0	30	0	0		X			X		
J7	11-Sep-20	25	541432	6987730	33.17	30	5	60	5	0		X			X		
J7	11-Sep-20	26	541422	6987746	107.31	100	0	0	0	0		X			X		
J7	11-Sep-20	27	541363	6987808	30.87	60	0	20	20	0		X			X		
J7	11-Sep-20	28	541332	6987823	15.09	25	15	30	30	0		X			X		
J7	11-Sep-20	29	541327	6987831	50.04	29	35	35	1	0		X			X		
J7	11-Sep-20	30	541289	6987849	66.11	95	0	5	0	0		X			X		
J7	11-Sep-20	31	541234	6987885	87.08	100	0	0	0	0		X			X		
Total					**1255.93**	**61**	**12**	**22**	**4**	**0**							
J6	11-Sep-20	1	540857	6988218	13.60	30	20	45	5	0		X			X		
J6	11-Sep-20	2	540865	6988228	87.87	20	10	60	10	0		X			X		
J6	11-Sep-20	3	540940	6988248	34.68	90	0	5	5	0		X			X		
J6	11-Sep-20	4	540953	6988231	38.80	20	5	65	10	0		X			X		
J6	11-Sep-20	5	540967	6988200	34.43	0	5	75	20	0		X			X		
J6	11-Sep-20	6	540990	6988184	31.82	50	10	25	15	0		X			X		
J6	11-Sep-20	7	541011	6988163	62.97	10	10	60	20	0		X			X		
J6	11-Sep-20	8	541009	6988112	328.77	0	5	70	25	0		X			X		
Total					**632.93**	**27**	**8**	**51**	**14**	**0**							
B26	12-Sep-20	1	537257	6990427	11.77	70	5	20	5	0		X			X		appears to have been dry previously (see cracks photo 7:51), ephemeral, connected to B25 via ephemeral OF, lake photo 7:54, does not appear to connect to US waterbodies, ~0.3 m depth, currently ice covered.
B26	12-Sep-20	2	537251	6990423	47.65	100	0	0	0	0		X			X		
B26	12-Sep-20	3	537234	6990410	17.12	85	5	5	5	0		X			X		
B26	12-Sep-20	4	537243	6990392	71.92	98	0	1	1	0		X			X		
B26	12-Sep-20	5	537259	6990359	22.48	75	5	15	5	0		X			X		
B26	12-Sep-20	6	537256	6990377	28.16	99	0	0	1	0		X			X		
B26	12-Sep-20	7	537263	6990396	12.91	50	0	20	30	0		X			X		
B26	12-Sep-20	8	537269	6990401	19.44	100	0	0	0	0		X			X		
B26	12-Sep-20	9	537272	6990416	47.54	70	0	10	20	0		X			X		
Total					**278.98**	**83**	**2**	**8**	**7**	**0**							
A20	21-Jun-21	1	542533	6986763	61.39	30	5	55	10	0			X		X		Water pooling in low-lying area, no visible downstream connectivity at the time of the survey.
A20	21-Jun-21	2	542558	6986741	41.05	5	30	50	15	0		X			X		
A20	21-Jun-21	3	542590	6986736	175.33	5	5	60	30	0		X			X		
A20	21-Jun-21	4	542621	6986838	111.66	60	5	25	10	0			X		X		
A20	21-Jun-21	5	542557	6986867	26.67	50	20	25	5	0		X			X		
A20	21-Jun-21	6	542538	6986861	17.45	50	0	40	10	0		X			X		
A20	21-Jun-21	7	542522	6986854	28.50	100	0	0	0	0		X			X		
A20	21-Jun-21	8	542511	6986827	20.09	40	5	50	5	0		X			X		
A20	21-Jun-21	9	542514	6986814	63.43	10	10	65	15	0			X		X		
Total					**545.58**	**39**	**9**	**41**	**11**	**0**							
A21	21-Jun-21	1	-	-	188.48	100	0	0	0	0		X			X		Possibly connected at high flow. Approx. Depth: 0.15 m. No visible downstream connectivity at the time of the survey.
Total					**188.48**	**100**	**0**	**0**	**0**	**0**							

Table B-3: Littoral Substrate Data Collected from Ground-Based and Aerial (for W1 only) Visual Surveys, 2020-2021

Waterbody Name	Date	Habitat Unit	Start Coordinates		Shoreline Length (m)	Relative Composition (%)					Aquatic Vegetation			Vegetation Type			Comments
			Easting	Northing		Fines	Gravel	Cobble	Boulder	Bedrock	None	Sparse	Abundant	Moss	Sedge/Reeds	Vascular	
A22	21-Jun-21	1	542296	6986662	43.83	55	5	35	5	0		X			X		No visible downstream connectivity at the time of the survey. Signs of higher water, possibly connected at high flow.
A22	21-Jun-21	2	542257	6986677	16.42	80	5	10	5	0		X			X		
A22	21-Jun-21	3	542246	6986663	22.81	100	0	0	0	0		X			X		
A22	21-Jun-21	4	542244	6986638	144.35	60	10	20	10	0		X			X		
Total					**227.41**	**74**	**5**	**16**	**5**	**0**							
A23	21-Jun-21	1	542204	6986726	9.83	80	5	15	0	0		X			X		Connected to A22 downstream at high flow via overland flow.
A23	21-Jun-21	2	542201	6986732	50.30	100	0	0	0	0		X			X		
A23	21-Jun-21	3	542153	6986737	26.81	75	5	15	5	0		X			X		
A23	21-Jun-21	4	542150	6986712	39.54	30	20	40	10	0		X			X		
A23	21-Jun-21	5	542168	6986690	48.61	60	15	20	5	0		X			X		
A23	21-Jun-21	6	542192	6986694	21.11	96	0	2	2	0		X			X		
A23	21-Jun-21	7	542207	6986703	5.72	70	5	15	10	0		X			X		
A23	21-Jun-21	8	542206	6986708	33.50	100	0	0	0	0		X			X		
Total					**235.41**	**76**	**6**	**13**	**4**	**0**							
A24	21-Jun-21	1	-	-	105.08	100	0	0	0	0		X			X		Likely only connected to A23 at high flow. Signs of overland flow between A24 and A23. not connected at the time of the survey.
Total					**105.08**	**100**	**0**	**0**	**0**	**0**							
A25	21-Jun-21	1	542089	6986835	59.02	100	0	0	0	0		X			X		Likely connected to upstream/downstream ponds at high flow. Connected via overland flow.
A25	21-Jun-21	2	542051	6986839	16.88	80	5	10	5	0		X			X		
A25	21-Jun-21	3	542061	6986829	7.94	100	0	0	0	0		X			X		
A25	21-Jun-21	4	542063	6986823	71.22	80	5	10	5	0		X			X		
Total					**155.06**	**90**	**3**	**5**	**3**	**0**							
A26	21-Jun-21	1	541990	6986905	10.60	55	10	30	5	0		X			X		Connected to upstream/downstream ponds at high flow.
A26	21-Jun-21	2	541991	6986895	61.37	20	35	40	5	0	X						
A26	21-Jun-21	3	542037	6986865	174.02	100	0	0	0	0		X			X		
A26	21-Jun-21	4	542050	6986919	53.47	80	0	15	5	0		X			X		
A26	21-Jun-21	5	542004	6986929	27.95	100	0	0	0	0		X			X		
Total					**327.41**	**71**	**9**	**17**	**3**	**0**							
A27	21-Jun-21	1	542057	6987006	22.69	80	5	10	5	0		X			X		Connected to upstream/downstream ponds at high flow. Evidence of overland flow.
A27	21-Jun-21	2	542041	6987020	24.79	30	15	50	5	0		X			X		
A27	21-Jun-21	3	542028	6987034	54.08	100	0	0	0	0		X			X		
A27	21-Jun-21	4	541994	6987049	22.85	30	15	55	0	0		X			X		
A27	21-Jun-21	5	541972	6987049	22.71	100	0	0	0	0	X						
A27	21-Jun-21	6	541960	6987031	80.05	30	20	40	10	0		X			X		
A27	21-Jun-21	7	541982	6986976	243.12	90	0	7	3	0		X			X		
Total					**470.28**	**66**	**8**	**23**	**3**	**0**							
A28	21-Jun-21	1	541957	6987092	41.28	20	0	55	25	0		X			X		Connected to A27 via ephemeral overland flow.
A28	21-Jun-21	2	541966	6987100	13.56	90	0	5	5	0		X			X		
A28	21-Jun-21	3	541973	6987114	58.24	10	5	65	20	0		X			X		
A28	21-Jun-21	4	541995	6987153	254.38	100	0	0	0	0		X			X		
A28	21-Jun-21	5	541882	6987306	8.29	80	0	15	5	0		X			X		
A28	21-Jun-21	6	541881	6987303	150.35	100	0	0	0	0		X			X		
A28	21-Jun-21	7	541827	6987207	27.58	20	5	65	10	0		X			X		
A28	21-Jun-21	8	541831	6987192	186.65	100	0	0	0	0		X			X		
Total					**740.33**	**65**	**1**	**26**	**8**	**0**							
A32	20-Jun-21	1	-	-	144.99	10	15	60	15	0		X			X		No visible downstream connectivity at the time of the survey, signs of higher water indicate it is likely to be connected at high flow. Depth: ~ 0.35 m.
Total					**144.99**	**10**	**15**	**60**	**15**	**0**							

Table B-3: Littoral Substrate Data Collected from Ground-Based and Aerial (for W1 only) Visual Surveys, 2020-2021

Waterbody Name	Date	Habitat Unit	Start Coordinates		Shoreline Length (m)	Relative Composition (%)					Aquatic Vegetation			Vegetation Type			Comments
			Easting	Northing		Fines	Gravel	Cobble	Boulder	Bedrock	None	Sparse	Abundant	Moss	Sedge/Reeds	Vascular	
A34	20-Jun-21	1	541413	6986831	29.66	70	0	20	10	0			X		X		No visible downstream connectivity at the time of the survey, signs of higher water indicate it is likely connected at high flow. Depth: ~0.5 m.
A34	20-Jun-21	2	541418	6986848	25.66	20	0	60	20	0		X			X		
A34	20-Jun-21	3	541409	6986858	90.30	0	0	70	30	0		X			X		
A34	20-Jun-21	4	541349	6986855	30.11	0	30	60	10	0		X			X		
A34	20-Jun-21	5	541358	6986844	15.44	0	10	60	30	0			X		X		
A34	20-Jun-21	6	541369	6986835	98.28	30	10	30	30	0			X		X		
Total					**289.45**	**20**	**8**	**50**	**22**	**0**							
A33	21-Jun-21	1	541453	6986744	331.09	20	10	40	30	0		X			X		Fish-bearing. NSSB visually observed. Connected via ephemeral overland flow at high flow. No connectivity at the time of the survey.
A33	21-Jun-21	2	541560	6986756	65.73	5	10	60	25	0		X			X		
A33	21-Jun-21	3	541532	6986781	26.31	100	0	0	0	0			X		X		
A33	21-Jun-21	4	541508	6986788	105.09	5	10	60	25	0		X			X		
Total					**528.22**	**33**	**8**	**40**	**20**	**0**							
D33	28-Aug-21	1	535043	6988649	32.75	100	0	0	0	0		X			X		
D33	28-Aug-21	2	535024	6988629	75.30	20	20	60	0	0		X			X		
D33	28-Aug-21	3	535028	6988567	83.45	10	30	50	10	0		X			X		
D33	28-Aug-21	4	535059	6988519	64.96	5	50	40	5	0		X			X		
D33	28-Aug-21	5	535110	6988494	19.40	80	20	0	0	0	X						
D33	28-Aug-21	6	535127	6988500	17.43	10	20	40	30	0		X			X		
D33	28-Aug-21	7	535142	6988511	28.65	20	30	50	0	0		X			X		
D33	28-Aug-21	8	535144	6988526	12.58	100	0	0	0	0			X		X		
D33	28-Aug-21	9	535142	6988538	16.33	20	20	58	2	0		X			X		
D33	28-Aug-21	10	535139	6988554	14.19	100	0	0	0	0		X			X		
D33	28-Aug-21	11	535136	6988563	83.78	10	25	60	5	0		X			X		
D33	28-Aug-21	12	535119	6988636	83.45	90	0	10	0	0		X			X		
D33	28-Aug-21	13	535062	6988645	24.18	15	10	70	5	0		X			X		
Total					**556.45**	**45**	**17**	**34**	**4**	**0**							
D31	28-Aug-21	1	535254	6988780	479.72	100	0	0	0	0			X		X		Littoral substrate comprised exclusively of mats of organic debris. Littoral area is densely vegetated. Connected to D4 via overland flow (~0.1-0.2 m deep). NSSB were visually observed within D3-D4 (near the DS end).
Total					**479.72**	100	0	0	0	0							
W1	30-Aug-21	1	554282	6983046	91.81	55	10	33	2	0		X			X		
W1	30-Aug-21	2	554258	6983105	413.82	65	10	25	0	0		X			X		
W1	30-Aug-21	3	554094	6983074	62.54	28	30	40	2	0		X			X		
W1	30-Aug-21	4	554147	6983045	95.78	25	15	50	10	0		X			X		
W1	30-Aug-21	5	554228	6983028	70.91	85	0	15	0	0		X			X		
W1	30-Aug-21	6	554254	6982977	155.31	60	5	30	5	0		X			X		
W1	30-Aug-21	7	554291	6982894	227.58	40	10	45	5	0		X			X		
W1	30-Aug-21	8	554401	6982727	103.90	5	25	55	15	0		X			X		
W1	30-Aug-21	9	554473	6982665	80.72	35	20	43	2	0		X			X		
W1	30-Aug-21	10	554518	6982614	140.09	70	8	20	2	0		X			X		
W1	30-Aug-21	11	554604	6982526	42.45	15	35	45	5	0		X			X		
W1	30-Aug-21	12	554642	6982514	70.46	70	5	10	15	0	X						
W1	30-Aug-21	13	554686	6982542	36.11	30	20	40	10	0		X			X		
W1	30-Aug-21	14	554678	6982574	125.43	90	0	10	0	0			X		X		
W1	30-Aug-21	15	554679	6982655	41.39	5	20	60	15	0		X			X		
W1	30-Aug-21	16	554674	6982684	37.30	95	0	5	0	0			X		X		
W1	30-Aug-21	17	554646	6982704	43.87	20	30	48	2	0		X			X		
W1	30-Aug-21	18	554651	6982736	96.18	15	30	55	0	0		X			X		
W1	30-Aug-21	19	554684	6982798	79.78	50	20	30	0	0		X			X		
W1	30-Aug-21	20	554676	6982830	73.49	5	25	70	0	0		X			X		
W1	30-Aug-21	21	554642	6982871	218.51	60	10	30	0	0		X			X		
W1	30-Aug-21	22	554555	6983002	77.55	15	20	60	5	0		X			X		
W1	30-Aug-21	23	554523	6982966	364.96	65	10	25	0	0		X			X		
Total					**2749.95**	**44**	**16**	**37**	**4**	**0**							

Notes:
All UTM coordinates in Zone 15V

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2020	A3	1	543094	6986227	20-Jun	10:05	21-Jun	9:15	23.17	1	0	0	0	1	1.04	0.00	0.00	0.00	1.04
2020	A3	2	543069	6986258	20-Jun	10:09	21-Jun	9:37	23.47	1	0	0	0	1	1.02	0.00	0.00	0.00	1.02
2020	A3	3	543039	6986261	20-Jun	10:12	21-Jun	9:34	23.37	2	0	0	0	2	2.05	0.00	0.00	0.00	2.05
2020	A3	4	543013	6986255	20-Jun	10:15	21-Jun	9:25	23.17	3	0	0	0	3	3.11	0.00	0.00	0.00	3.11
2020	A3	5	543019	6986234	20-Jun	10:18	21-Jun	9:22	23.07	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A3	6	543031	6986217	20-Jun	10:20	21-Jun	8:26	22.10	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A3	7	543037	6986203	20-Jun	10:24	21-Jun	8:27	22.05	1	0	0	0	1	1.09	0.00	0.00	0.00	1.09
2020	A3	8	543052	6986201	20-Jun	10:27	21-Jun	8:35	22.13	6	0	0	0	6	6.51	0.00	0.00	0.00	6.51
2020	A3	9	543068	6986185	20-Jun	10:29	21-Jun	9:00	22.52	4	0	0	0	4	4.26	0.00	0.00	0.00	4.26
2020	A3	10	543088	6986182	20-Jun	10:31	21-Jun	9:12	22.68	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A4	1	542987	6986207	20-Jun	10:45	21-Jun	10:30	23.75	2	0	0	0	2	2.02	0.00	0.00	0.00	2.02
2020	A4	2	542971	6986201	20-Jun	10:49	21-Jun	10:28	23.65	1	0	0	0	1	1.01	0.00	0.00	0.00	1.01
2020	A4	3	542956	6986214	20-Jun	10:51	21-Jun	10:12	23.35	8	0	0	0	8	8.22	0.00	0.00	0.00	8.22
2020	A4	4	542979	6986228	20-Jun	12:13	21-Jun	10:40	22.45	2	0	0	0	2	2.14	0.00	0.00	0.00	2.14
2020	A5	1	542856	6986233	20-Jun	11:03	21-Jun	11:03	24.00	17	0	0	0	17	17.00	0.00	0.00	0.00	17.00
2020	A5	2	542820	6986230	20-Jun	11:06	21-Jun	11:24	24.30	1	0	0	0	1	0.99	0.00	0.00	0.00	0.99
2020	A5	3	542804	6986208	20-Jun	11:09	21-Jun	11:32	24.38	4	0	0	0	4	3.94	0.00	0.00	0.00	3.94
2020	A5	4	542766	6986226	20-Jun	11:12	21-Jun	11:31	24.32	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A5	5	542739	6986257	20-Jun	11:15	21-Jun	11:41	24.43	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A5	6	542712	6986291	20-Jun	11:20	21-Jun	11:43	24.38	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A5	7	542702	6986351	20-Jun	11:26	21-Jun	11:45	24.32	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A5	8	542745	6986367	20-Jun	11:29	21-Jun	11:46	24.28	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A5	9	542775	6986355	20-Jun	11:33	21-Jun	11:48	24.25	9	0	0	0	9	8.91	0.00	0.00	0.00	8.91
2020	A5	10	542875	6986248	20-Jun	11:46	21-Jun	12:13	24.45	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A5	11	542879	6986283	20-Jun	11:49	21-Jun	12:12	24.38	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A5	12	542885	6986299	20-Jun	11:52	21-Jun	12:08	24.27	2	0	0	0	2	1.98	0.00	0.00	0.00	1.98
2020	A5	13	542861	6986339	20-Jun	11:55	21-Jun	12:04	24.15	1	0	0	0	1	0.99	0.00	0.00	0.00	0.99
2020	A5	14	542836	6986343	20-Jun	12:02	21-Jun	12:02	24.00	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A5	15	542819	6986342	20-Jun	12:06	21-Jun	12:01	23.92	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A5	16	542806	6986349	20-Jun	12:09	21-Jun	12:00	23.85	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A19	1	542472	6986479	21-Jun	12:59	22-Jun	8:22	19.38	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A19	2	542442	6986467	21-Jun	13:00	22-Jun	8:23	19.38	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A19	3	542405	6986476	21-Jun	13:03	22-Jun	8:25	19.37	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A19	4	542403	6986546	21-Jun	13:07	22-Jun	8:30	19.38	1	0	0	0	1	1.24	0.00	0.00	0.00	1.24
2020	A19	5	542448	6986557	21-Jun	13:09	22-Jun	8:33	19.40	1	0	0	0	1	1.24	0.00	0.00	0.00	1.24
2020	A19	6	542492	6986561	21-Jun	13:12	22-Jun	8:36	19.40	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A19	7	542518	6986555	21-Jun	13:14	22-Jun	8:38	19.40	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A19	8	542529	6986541	21-Jun	13:17	22-Jun	8:40	19.38	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A19	9	542544	6986522	21-Jun	13:20	22-Jun	8:42	19.37	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A19	10	542518	6986499	21-Jun	13:21	22-Jun	8:44	19.38	2	0	0	0	2	2.48	0.00	0.00	0.00	2.48
2020	A19	11	542490	6986488	21-Jun	13:24	22-Jun	8:21	18.95	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A50	1	542571	6986186	21-Jun	13:38	22-Jun	10:18	20.67	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A50	2	542570	6986196	21-Jun	13:40	22-Jun	11:16	21.60	2	0	0	0	2	2.22	0.00	0.00	0.00	2.22
2020	A50	3	542558	6986207	21-Jun	13:42	22-Jun	11:00	21.30	44	0	0	0	44	49.58	0.00	0.00	0.00	49.58
2020	A50	4	542539	6986193	21-Jun	13:46	22-Jun	10:54	21.13	4	0	0	0	4	4.54	0.00	0.00	0.00	4.54
2020	A50	5	542548	6986183	21-Jun	13:47	22-Jun	10:30	20.72	60	0	0	0	60	69.51	0.00	0.00	0.00	69.51

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2020	A50	6	542560	6986179	21-Jun	13:48	22-Jun	10:21	20.55	3	0	0	0	3	3.50	0.00	0.00	0.00	3.50
2020	A51	1	542567	6986126	21-Jun	13:57	22-Jun	10:34	20.62	1	0	0	0	1	1.16	0.00	0.00	0.00	1.16
2020	A51	2	542579	6986115	21-Jun	13:57	22-Jun	10:36	20.65	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A51	3	542557	6986132	21-Jun	13:59	22-Jun	11:27	21.47	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A51	4	542540	6986127	21-Jun	14:01	22-Jun	11:29	21.47	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A51	5	542545	6986128	21-Jun	14:06	22-Jun	11:28	21.37	1	0	0	0	1	1.12	0.00	0.00	0.00	1.12
2020	A51	6	542530	6986095	21-Jun	14:08	22-Jun	12:01	21.88	5	0	0	0	5	5.48	0.00	0.00	0.00	5.48
2020	A51	7	542528	6986078	21-Jun	14:11	22-Jun	12:04	21.88	3	0	0	0	3	3.29	0.00	0.00	0.00	3.29
2020	A51	8	542536	6986055	21-Jun	14:14	22-Jun	12:16	22.03	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A51	9	542557	6986049	21-Jun	14:16	22-Jun	12:17	22.02	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A51	10	542569	6986044	21-Jun	14:16	22-Jun	12:20	22.07	30	0	0	0	30	32.63	0.00	0.00	0.00	32.63
2020	A51	11	542590	6986049	21-Jun	14:17	22-Jun	11:42	21.42	43	0	0	0	43	48.19	0.00	0.00	0.00	48.19
2020	A51	12	542599	6986075	21-Jun	14:20	22-Jun	11:40	21.33	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A51	13	542597	6986100	21-Jun	14:21	22-Jun	11:38	21.28	1	0	0	0	1	1.13	0.00	0.00	0.00	1.13
2020	A52	1	542596	6986001	22-Jun	13:22	23-Jun	8:57	19.58	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A52	2	542617	6986018	22-Jun	13:23	23-Jun	9:00	19.62	2	0	0	0	2	2.45	0.00	0.00	0.00	2.45
2020	A52	3	542581	6985990	22-Jun	13:22	23-Jun	8:25	19.05	9	0	0	0	9	11.34	0.00	0.00	0.00	11.34
2020	A52	4	542564	6985962	22-Jun	13:23	23-Jun	8:42	19.32	19	0	0	0	19	23.61	0.00	0.00	0.00	23.61
2020	A52	5	542567	6985928	22-Jun	13:28	23-Jun	8:28	19.00	40	0	0	0	40	50.53	0.00	0.00	0.00	50.53
2020	A52	6	542589	6985893	22-Jun	13:31	23-Jun	8:22	18.85	3	0	0	0	3	3.82	0.00	0.00	0.00	3.82
2020	A52	7	542604	6985872	22-Jun	13:32	23-Jun	8:15	18.72	5	0	0	0	5	6.41	0.00	0.00	0.00	6.41
2020	A52	8	542641	6985862	22-Jun	13:37	23-Jun	8:09	18.53	2	0	0	0	2	2.59	0.00	0.00	0.00	2.59
2020	A52	9	542697	6985825	22-Jun	13:39	23-Jun	8:06	18.45	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A52	10	542669	6985835	22-Jun	13:38	23-Jun	8:07	18.48	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A52	11	542716	6985803	22-Jun	13:42	23-Jun	8:02	18.33	1	0	0	0	1	1.31	0.00	0.00	0.00	1.31
2020	A52	12	542766	6985763	22-Jun	13:49	23-Jun	7:49	18.00	1	0	0	0	1	1.33	0.00	0.00	0.00	1.33
2020	A52	13	542786	6985744	22-Jun	13:50	23-Jun	7:46	17.93	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A52	14	542809	6985725	22-Jun	13:50	23-Jun	7:45	17.92	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A52	15	542652	6986018	22-Jun	14:06	23-Jun	10:13	20.12	13	0	0	0	13	15.51	0.00	0.00	0.00	15.51
2020	A52	16	542683	6986013	22-Jun	14:08	23-Jun	10:22	20.23	1	0	0	0	1	1.19	0.00	0.00	0.00	1.19
2020	A52	17	542704	6986015	22-Jun	14:10	23-Jun	10:26	20.27	1	0	0	0	1	1.18	0.00	0.00	0.00	1.18
2020	A52	18	542735	6986036	22-Jun	14:11	23-Jun	10:29	20.30	3	0	0	0	3	3.55	0.00	0.00	0.00	3.55
2020	A52	19	542759	6986011	22-Jun	14:16	23-Jun	10:35	20.32	4	0	0	0	4	4.73	0.00	0.00	0.00	4.73
2020	A52	20	542787	6985983	22-Jun	14:18	23-Jun	10:42	20.40	1	0	0	0	1	1.18	0.00	0.00	0.00	1.18
2020	A52	21	542806	6985956	22-Jun	14:20	23-Jun	10:46	20.43	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A52	22	542840	6985939	22-Jun	14:24	23-Jun	10:49	20.42	0	0	**0**	0	**0**	**0.00**	**0.00**	**0.00**	0.00	**0.00**
2020	*A52*	*23*	*542870*	*6985906*	22-Jun	14:26	23-Jun	10:57	20.52	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A52	24	542884	6985890	22-Jun	14:27	23-Jun	10:59	20.53	1	0	0	0	1	1.17	0.00	0.00	0.00	1.17
2020	A52	25	542907	6985868	22-Jun	14:28	23-Jun	11:03	20.58	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A52	26	542927	6985845	22-Jun	14:32	23-Jun	11:06	20.57	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A52	27	542946	6985811	22-Jun	14:36	23-Jun	11:09	20.55	1	0	0	0	1	1.17	0.00	0.00	0.00	1.17
2020	A52	28	542961	6985791	22-Jun	14:37	23-Jun	11:13	20.60	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A52	29	542958	6985771	22-Jun	14:37	23-Jun	11:14	20.62	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A52	30	542741	6985782	22-Jun	13:48	23-Jun	7:54	18.10	1	0	0	0	1	1.33	0.00	0.00	0.00	1.33
2020	A2	1	543214	6986096	23-Jun	12:21	24-Jun	10:25	22.07	5	0	0	0	5	5.44	0.00	0.00	0.00	5.44
2020	A2	2	543192	6986112	23-Jun	12:22	24-Jun	10:29	22.12	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2020	A2	3	543171	6986125	23-Jun	12:23	24-Jun	10:30	22.12	2	0	0	0	2	2.17	0.00	0.00	0.00	2.17
2020	A2	4	543232	6986091	23-Jun	12:21	24-Jun	10:05	21.73	43	6	0	0	49	47.48	6.63	0.00	0.00	54.11
2020	A2	5	543252	6986082	23-Jun	12:22	24-Jun	9:52	21.50	18	5	0	0	23	20.09	5.58	0.00	0.00	25.67
2020	A2	6	543274	6986076	23-Jun	12:31	24-Jun	9:51	21.33	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A2	7	543298	6986075	23-Jun	12:32	24-Jun	9:48	21.27	2	0	0	0	2	2.26	0.00	0.00	0.00	2.26
2020	A2	8	543324	6986079	23-Jun	12:33	24-Jun	9:31	20.97	39	2	0	0	41	44.64	2.29	0.00	0.00	46.93
2020	A2	9	543335	6986103	23-Jun	12:34	24-Jun	9:28	20.90	2	0	0	0	2	2.30	0.00	0.00	0.00	2.30
2020	A2	10	543326	6986125	23-Jun	12:39	24-Jun	9:27	20.80	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A2	11	543349	6986128	23-Jun	12:41	24-Jun	9:10	20.48	3	1	0	0	4	3.52	1.17	0.00	0.00	4.69
2020	A2	12	543343	6986154	23-Jun	12:42	24-Jun	9:14	20.53	24	4	0	0	28	28.05	4.68	0.00	0.00	32.73
2020	A2	13	543372	6986126	23-Jun	12:44	24-Jun	9:07	20.38	2	0	0	0	2	2.35	0.00	0.00	0.00	2.35
2020	A2	14	543401	6986133	23-Jun	12:45	24-Jun	8:59	20.23	9	2	0	0	11	10.68	2.37	0.00	0.00	13.05
2020	A2	15	543414	6986127	23-Jun	12:51	24-Jun	8:55	20.07	0	3	0	0	3	0.00	3.59	0.00	0.00	3.59
2020	A2	16	543432	6986126	23-Jun	12:52	24-Jun	8:54	20.03	1	0	0	0	1	1.20	0.00	0.00	0.00	1.20
2020	A2	17	543474	6986120	23-Jun	12:54	24-Jun	11:08	22.23	4	2	0	0	6	4.32	2.16	0.00	0.00	6.48
2020	A2	18	543506	6986146	23-Jun	12:55	24-Jun	11:15	22.33	13	2	0	0	15	13.97	2.15	0.00	0.00	16.12
2020	A2	19	543526	6986170	23-Jun	12:56	24-Jun	11:21	22.42	5	1	0	0	6	5.35	1.07	0.00	0.00	6.42
2020	A2	20	543533	6986140	23-Jun	13:01	24-Jun	11:27	22.43	1	0	0	0	1	1.07	0.00	0.00	0.00	1.07
2020	A2	21	543558	6986130	23-Jun	13:03	24-Jun	11:34	22.52	5	2	0	0	7	5.33	2.13	0.00	0.00	7.46
2020	A2	22	543572	6986121	23-Jun	13:04	24-Jun	11:38	22.57	3	2	0	0	5	3.19	2.13	0.00	0.00	5.32
2020	A2	23	543588	6986115	23-Jun	13:04	24-Jun	11:42	22.63	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A2	24	543607	6986123	23-Jun	13:05	24-Jun	11:43	22.63	4	2	0	0	6	4.24	2.12	0.00	0.00	6.36
2020	A2	25	543622	6986132	23-Jun	13:12	24-Jun	11:49	22.62	1	2	0	0	3	1.06	2.12	0.00	0.00	3.18
2020	A2	26	543634	6986155	23-Jun	13:14	24-Jun	11:53	22.65	3	2	0	0	5	3.18	2.12	0.00	0.00	5.30
2020	A2	27	543635	6986172	23-Jun	13:15	24-Jun	11:56	22.68	2	0	0	0	2	2.12	0.00	0.00	0.00	2.12
2020	A2	28	543641	6986185	23-Jun	13:15	24-Jun	12:00	22.75	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A2	29	543615	6986205	23-Jun	13:16	24-Jun	12:01	22.75	1	0	0	0	1	1.05	0.00	0.00	0.00	1.05
2020	A2	30	543595	6986219	23-Jun	13:17	24-Jun	12:03	22.77	1	1	0	0	2	1.05	1.05	0.00	0.00	2.11
2020	A1	1	543722	6986138	24-Jun	12:50	26-Jun	8:15	43.42	0	1	0	0	1	0.00	0.55	0.00	0.00	0.55
2020	A1	2	543747	6986138	24-Jun	12:52	26-Jun	8:19	43.45	1	2	0	0	3	0.55	1.10	0.00	0.00	1.66
2020	A1	3	543771	6986139	24-Jun	12:52	26-Jun	8:31	43.65	0	14	0	0	14	0.00	7.70	0.00	0.00	7.70
2020	A1	4	543796	6986138	24-Jun	12:54	26-Jun	8:36	43.70	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	5	543832	6986131	24-Jun	12:58	26-Jun	8:38	43.67	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	6	543863	6986119	24-Jun	13:00	26-Jun	8:39	43.65	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	7	543888	6986106	24-Jun	13:01	26-Jun	8:40	43.65	0	1	0	0	1	0.00	0.55	0.00	0.00	0.55
2020	A1	8	543919	6986083	24-Jun	13:02	26-Jun	8:42	43.67	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	9	543947	6986074	24-Jun	13:05	26-Jun	8:44	43.65	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	10	543983	6986066	24-Jun	13:06	26-Jun	8:45	43.65	1	0	0	0	1	0.55	0.00	0.00	0.00	0.55
2020	A1	11	544002	6986057	24-Jun	13:06	26-Jun	8:47	43.68	0	2	0	0	2	0.00	1.10	0.00	0.00	1.10
2020	A1	12	544025	6986036	24-Jun	13:07	26-Jun	8:50	43.72	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	13	544046	6986014	24-Jun	13:14	26-Jun	8:51	43.62	1	0	0	0	1	0.55	0.00	0.00	0.00	0.55
2020	A1	14	544058	6986010	24-Jun	13:15	26-Jun	8:53	43.63	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	15	544059	6985993	24-Jun	13:15	26-Jun	8:54	43.65	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	16	543705	6986108	24-Jun	13:31	26-Jun	9:21	43.83	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	17	543710	6986082	24-Jun	13:33	26-Jun	9:22	43.82	2	4	0	0	6	1.10	2.19	0.00	0.00	3.29
2020	A1	18	543723	6986061	24-Jun	13:33	26-Jun	9:27	43.90	0	2	0	0	2	0.00	1.09	0.00	0.00	1.09

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2020	A1	19	543758	6986051	24-Jun	13:35	26-Jun	9:29	43.90	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	20	543773	6986030	24-Jun	13:38	26-Jun	9:31	43.88	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	21	543789	6986007	24-Jun	13:40	26-Jun	9:32	43.87	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	22	543799	6985988	24-Jun	13:41	26-Jun	9:33	43.87	2	0	0	0	2	1.09	0.00	0.00	0.00	1.09
2020	A1	23	543792	6985969	24-Jun	13:42	26-Jun	9:36	43.90	1	0	0	0	1	0.55	0.00	0.00	0.00	0.55
2020	A1	24	543775	6985949	24-Jun	13:45	26-Jun	9:38	43.88	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	25	543780	6985940	24-Jun	13:46	26-Jun	9:39	43.88	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	26	543791	6985920	24-Jun	13:47	26-Jun	9:40	43.88	0	1	0	0	1	0.00	0.55	0.00	0.00	0.55
2020	A1	27	543824	6985917	24-Jun	13:48	26-Jun	9:42	43.90	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	28	543850	6985919	24-Jun	13:51	26-Jun	9:43	43.87	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	29	543879	6985923	24-Jun	13:52	26-Jun	9:45	43.88	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A1	30	543892	6985912	24-Jun	13:53	26-Jun	9:46	43.88	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	1	541429	6986517	26-Jun	12:16	27-Jun	8:28	20.20	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	2	541410	6986517	26-Jun	12:17	27-Jun	8:27	20.17	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	3	541399	6986512	26-Jun	12:18	27-Jun	8:27	20.15	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	4	541381	6986533	26-Jun	12:19	27-Jun	8:26	20.12	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	5	541360	6986536	26-Jun	12:23	27-Jun	8:25	20.03	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	6	541344	6986542	26-Jun	12:24	27-Jun	8:20	19.93	1	0	0	0	1	1.20	0.00	0.00	0.00	1.20
2020	A31	7	541324	6986553	26-Jun	12:25	27-Jun	8:19	19.90	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	8	541304	6986582	26-Jun	12:26	27-Jun	8:18	19.87	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	9	541301	6986610	26-Jun	12:32	27-Jun	8:17	19.75	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	10	541304	6986623	26-Jun	12:33	27-Jun	8:16	19.72	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	11	541279	6986641	26-Jun	12:34	27-Jun	8:15	19.68	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	12	541260	6986649	26-Jun	12:35	27-Jun	8:13	19.63	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	13	541256	6986670	26-Jun	12:39	27-Jun	9:48	21.15	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	14	541287	6986690	26-Jun	12:42	27-Jun	9:08	20.43	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A31	15	541325	6986681	26-Jun	12:44	27-Jun	8:11	19.45	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A6	1	541471	6986449	26-Jun	12:56	27-Jun	8:30	19.57	1	0	0	0	1	1.23	0.00	0.00	0.00	1.23
2020	A6	2	541472	6986430	26-Jun	12:57	27-Jun	8:32	19.58	2	0	0	0	2	2.45	0.00	0.00	0.00	2.45
2020	A6	3	541492	6986397	26-Jun	12:58	27-Jun	8:35	19.62	6	0	0	0	6	7.34	0.00	0.00	0.00	7.34
2020	A6	4	541503	6986365	26-Jun	12:59	27-Jun	8:41	19.70	3	0	0	0	3	3.65	0.00	0.00	0.00	3.65
2020	A6	5	541522	6986338	26-Jun	13:05	27-Jun	8:44	19.65	1	0	0	0	1	1.22	0.00	0.00	0.00	1.22
2020	A6	6	541532	6986323	26-Jun	13:05	27-Jun	8:46	19.68	8	0	0	0	8	9.75	0.00	0.00	0.00	9.75
2020	A6	7	541548	6986305	26-Jun	13:06	27-Jun	8:52	19.77	10	0	0	0	10	12.14	0.00	0.00	0.00	12.14
2020	A6	8	541558	6986297	26-Jun	13:07	27-Jun	9:00	19.88	1	0	0	0	1	1.21	0.00	0.00	0.00	1.21
2020	A6	9	541596	6986266	26-Jun	13:08	27-Jun	9:03	19.92	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A6	10	541606	6986243	26-Jun	13:13	27-Jun	9:04	19.85	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A6	11	541624	6986228	26-Jun	13:14	27-Jun	9:06	19.87	5	0	0	0	5	6.04	0.00	0.00	0.00	6.04
2020	A6	12	541645	6986214	26-Jun	13:16	27-Jun	9:10	19.90	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A6	13	541664	6986200	26-Jun	13:17	27-Jun	9:12	19.92	3	0	0	0	3	3.62	0.00	0.00	0.00	3.62
2020	A6	14	541684	6986181	26-Jun	13:21	27-Jun	9:15	19.90	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A6	15	541693	6986166	26-Jun	13:20	27-Jun	9:16	19.93	2	0	0	0	2	2.41	0.00	0.00	0.00	2.41
2020	A40	1	539160	6988178	27-Jun	12:26	28-Jun	8:37	20.18	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A40	2	539137	6988188	27-Jun	12:23	28-Jun	8:38	20.25	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A40	3	539128	6988197	27-Jun	12:26	28-Jun	8:15	19.82	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A40	4	539116	6988208	27-Jun	12:27	28-Jun	8:15	19.80	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2020	A40	5	539108	6988224	27-Jun	12:28	28-Jun	8:16	19.80	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A40	6	539149	6988256	27-Jun	12:32	28-Jun	8:18	19.77	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A40	7	539170	6988253	27-Jun	12:32	28-Jun	8:19	19.78	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A40	8	539182	6988241	27-Jun	12:33	28-Jun	8:20	19.78	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A40	9	539199	6988232	27-Jun	12:36	28-Jun	8:21	19.75	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A40	10	539205	6988228	27-Jun	12:36	28-Jun	8:22	19.77	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A40	11	539213	6988223	27-Jun	12:37	28-Jun	8:23	19.77	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A40	12	539224	6988214	27-Jun	12:38	28-Jun	8:24	19.77	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A40	13	539234	6988198	27-Jun	12:42	28-Jun	8:26	19.73	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A40	14	539229	6988182	27-Jun	12:42	28-Jun	8:29	19.78	1	0	0	0	1	1.21	0.00	0.00	0.00	1.21
2020	A40	15	539203	6988174	27-Jun	12:43	28-Jun	8:31	19.80	5	0	0	0	5	6.06	0.00	0.00	0.00	6.06
2020	A8	1	539508	6987884	27-Jun	13:13	28-Jun	8:54	19.68	12	0	0	0	12	14.63	0.00	0.00	0.00	14.63
2020	A8	2	539515	6987871	27-Jun	13:14	28-Jun	9:04	19.83	23	0	0	0	23	27.83	0.00	0.00	0.00	27.83
2020	A8	3	539531	6987847	27-Jun	13:15	28-Jun	9:18	20.05	27	0	0	0	27	32.32	0.00	0.00	0.00	32.32
2020	A8	4	539546	6987822	27-Jun	13:16	28-Jun	9:34	20.30	28	0	0	0	28	33.10	0.00	0.00	0.00	33.10
2020	A8	5	539568	6987805	27-Jun	13:20	28-Jun	9:45	20.42	18	0	0	0	18	21.16	0.00	0.00	0.00	21.16
2020	A8	6	539573	6987779	27-Jun	13:21	28-Jun	9:55	20.57	26	0	0	0	26	30.34	0.00	0.00	0.00	30.34
2020	A8	7	539595	6987770	27-Jun	13:22	28-Jun	10:07	20.75	10	0	0	0	10	11.57	0.00	0.00	0.00	11.57
2020	A8	8	539608	6987752	27-Jun	13:23	28-Jun	10:15	20.87	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A8	9	539627	6987725	27-Jun	13:29	28-Jun	10:16	20.78	25	0	0	0	25	28.87	0.00	0.00	0.00	28.87
2020	A8	10	539648	6987713	27-Jun	13:30	28-Jun	10:27	20.95	38	0	0	0	38	43.53	0.00	0.00	0.00	43.53
2020	A8	11	539665	6987698	27-Jun	13:31	28-Jun	10:38	21.12	9	0	0	0	9	10.23	0.00	0.00	0.00	10.23
2020	A8	12	539688	6987687	27-Jun	13:32	28-Jun	10:45	21.22	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	A8	13	539710	6987672	27-Jun	13:35	28-Jun	10:46	21.18	46	0	0	0	46	52.12	0.00	0.00	0.00	52.12
2020	A8	14	539728	6987650	27-Jun	13:36	28-Jun	10:56	21.33	38	0	0	0	38	42.75	0.00	0.00	0.00	42.75
2020	A8	15	539749	6987616	27-Jun	13:37	28-Jun	11:07	21.50	44	0	0	0	44	49.12	0.00	0.00	0.00	49.12
2020	B60	1	540554	6986265	29-Jun	12:24	30-Jun	8:39	20.25	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	2	540557	6986272	29-Jun	12:25	30-Jun	8:40	20.25	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	3	540554	6986291	29-Jun	12:26	30-Jun	8:41	20.25	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	4	540540	6986304	29-Jun	12:26	30-Jun	8:42	20.27	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	5	540526	6986314	29-Jun	12:27	30-Jun	8:43	20.27	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	6	540513	6986330	29-Jun	12:32	30-Jun	8:44	20.20	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	7	540502	6986336	29-Jun	12:32	30-Jun	8:45	20.22	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	8	540490	6986347	29-Jun	12:33	30-Jun	8:46	20.22	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	9	540475	6986359	29-Jun	12:33	30-Jun	8:47	20.23	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	10	540453	6986360	29-Jun	12:34	30-Jun	8:48	20.23	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	11	540434	6986353	29-Jun	12:38	30-Jun	8:48	20.17	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	12	540424	6986352	29-Jun	12:39	30-Jun	8:49	20.17	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	13	540412	6986348	29-Jun	12:39	30-Jun	8:50	20.18	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	14	540402	6986336	29-Jun	12:40	30-Jun	8:51	20.18	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B60	15	540402	6986321	29-Jun	12:40	30-Jun	8:52	20.20	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B61	1	540736	6986151	29-Jun	11:58	30-Jun	8:24	20.43	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B61	2	540735	6986134	29-Jun	11:58	30-Jun	8:23	20.42	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B61	3	540724	6986162	29-Jun	12:01	30-Jun	8:25	20.40	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B61	4	540708	6986177	29-Jun	12:02	30-Jun	8:26	20.40	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B61	5	540694	6986189	29-Jun	12:06	30-Jun	8:27	20.35	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2020	B61	6	540681	6986200	29-Jun	12:08	30-Jun	8:28	20.33	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B61	7	540675	6986212	29-Jun	12:09	30-Jun	8:29	20.33	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B61	8	540660	6986220	29-Jun	12:10	30-Jun	8:30	20.33	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B61	9	540644	6986228	29-Jun	12:11	30-Jun	8:31	20.33	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B61	10	540631	6986238	29-Jun	12:10	30-Jun	8:32	20.37	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B61	11	540624	6986249	29-Jun	12:14	30-Jun	8:33	20.32	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B61	12	540611	6986260	29-Jun	12:15	30-Jun	8:33	20.30	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B61	13	540602	6986270	29-Jun	12:16	30-Jun	8:34	20.30	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B61	14	540578	6986269	29-Jun	12:17	30-Jun	8:35	20.30	1	0	0	0	1	1.18	0.00	0.00	0.00	1.18
2020	B61	15	540568	6986257	29-Jun	12:18	30-Jun	8:38	20.33	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H2	1	540604	6989444	21-Jul	16:16	22-Jul	10:49	18.55	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H2	2	540601	6989448	21-Jul	16:19	22-Jul	10:49	18.50	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H2	3	540596	6989449	21-Jul	16:20	22-Jul	10:48	18.47	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H2	4	540601	6989443	21-Jul	16:21	22-Jul	10:49	18.47	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H3	1	540478	6989432	21-Jul	16:00	22-Jul	10:36	18.60	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H3	2	540497	6989432	21-Jul	16:02	22-Jul	10:37	18.58	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H3	3	540504	6989422	21-Jul	16:04	22-Jul	10:39	18.58	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H3	4	540514	6989411	21-Jul	16:06	22-Jul	10:40	18.57	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H3	5	540515	6989399	21-Jul	16:07	22-Jul	10:41	18.57	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H3	6	540485	6989402	21-Jul	16:07	22-Jul	10:44	18.62	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H3	7	540474	6989418	21-Jul	16:08	22-Jul	10:35	18.45	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H3	8	540513	6989395	21-Jul	16:26	22-Jul	10:42	18.27	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H3	9	540507	6989387	21-Jul	16:27	22-Jul	10:43	18.27	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H4	1	540346	6989425	21-Jul	15:48	22-Jul	10:26	18.63	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H4	2	540340	6989437	21-Jul	15:50	22-Jul	10:27	18.62	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H4	3	540366	6989438	21-Jul	15:51	22-Jul	10:29	18.63	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H4	4	540369	6989425	21-Jul	15:53	22-Jul	10:30	18.62	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H4	5	540361	6989419	21-Jul	15:53	22-Jul	10:31	18.63	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H4	6	540368	6989423	21-Jul	16:31	22-Jul	10:31	18.00	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H5	1	540233	6989400	21-Jul	15:38	22-Jul	6:59	15.35	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H5	2	540227	6989430	21-Jul	15:39	22-Jul	7:00	15.35	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H5	3	540247	6989465	21-Jul	15:41	22-Jul	7:02	15.35	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H5	4	540272	6989454	21-Jul	15:43	22-Jul	7:03	15.33	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H5	5	540280	6989446	21-Jul	15:44	22-Jul	7:12	15.47	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H5	6	540279	6989425	21-Jul	15:44	22-Jul	7:14	15.50	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H5	7	540290	6989404	21-Jul	15:44	22-Jul	7:16	15.53	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H5	8	540275	6989401	21-Jul	15:45	22-Jul	7:18	15.55	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H5	9	540269	6989395	21-Jul	15:45	22-Jul	7:19	15.57	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H5	10	540257	6989392	21-Jul	15:45	22-Jul	6:56	15.18	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	H5	11	540283	6989415	21-Jul	16:33	22-Jul	7:15	14.70	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B7	1	537338	6990062	22-Jul	16:23	23-Jul	7:18	14.92	6	0	0	0	6	9.65	0.00	0.00	0.00	9.65
2020	B7	2	537338	6990060	22-Jul	16:23	23-Jul	7:23	15.00	8	0	0	0	8	12.80	0.00	0.00	0.00	12.80
2020	B7	3	537365	6990044	22-Jul	16:24	23-Jul	7:27	15.05	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B7	4	537377	6990036	22-Jul	16:24	23-Jul	7:28	15.07	16	0	0	0	16	25.49	0.00	0.00	0.00	25.49
2020	B7	5	537397	6990030	22-Jul	16:24	23-Jul	7:35	15.18	10	0	0	0	10	15.81	0.00	0.00	0.00	15.81
2020	B7	6	537416	6990022	22-Jul	16:25	23-Jul	7:39	15.23	1	0	0	0	1	1.58	0.00	0.00	0.00	1.58

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2020	B7	7	537442	6990019	22-Jul	16:25	23-Jul	7:42	15.28	16	0	0	0	16	25.13	0.00	0.00	0.00	25.13
2020	B7	8	537454	6990026	22-Jul	16:25	23-Jul	7:49	15.40	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B7	9	537469	6990034	22-Jul	16:26	23-Jul	7:51	15.42	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B7	10	537487	6990026	22-Jul	16:26	23-Jul	7:53	15.45	5	0	0	0	5	7.77	0.00	0.00	0.00	7.77
2020	B7	11	537498	6990012	22-Jul	16:27	23-Jul	7:58	15.52	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B7	12	537327	6990070	22-Jul	16:29	23-Jul	7:10	14.68	8	0	0	0	8	13.08	0.00	0.00	0.00	13.08
2020	B7	13	537302	6990077	22-Jul	16:30	23-Jul	7:01	14.52	25	0	0	0	25	41.33	0.00	0.00	0.00	41.33
2020	B7	14	537281	6990099	22-Jul	16:31	23-Jul	6:56	14.42	1	0	0	0	1	1.66	0.00	0.00	0.00	1.66
2020	B7	15	537267	6990109	22-Jul	16:31	23-Jul	6:55	14.40	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B7	16	537619	6990031	22-Jul	16:37	23-Jul	8:51	16.23	22	0	0	0	22	32.53	0.00	0.00	0.00	32.53
2020	B7	17	537652	6990037	22-Jul	16:38	23-Jul	8:44	16.10	16	0	0	0	16	23.85	0.00	0.00	0.00	23.85
2020	B7	18	537681	6990032	22-Jul	16:39	23-Jul	8:42	16.05	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B7	19	537702	6990018	22-Jul	16:40	23-Jul	8:36	15.93	7	0	0	0	7	10.54	0.00	0.00	0.00	10.54
2020	B7	20	537717	6990004	22-Jul	16:41	23-Jul	8:32	15.85	8	0	0	0	8	12.11	0.00	0.00	0.00	12.11
2020	B7	21	537732	6989990	22-Jul	16:46	23-Jul	8:25	15.65	19	0	0	0	19	29.14	0.00	0.00	0.00	29.14
2020	B7	22	537750	6989987	22-Jul	16:47	23-Jul	8:22	15.58	1	0	0	0	1	1.54	0.00	0.00	0.00	1.54
2020	B7	23	537769	6989980	22-Jul	16:35	23-Jul	8:21	15.77	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B7	24	537789	6989976	22-Jul	16:35	23-Jul	8:09	15.57	27	0	0	0	27	41.63	0.00	0.00	0.00	41.63
2020	B7	25	537597	6990034	22-Jul	16:36	23-Jul	9:00	16.40	14	0	0	0	14	20.49	0.00	0.00	0.00	20.49
2020	B7	26	537586	6990034	22-Jul	16:36	23-Jul	9:06	16.50	2	0	0	0	2	2.91	0.00	0.00	0.00	2.91
2020	B7	27	537573	6990033	22-Jul	16:37	23-Jul	9:09	16.53	5	0	0	0	5	7.26	0.00	0.00	0.00	7.26
2020	B7	28	537555	6990030	22-Jul	16:37	23-Jul	9:12	16.58	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B7	29	537536	6990028	22-Jul	16:38	23-Jul	9:13	16.58	4	0	0	0	4	5.79	0.00	0.00	0.00	5.79
2020	B7	30	537522	6990028	22-Jul	16:39	23-Jul	9:17	16.63	63	0	0	0	63	90.90	0.00	0.00	0.00	90.90
2020	B25	1	537398	6990173	23-Jul	10:14	24-Jul	7:47	21.55	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B25	2	537389	6990169	23-Jul	10:14	24-Jul	7:48	21.57	1	0	0	0	1	1.11	0.00	0.00	0.00	1.11
2020	B25	3	537376	6990164	23-Jul	10:15	24-Jul	7:53	21.63	6	0	0	0	6	6.66	0.00	0.00	0.00	6.66
2020	B25	4	537362	6990158	23-Jul	10:16	24-Jul	8:00	21.73	6	0	0	0	6	6.63	0.00	0.00	0.00	6.63
2020	B25	5	537347	6990160	23-Jul	10:17	24-Jul	8:08	21.85	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B25	6	537327	6990168	23-Jul	10:18	24-Jul	8:09	21.85	3	0	0	0	3	3.30	0.00	0.00	0.00	3.30
2020	B25	7	537307	6990199	23-Jul	10:19	24-Jul	8:14	21.92	1	0	0	0	1	1.10	0.00	0.00	0.00	1.10
2020	B25	8	537306	6990221	23-Jul	10:20	24-Jul	8:17	21.95	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B25	9	537290	6990247	23-Jul	10:22	24-Jul	8:19	21.95	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B25	10	537287	6990295	23-Jul	10:23	24-Jul	8:21	21.97	6	0	0	0	6	6.56	0.00	0.00	0.00	6.56
2020	B25	11	537379	6990273	23-Jul	10:30	24-Jul	8:40	22.17	1	0	0	0	1	1.08	0.00	0.00	0.00	1.08
2020	B25	12	537365	6990288	23-Jul	10:31	24-Jul	8:36	22.08	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B25	13	537359	6990310	23-Jul	10:32	24-Jul	8:34	22.03	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B25	14	537346	6990324	23-Jul	10:35	24-Jul	8:31	21.93	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B25	15	537334	6990324	23-Jul	10:36	24-Jul	8:30	21.90	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B25	16	537398	6990255	23-Jul	10:30	24-Jul	8:44	22.23	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B25	17	537401	6990238	23-Jul	10:30	24-Jul	8:46	22.27	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B25	18	537407	6990221	23-Jul	10:31	24-Jul	8:46	22.25	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B25	19	537419	6990206	23-Jul	10:31	24-Jul	8:48	22.28	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B25	20	537424	6990182	23-Jul	10:32	24-Jul	7:39	21.12	2	0	0	0	2	2.27	0.00	0.00	0.00	2.27
2020	B6	1	537923	6989267	24-Jul	13:08	25-Jul	12:30	23.37	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	2	537932	6989259	24-Jul	13:07	25-Jul	12:31	23.40	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2020	B6	3	537940	6989243	24-Jul	13:10	25-Jul	12:32	23.37	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	4	537943	6989223	24-Jul	13:10	25-Jul	12:33	23.38	1	0	0	0	1	1.03	0.00	0.00	0.00	1.03
2020	B6	5	537956	6989202	24-Jul	13:13	25-Jul	12:39	23.43	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	6	537961	6989187	24-Jul	13:14	25-Jul	12:41	23.45	1	0	0	0	1	1.02	0.00	0.00	0.00	1.02
2020	B6	7	537969	6989166	24-Jul	13:17	25-Jul	12:44	23.45	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	8	537980	6989150	24-Jul	13:18	25-Jul	12:45	23.45	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	9	537987	6989132	24-Jul	13:19	25-Jul	12:47	23.47	2	0	0	0	2	2.05	0.00	0.00	0.00	2.05
2020	B6	10	537989	6989113	24-Jul	13:21	25-Jul	12:52	23.52	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	11	537986	6989087	24-Jul	13:23	25-Jul	12:53	23.50	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	12	537973	6989068	24-Jul	13:26	25-Jul	12:56	23.50	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	13	537963	6989056	24-Jul	13:27	25-Jul	12:56	23.48	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	14	537946	6989045	24-Jul	13:28	25-Jul	12:58	23.50	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	15	537927	6989037	24-Jul	13:29	25-Jul	12:58	23.48	1	0	0	0	1	1.02	0.00	0.00	0.00	1.02
2020	B6	16	537921	6989016	24-Jul	13:30	25-Jul	13:05	23.58	1	0	0	0	1	1.02	0.00	0.00	0.00	1.02
2020	B6	17	537925	6988995	24-Jul	13:31	25-Jul	13:09	23.63	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	18	537938	6988978	24-Jul	13:32	25-Jul	13:11	23.65	1	0	0	0	1	1.01	0.00	0.00	0.00	1.01
2020	B6	19	537959	6988969	24-Jul	13:33	25-Jul	13:15	23.70	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	20	537980	6988963	24-Jul	13:34	25-Jul	13:17	23.72	14	0	0	0	14	14.17	0.00	0.00	0.00	14.17
2020	B6	21	537962	6988926	24-Jul	13:41	25-Jul	13:31	23.83	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	22	537947	6988917	24-Jul	13:42	25-Jul	13:32	23.83	3	0	0	0	3	3.02	0.00	0.00	0.00	3.02
2020	B6	23	537929	6988905	24-Jul	13:42	25-Jul	13:37	23.92	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	24	537908	6988900	24-Jul	13:43	25-Jul	13:38	23.92	1	0	0	0	1	1.00	0.00	0.00	0.00	1.00
2020	B6	25	537890	6988900	24-Jul	13:43	25-Jul	13:43	24.00	9	0	0	0	9	9.00	0.00	0.00	0.00	9.00
2020	B6	26	537867	6988911	24-Jul	13:45	25-Jul	13:54	24.15	2	0	0	0	2	1.99	0.00	0.00	0.00	1.99
2020	B6	27	537850	6988930	24-Jul	13:45	25-Jul	13:58	24.22	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	28	537832	6988945	24-Jul	13:46	25-Jul	13:59	24.22	2	0	0	0	2	1.98	0.00	0.00	0.00	1.98
2020	B6	29	537821	6988972	24-Jul	13:46	25-Jul	14:04	24.30	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B6	30	537809	6988978	24-Jul	13:47	25-Jul	14:05	24.30	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B30	1	538024	6988896	25-Jul	14:26	26-Jul	9:44	19.30	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B30	2	538003	6988883	25-Jul	14:27	26-Jul	9:42	19.25	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B30	3	538010	6988876	25-Jul	14:28	26-Jul	9:42	19.23	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B30	4	538021	6988882	25-Jul	14:29	26-Jul	9:39	19.17	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B30	5	538026	6988884	25-Jul	14:30	26-Jul	9:40	19.17	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B30	6	538029	6988886	25-Jul	14:30	26-Jul	9:41	19.18	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B31	1	538097	6988821	25-Jul	14:38	26-Jul	8:34	17.93	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B31	2	538106	6988829	25-Jul	14:39	26-Jul	8:34	17.92	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B31	3	538124	6988820	25-Jul	14:40	26-Jul	8:36	17.93	1	0	0	0	1	1.34	0.00	0.00	0.00	1.34
2020	B31	4	538128	6988806	25-Jul	14:41	26-Jul	8:40	17.98	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B31	5	538129	6988801	25-Jul	14:42	26-Jul	8:41	17.98	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B31	6	538121	6988788	25-Jul	14:40	26-Jul	8:25	17.75	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B31	7	538114	6988786	25-Jul	14:40	26-Jul	8:26	17.77	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B31	8	538100	6988791	25-Jul	14:41	26-Jul	8:27	17.77	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B31	9	538087	6988804	25-Jul	14:41	26-Jul	8:29	17.80	1	0	0	0	1	1.35	0.00	0.00	0.00	1.35
2020	B31	10	538092	6988809	25-Jul	14:44	26-Jul	8:33	17.82	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B32	13	538191	6988769	25-Jul	14:58	26-Jul	14:01	23.05	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B32	14	538197	6988777	25-Jul	14:59	26-Jul	14:02	23.05	1	0	0	0	1	1.04	0.00	0.00	0.00	1.04

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2020	B32	1	538206	6988792	25-Jul	14:53	26-Jul	14:05	23.20	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B32	2	538221	6988800	25-Jul	14:55	26-Jul	14:06	23.18	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B32	3	538244	6988797	25-Jul	14:56	26-Jul	14:07	23.18	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B32	4	538265	6988785	25-Jul	14:57	26-Jul	14:10	23.22	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B32	5	538279	6988778	25-Jul	14:58	26-Jul	14:11	23.22	1	0	0	0	1	1.03	0.00	0.00	0.00	1.03
2020	B32	6	538291	6988768	25-Jul	14:59	26-Jul	14:13	23.23	1	0	0	0	1	1.03	0.00	0.00	0.00	1.03
2020	B32	7	538298	6988749	25-Jul	15:02	26-Jul	14:16	23.23	1	0	0	0	1	1.03	0.00	0.00	0.00	1.03
2020	B32	8	538279	6988718	25-Jul	14:53	26-Jul	14:18	23.42	3	0	0	0	3	3.07	0.00	0.00	0.00	3.07
2020	B32	9	538264	6988714	25-Jul	14:54	26-Jul	14:22	23.47	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B32	10	538233	6988726	25-Jul	14:55	26-Jul	14:23	23.47	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B32	11	538214	6988740	25-Jul	14:56	26-Jul	14:25	23.48	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B32	12	538193	6988748	25-Jul	14:57	26-Jul	14:26	23.48	3	0	0	0	3	3.07	0.00	0.00	0.00	3.07
2020	B5	1	538073	6988694	26-Jul	14:41	27-Jul	16:10	25.48	6	0	0	0	6	5.65	0.00	0.00	0.00	5.65
2020	B5	2	538082	6988682	26-Jul	14:42	27-Jul	16:06	25.40	6	0	0	0	6	5.67	0.00	0.00	0.00	5.67
2020	B5	3	538092	6988672	26-Jul	14:43	27-Jul	16:13	25.50	5	0	0	0	5	4.71	0.00	0.00	0.00	4.71
2020	B5	4	538107	6988660	26-Jul	14:44	27-Jul	16:48	26.07	2	0	0	0	2	1.84	0.00	0.00	0.00	1.84
2020	B5	5	538133	6988645	26-Jul	14:45	27-Jul	16:17	25.53	8	0	0	0	8	7.52	0.00	0.00	0.00	7.52
2020	B5	6	538144	6988642	26-Jul	14:46	27-Jul	16:21	25.58	1	0	0	0	1	0.94	0.00	0.00	0.00	0.94
2020	B5	7	538162	6988633	26-Jul	14:48	27-Jul	16:23	25.58	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B5	8	538176	6988632	26-Jul	14:49	27-Jul	16:24	25.58	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B5	9	538189	6988616	26-Jul	14:50	27-Jul	16:24	25.57	6	0	0	0	6	5.63	0.00	0.00	0.00	5.63
2020	B5	10	538209	6988605	26-Jul	14:51	27-Jul	16:28	25.62	8	0	0	0	8	7.50	0.00	0.00	0.00	7.50
2020	B5	11	538214	6988597	26-Jul	14:52	27-Jul	16:31	25.65	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B5	12	538227	6988581	26-Jul	14:52	27-Jul	16:32	25.67	1	0	0	0	1	0.94	0.00	0.00	0.00	0.94
2020	B5	13	538235	6988572	26-Jul	14:53	27-Jul	16:34	25.68	3	0	0	0	3	2.80	0.00	0.00	0.00	2.80
2020	B5	14	538241	6988555	26-Jul	14:53	27-Jul	16:36	25.72	4	0	0	0	4	3.73	0.00	0.00	0.00	3.73
2020	B5	15	538069	6988698	26-Jul	15:03	27-Jul	16:04	25.02	3	0	0	0	3	2.88	0.00	0.00	0.00	2.88
2020	B5	16	538060	6988706	26-Jul	15:05	27-Jul	16:01	24.93	6	0	0	0	6	5.78	0.00	0.00	0.00	5.78
2020	B5	17	538040	6988718	26-Jul	15:07	27-Jul	15:59	24.87	4	0	0	0	4	3.86	0.00	0.00	0.00	3.86
2020	B5	18	538028	6988729	26-Jul	15:08	27-Jul	15:56	24.80	2	0	0	0	2	1.94	0.00	0.00	0.00	1.94
2020	B5	19	538011	6988734	26-Jul	15:08	27-Jul	15:55	24.78	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B5	20	537996	6988744	26-Jul	15:09	27-Jul	15:53	24.73	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B5	21	537973	6988743	26-Jul	15:09	27-Jul	15:43	24.57	3	0	0	0	3	2.93	0.00	0.00	0.00	2.93
2020	B5	22	537963	6988752	26-Jul	15:10	27-Jul	15:51	24.68	1	0	0	0	1	0.97	0.00	0.00	0.00	0.97
2020	B5	23	537949	6988763	26-Jul	15:00	27-Jul	15:36	24.60	12	0	0	0	12	11.71	0.00	0.00	0.00	11.71
2020	B5	24	537944	6988777	26-Jul	15:11	27-Jul	15:34	24.38	1	0	0	0	1	0.98	0.00	0.00	0.00	0.98
2020	B5	25	537926	6988787	26-Jul	15:12	27-Jul	15:33	24.35	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B5	26	537920	6988795	26-Jul	15:12	27-Jul	15:32	24.33	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B5	27	537901	6988809	26-Jul	15:12	27-Jul	15:31	24.32	2	0	0	0	2	1.97	0.00	0.00	0.00	1.97
2020	B5	28	537893	6988818	26-Jul	15:13	27-Jul	15:29	24.27	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B5	29	537872	6988823	26-Jul	15:14	27-Jul	15:18	24.07	10	0	1	0	11	9.97	0.00	1.00	0.00	10.97
2020	B5	30	537842	6988815	26-Jul	15:15	27-Jul	15:10	23.92	5	0	0	0	5	5.02	0.00	0.00	0.00	5.02
2020	B4	1	539022	6986943	28-Jul	9:07	29-Jul	13:29	28.37	2	0	0	0	2	1.69	0.00	0.00	0.00	1.69
2020	B4	2	539023	6986952	28-Jul	9:08	29-Jul	13:23	28.25	9	0	0	0	9	7.65	0.00	0.00	0.00	7.65
2020	B4	3	539030	6986958	28-Jul	9:09	29-Jul	13:21	28.20	1	0	0	0	1	0.85	0.00	0.00	0.00	0.85
2020	B4	4	539041	6986963	28-Jul	9:10	29-Jul	13:20	28.17	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2020	B4	5	539047	6986972	28-Jul	9:11	29-Jul	13:17	28.10	5	0	0	0	5	4.27	0.00	0.00	0.00	4.27
2020	B4	6	539048	6986986	28-Jul	9:12	29-Jul	13:00	27.80	1	0	0	0	1	0.86	0.00	0.00	0.00	0.86
2020	B4	7	539042	6986997	28-Jul	9:13	29-Jul	12:57	27.73	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B4	8	539034	6987008	28-Jul	9:14	29-Jul	12:54	27.67	1	0	0	0	1	0.87	0.00	0.00	0.00	0.87
2020	B4	9	539032	6987020	28-Jul	9:14	29-Jul	12:53	27.65	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B4	10	539028	6987036	28-Jul	9:15	29-Jul	12:50	27.58	1	0	0	0	1	0.87	0.00	0.00	0.00	0.87
2020	B4	11	539016	6987045	28-Jul	9:15	29-Jul	12:46	27.52	9	0	0	0	9	7.85	0.00	0.00	0.00	7.85
2020	B4	12	539015	6987066	28-Jul	9:16	29-Jul	12:42	27.43	2	0	0	0	2	1.75	0.00	0.00	0.00	1.75
2020	B4	13	539010	6987078	28-Jul	9:16	29-Jul	12:38	27.37	3	0	0	0	3	2.63	0.00	0.00	0.00	2.63
2020	B4	14	539005	6987093	28-Jul	9:17	29-Jul	12:39	27.37	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B4	15	539041	6986935	28-Jul	9:26	29-Jul	14:25	28.98	1	0	0	0	1	0.83	0.00	0.00	0.00	0.83
2020	B4	16	539049	6986928	28-Jul	9:27	29-Jul	14:24	28.95	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B4	17	539054	6986918	28-Jul	9:28	29-Jul	14:17	28.82	13	0	0	0	13	10.83	0.00	0.00	0.00	10.83
2020	B4	18	539054	6986904	28-Jul	9:29	29-Jul	14:12	28.72	13	0	0	0	13	10.86	0.00	0.00	0.00	10.86
2020	B4	19	539061	6986886	28-Jul	9:30	29-Jul	14:09	28.65	2	0	0	0	2	1.68	0.00	0.00	0.00	1.68
2020	B4	20	539065	6986873	28-Jul	9:31	29-Jul	14:07	28.60	2	0	0	0	2	1.68	0.00	0.00	0.00	1.68
2020	B4	21	539057	6986858	28-Jul	9:31	29-Jul	14:03	28.53	3	0	0	0	3	2.52	0.00	0.00	0.00	2.52
2020	B4	22	539070	6986846	28-Jul	9:32	29-Jul	13:57	28.42	9	0	0	0	9	7.60	0.00	0.00	0.00	7.60
2020	B4	23	539070	6986829	28-Jul	9:32	29-Jul	13:54	28.37	2	0	0	0	2	1.69	0.00	0.00	0.00	1.69
2020	B4	24	539077	6986817	28-Jul	9:33	29-Jul	13:50	28.28	1	0	0	0	1	0.85	0.00	0.00	0.00	0.85
2020	B4	25	539083	6986805	28-Jul	9:33	29-Jul	13:47	28.23	6	0	0	0	6	5.10	0.00	0.00	0.00	5.10
2020	B4	26	539095	6986794	28-Jul	9:34	29-Jul	13:44	28.17	4	0	0	0	4	3.41	0.00	0.00	0.00	3.41
2020	B4	27	539101	6986781	28-Jul	9:34	29-Jul	13:42	28.13	1	0	0	0	1	0.85	0.00	0.00	0.00	0.85
2020	B4	28	539103	6986763	28-Jul	9:35	29-Jul	13:38	28.05	9	0	0	0	9	7.70	0.00	0.00	0.00	7.70
2020	B4	29	539105	6986751	28-Jul	9:35	29-Jul	13:36	28.02	1	0	0	0	1	0.86	0.00	0.00	0.00	0.86
2020	B4	30	539098	6986734	28-Jul	9:36	29-Jul	13:35	27.98	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B36	1	539459	6986762	29-Jul	15:00	30-Jul	8:36	17.60	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B36	2	539466	6986759	29-Jul	15:01	30-Jul	8:39	17.63	3	0	0	0	3	4.08	0.00	0.00	0.00	4.08
2020	B36	3	539481	6986754	29-Jul	15:03	30-Jul	8:43	17.67	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B36	4	539500	6986757	29-Jul	15:05	30-Jul	8:44	17.65	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B36	5	539509	6986753	29-Jul	15:06	30-Jul	8:45	17.65	2	0	0	0	2	2.72	0.00	0.00	0.00	2.72
2020	B36	6	539514	6986759	29-Jul	15:07	30-Jul	8:46	17.65	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B36	7	539522	6986760	29-Jul	15:08	30-Jul	8:49	17.68	2	0	0	0	2	2.71	0.00	0.00	0.00	2.71
2020	B36	8	539531	6986761	29-Jul	15:09	30-Jul	8:53	17.73	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B36	9	539549	6986762	29-Jul	15:09	30-Jul	8:54	17.75	2	0	0	0	2	2.70	0.00	0.00	0.00	2.70
2020	B36	10	539558	6986773	29-Jul	15:10	30-Jul	8:55	17.75	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B37	1	539651	6986711	29-Jul	15:18	30-Jul	9:05	17.78	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B37	2	539661	6986704	29-Jul	15:20	30-Jul	9:07	17.78	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B37	3	539671	6986695	29-Jul	15:21	30-Jul	9:08	17.78	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B37	4	539689	6986690	29-Jul	15:21	30-Jul	9:10	17.82	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B37	5	539693	6986672	29-Jul	15:22	30-Jul	9:12	17.83	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B37	6	539701	6986662	29-Jul	15:22	30-Jul	9:14	17.87	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B37	7	539713	6986656	29-Jul	15:23	30-Jul	9:17	17.90	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B37	8	539722	6986655	29-Jul	15:23	30-Jul	9:18	17.92	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B37	9	539740	6986656	29-Jul	15:24	30-Jul	9:19	17.92	3	0	0	0	3	4.02	0.00	0.00	0.00	4.02
2020	B37	10	539758	6986670	29-Jul	15:24	30-Jul	9:25	18.02	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2020	B38	1	539819	6986635	29-Jul	15:31	30-Jul	9:29	17.97	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B38	2	539828	6986633	29-Jul	15:32	30-Jul	9:30	17.97	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B38	3	539843	6986619	29-Jul	15:33	30-Jul	9:31	17.97	2	0	0	0	2	2.67	0.00	0.00	0.00	2.67
2020	B38	4	539850	6986611	29-Jul	15:34	30-Jul	9:37	18.05	2	0	0	0	2	2.66	0.00	0.00	0.00	2.66
2020	B38	5	539866	6986597	29-Jul	15:34	30-Jul	9:42	18.13	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B38	6	539879	6986588	29-Jul	15:35	30-Jul	9:43	18.13	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B38	7	539896	6986587	29-Jul	15:35	30-Jul	9:45	18.17	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B38	8	539912	6986580	29-Jul	15:36	30-Jul	9:46	18.17	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B38	9	539927	6986575	29-Jul	15:36	30-Jul	9:49	18.22	1	0	0	0	1	1.32	0.00	0.00	0.00	1.32
2020	B38	10	539945	6986577	29-Jul	15:37	30-Jul	9:50	18.22	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B62	1	540243	6986542	30-Jul	12:54	31-Jul	13:55	25.02	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B62	2	540247	6986525	30-Jul	12:55	31-Jul	13:56	25.02	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B62	3	540241	6986512	30-Jul	12:55	31-Jul	13:57	25.03	1	0	0	0	1	0.96	0.00	0.00	0.00	0.96
2020	B62	4	540234	6986502	30-Jul	12:56	31-Jul	14:01	25.08	1	0	0	0	1	0.96	0.00	0.00	0.00	0.96
2020	B62	5	540241	6986486	30-Jul	12:57	31-Jul	14:02	25.08	11	0	0	0	11	10.52	0.00	0.00	0.00	10.52
2020	B62	6	540231	6986471	30-Jul	12:57	31-Jul	14:16	25.32	2	0	0	0	2	1.90	0.00	0.00	0.00	1.90
2020	B62	7	540233	6986459	30-Jul	12:58	31-Jul	14:17	25.32	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B62	8	540235	6986446	30-Jul	12:59	31-Jul	14:19	25.33	4	0	0	0	4	3.79	0.00	0.00	0.00	3.79
2020	B62	9	540239	6986438	30-Jul	13:00	31-Jul	14:33	25.55	2	0	0	0	2	1.88	0.00	0.00	0.00	1.88
2020	B62	10	540246	6986422	30-Jul	13:00	31-Jul	14:34	25.57	2	0	0	0	2	1.88	0.00	0.00	0.00	1.88
2020	B62	11	540258	6986563	30-Jul	13:05	31-Jul	13:53	24.80	1	0	0	0	1	0.97	0.00	0.00	0.00	0.97
2020	B62	12	540270	6986568	30-Jul	13:05	31-Jul	13:49	24.73	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B62	13	540284	6986562	30-Jul	13:06	31-Jul	13:47	24.68	2	0	0	0	2	1.94	0.00	0.00	0.00	1.94
2020	B62	14	540290	6986566	30-Jul	13:07	31-Jul	13:45	24.63	1	0	0	0	1	0.97	0.00	0.00	0.00	0.97
2020	B62	15	540304	6986556	30-Jul	13:07	31-Jul	13:43	24.60	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B62	16	540315	6986547	30-Jul	13:08	31-Jul	13:42	24.57	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B62	17	540326	6986536	30-Jul	13:08	31-Jul	13:41	24.55	1	0	0	0	1	0.98	0.00	0.00	0.00	0.98
2020	B62	18	540334	6986528	30-Jul	13:09	31-Jul	13:38	24.48	1	0	0	0	1	0.98	0.00	0.00	0.00	0.98
2020	B62	19	540345	6986515	30-Jul	13:09	31-Jul	13:34	24.42	1	0	0	0	1	0.98	0.00	0.00	0.00	0.98
2020	B62	20	540352	6986505	30-Jul	13:10	31-Jul	13:32	24.37	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B33	1	538722	6988637	1-Aug	15:20	2-Aug	7:39	16.32	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B33	2	538733	6988622	1-Aug	15:21	2-Aug	7:39	16.30	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B33	3	538742	6988616	1-Aug	15:22	2-Aug	7:38	16.27	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B33	4	538751	6988610	1-Aug	15:23	2-Aug	7:37	16.23	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B33	5	538765	6988615	1-Aug	15:24	2-Aug	7:35	16.18	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B33	6	538781	6988613	1-Aug	15:24	2-Aug	7:47	16.38	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B33	7	538788	6988627	1-Aug	15:25	2-Aug	7:46	16.35	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B33	8	538799	6988638	1-Aug	15:25	2-Aug	7:45	16.33	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B33	9	538800	6988650	1-Aug	15:26	2-Aug	7:44	16.30	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B33	10	538803	6988665	1-Aug	15:26	2-Aug	7:43	16.28	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B34	1	539216	6987741	1-Aug	14:18	2-Aug	8:50	18.53	3	0	0	0	3	3.88	0.00	0.00	0.00	3.88
2020	B34	2	539208	6987750	1-Aug	14:18	2-Aug	8:55	18.62	1	0	0	0	1	1.29	0.00	0.00	0.00	1.29
2020	B34	3	539199	6987762	1-Aug	14:19	2-Aug	8:56	18.62	3	0	0	0	3	3.87	0.00	0.00	0.00	3.87
2020	B34	4	539191	6987770	1-Aug	14:25	2-Aug	9:02	18.62	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B34	5	539184	6987778	1-Aug	14:26	2-Aug	9:03	18.62	1	0	0	0	1	1.29	0.00	0.00	0.00	1.29
2020	B34	6	539171	6987789	1-Aug	14:26	2-Aug	9:05	18.65	3	0	0	0	3	3.86	0.00	0.00	0.00	3.86

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2020	B34	7	539164	6987804	1-Aug	14:27	2-Aug	9:11	18.73	2	0	0	0	2	2.56	0.00	0.00	0.00	2.56
2020	B34	8	539156	6987810	1-Aug	14:27	2-Aug	9:14	18.78	1	0	0	0	1	1.28	0.00	0.00	0.00	1.28
2020	B34	9	539145	6987821	1-Aug	14:28	2-Aug	9:19	18.85	3	0	0	0	3	3.82	0.00	0.00	0.00	3.82
2020	B34	10	539123	6987810	1-Aug	14:28	2-Aug	9:23	18.92	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B34	11	539118	6987828	1-Aug	14:29	2-Aug	9:24	18.92	1	0	0	0	1	1.27	0.00	0.00	0.00	1.27
2020	B34	12	539105	6987830	1-Aug	14:29	2-Aug	9:25	18.93	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B34	13	539107	6987842	1-Aug	14:30	2-Aug	9:29	18.98	8	0	0	0	8	10.11	0.00	0.00	0.00	10.11
2020	B34	14	539109	6987859	1-Aug	14:30	2-Aug	9:28	18.97	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	B34	15	539110	6987871	1-Aug	14:31	2-Aug	9:29	18.97	4	0	0	0	4	5.06	0.00	0.00	0.00	5.06
2020	B34	16	539142	6987848	1-Aug	14:31	2-Aug	9:44	19.22	3	0	0	0	3	3.75	0.00	0.00	0.00	3.75
2020	B34	17	539156	6987852	1-Aug	14:32	2-Aug	9:46	19.23	7	0	0	0	7	8.73	0.00	0.00	0.00	8.73
2020	B34	18	539169	6987847	1-Aug	14:32	2-Aug	9:53	19.35	2	0	0	0	2	2.48	0.00	0.00	0.00	2.48
2020	B34	19	539185	6987840	1-Aug	14:33	2-Aug	9:57	19.40	3	0	0	0	3	3.71	0.00	0.00	0.00	3.71
2020	B34	20	539197	6987835	1-Aug	14:33	2-Aug	9:58	19.42	2	0	0	0	2	2.47	0.00	0.00	0.00	2.47
2020	E4	1	536744	6990080	22-Aug	8:57	23-Aug	9:48	24.85	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E4	2	536754	6990068	22-Aug	9:00	23-Aug	10:17	25.28	1	0	0	0	1	0.95	0.00	0.00	0.00	0.95
2020	E4	3	536766	6990053	22-Aug	9:01	23-Aug	10:19	25.30	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E4	4	536776	6990041	22-Aug	9:01	23-Aug	10:20	25.32	2	0	0	0	2	1.90	0.00	0.00	0.00	1.90
2020	E4	5	536793	6990033	22-Aug	9:02	23-Aug	10:26	25.40	1	0	0	0	1	0.94	0.00	0.00	0.00	0.94
2020	E4	6	536800	6990020	22-Aug	9:02	23-Aug	10:27	25.42	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E4	7	536811	6990008	22-Aug	9:03	23-Aug	10:29	25.43	4	0	0	0	4	3.77	0.00	0.00	0.00	3.77
2020	E4	8	536821	6989998	22-Aug	9:03	23-Aug	10:31	25.47	4	0	0	0	4	3.77	0.00	0.00	0.00	3.77
2020	E4	9	536830	6989990	22-Aug	9:04	23-Aug	10:40	25.60	3	0	0	0	3	2.81	0.00	0.00	0.00	2.81
2020	E4	10	536844	6989980	22-Aug	9:04	23-Aug	10:42	25.63	11	0	0	0	11	10.30	0.00	0.00	0.00	10.30
2020	E4	11	536864	6989971	22-Aug	9:05	23-Aug	10:53	25.80	17	0	0	0	17	15.81	0.00	0.00	0.00	15.81
2020	E4	12	536879	6989971	22-Aug	9:05	23-Aug	10:54	25.82	3	0	0	0	3	2.79	0.00	0.00	0.00	2.79
2020	E4	13	536731	6990091	22-Aug	9:16	23-Aug	9:50	24.57	6	0	0	0	6	5.86	0.00	0.00	0.00	5.86
2020	E4	14	536726	6990112	22-Aug	9:17	23-Aug	9:51	24.57	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E4	15	536716	6990128	22-Aug	9:18	23-Aug	9:51	24.55	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E4	16	536720	6990139	22-Aug	9:19	23-Aug	9:53	24.57	1	0	0	0	1	0.98	0.00	0.00	0.00	0.98
2020	E4	17	536719	6990158	22-Aug	9:20	23-Aug	10:03	24.72	4	0	0	0	4	3.88	0.00	0.00	0.00	3.88
2020	E4	18	536724	6990174	22-Aug	9:20	23-Aug	10:04	24.73	1	0	0	0	1	0.97	0.00	0.00	0.00	0.97
2020	E4	19	536723	6990188	22-Aug	9:21	23-Aug	10:10	24.82	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E4	20	536732	6990204	22-Aug	9:22	23-Aug	10:11	24.82	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E10	1	536360	6990185	22-Aug	9:39	23-Aug	7:45	22.10	2	0	0	0	2	2.17	0.00	0.00	0.00	2.17
2020	E10	2	536352	6990174	22-Aug	9:40	23-Aug	7:21	21.68	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E10	3	536341	6990168	22-Aug	9:41	23-Aug	7:22	21.68	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E10	4	536327	6990160	22-Aug	9:42	23-Aug	7:23	21.68	3	0	0	0	3	3.32	0.00	0.00	0.00	3.32
2020	E10	5	536308	6990165	22-Aug	9:43	23-Aug	7:23	21.67	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E10	6	536297	6990167	22-Aug	9:44	23-Aug	7:25	21.68	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E10	7	536287	6990175	22-Aug	9:44	23-Aug	7:29	21.75	1	0	0	0	1	1.10	0.00	0.00	0.00	1.10
2020	E10	8	536275	6990179	22-Aug	9:45	23-Aug	7:39	21.90	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E10	9	536271	6990192	22-Aug	9:45	23-Aug	7:39	21.90	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E10	10	536276	6990216	22-Aug	9:46	23-Aug	7:40	21.90	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E5	1	537103	6989700	23-Aug	11:24	24-Aug	7:28	20.07	19	0	0	0	19	22.72	0.00	0.00	0.00	22.72
2020	E5	2	537095	6989694	23-Aug	11:24	24-Aug	7:29	20.08	16	0	0	0	16	19.12	0.00	0.00	0.00	19.12

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2020	E5	3	537101	6989671	23-Aug	11:27	24-Aug	7:55	20.47	25	0	0	0	25	29.32	0.00	0.00	0.00	29.32
2020	E5	4	537090	6989665	23-Aug	11:28	24-Aug	8:07	20.65	9	0	0	0	9	10.46	0.00	0.00	0.00	10.46
2020	E5	5	537095	6989651	23-Aug	11:29	24-Aug	8:18	20.82	3	0	0	0	3	3.46	0.00	0.00	0.00	3.46
2020	E5	6	537093	6989632	23-Aug	11:30	24-Aug	8:24	20.90	3	0	0	0	3	3.44	0.00	0.00	0.00	3.44
2020	E5	7	537105	6989625	23-Aug	11:31	24-Aug	8:26	20.92	3	0	0	0	3	3.44	0.00	0.00	0.00	3.44
2020	E5	8	537113	6989614	23-Aug	11:31	24-Aug	8:30	20.98	5	0	0	0	5	5.72	0.00	0.00	0.00	5.72
2020	E5	9	537124	6989614	23-Aug	11:32	24-Aug	8:37	21.08	5	0	0	0	5	5.69	0.00	0.00	0.00	5.69
2020	E5	10	537137	6989605	23-Aug	11:32	24-Aug	8:38	21.10	32	0	0	0	32	36.40	0.00	0.00	0.00	36.40
2020	E11	1	536955	6990262	23-Aug	13:09	24-Aug	12:06	22.95	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E11	2	536964	6990248	23-Aug	13:10	24-Aug	12:04	22.90	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E11	3	536978	6990234	23-Aug	13:11	24-Aug	12:03	22.87	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E11	4	536991	6990237	23-Aug	13:12	24-Aug	12:02	22.83	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E11	5	536994	6990254	23-Aug	13:13	24-Aug	11:53	22.67	3	0	0	0	3	3.18	0.00	0.00	0.00	3.18
2020	E11	6	536988	6990268	23-Aug	13:14	24-Aug	11:47	22.55	5	0	0	0	5	5.32	0.00	0.00	0.00	5.32
2020	E11	7	536983	6990280	23-Aug	13:14	24-Aug	11:33	22.32	10	0	0	0	10	10.75	0.00	0.00	0.00	10.75
2020	E11	8	536978	6990284	23-Aug	13:15	24-Aug	11:31	22.27	5	0	0	0	5	5.39	0.00	0.00	0.00	5.39
2020	E11	9	536974	6990291	23-Aug	13:10	24-Aug	11:30	22.33	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E11	10	536948	6990277	23-Aug	13:00	24-Aug	12:08	23.13	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E12	1	537202	6990963	23-Aug	13:57	24-Aug	9:59	20.03	59	0	0	0	59	70.68	0.00	0.00	0.00	70.68
2020	E12	2	537190	6990968	23-Aug	13:58	24-Aug	10:19	20.35	19	0	0	0	19	22.41	0.00	0.00	0.00	22.41
2020	E12	3	537178	6990977	23-Aug	13:59	24-Aug	10:30	20.52	2	0	0	0	2	2.34	0.00	0.00	0.00	2.34
2020	E12	4	537167	6990992	23-Aug	14:00	24-Aug	10:33	20.55	13	0	0	0	13	15.18	0.00	0.00	0.00	15.18
2020	E12	5	537161	6991000	23-Aug	14:01	24-Aug	10:46	20.75	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E12	6	537161	6991015	23-Aug	14:01	24-Aug	10:47	20.77	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E12	7	537160	6991029	23-Aug	14:02	24-Aug	10:48	20.77	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2020	E12	8	537165	6991043	23-Aug	14:02	24-Aug	10:49	20.78	1	0	0	0	1	1.15	0.00	0.00	0.00	1.15
2020	E12	9	537173	6991058	23-Aug	14:02	24-Aug	10:50	20.80	8	0	0	0	8	9.23	0.00	0.00	0.00	9.23
2020	E12	10	537186	6991056	23-Aug	14:03	24-Aug	10:51	20.80	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	1	535235	6988792	27-Aug	10:23	28-Aug	9:54	23.52	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	2	535249	6988781	27-Aug	10:24	28-Aug	9:53	23.48	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	3	535261	6988773	27-Aug	10:26	28-Aug	9:52	23.43	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	4	535270	6988763	27-Aug	10:27	28-Aug	9:51	23.40	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	5	535282	6988756	27-Aug	10:27	28-Aug	9:50	23.38	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	6	535297	6988752	27-Aug	10:28	28-Aug	9:50	23.37	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	7	535327	6988755	27-Aug	10:30	28-Aug	9:49	23.32	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	8	535327	6988773	27-Aug	10:31	28-Aug	9:49	23.30	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	9	535230	6988802	27-Aug	10:37	28-Aug	9:48	23.18	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	10	535219	6988816	27-Aug	10:38	28-Aug	9:47	23.15	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	11	535209	6988831	27-Aug	10:39	28-Aug	9:47	23.13	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	12	535200	6988836	27-Aug	10:39	28-Aug	9:46	23.12	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	13	535192	6988846	27-Aug	10:40	28-Aug	9:46	23.10	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	14	535190	6988864	27-Aug	10:41	28-Aug	9:45	23.07	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	15	535178	6988871	27-Aug	10:42	28-Aug	9:45	23.05	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	1	535079	6988648	27-Aug	11:06	28-Aug	8:47	21.68	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	2	535098	6988642	27-Aug	11:06	28-Aug	8:46	21.67	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	3	535108	6988643	27-Aug	11:07	28-Aug	8:45	21.63	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2021	D33	4	535120	6988639	27-Aug	11:07	28-Aug	8:44	21.62	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	5	535125	6988627	27-Aug	11:09	28-Aug	8:43	21.57	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	6	535131	6988620	27-Aug	11:09	28-Aug	8:41	21.53	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	7	535133	6988600	27-Aug	11:10	28-Aug	8:40	21.50	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	8	535066	6988647	27-Aug	11:12	28-Aug	8:41	21.48	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	9	535022	6988630	27-Aug	12:05	28-Aug	8:50	20.75	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	10	535019	6988618	27-Aug	12:06	28-Aug	8:52	20.77	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	11	535017	6988593	27-Aug	12:07	28-Aug	8:55	20.80	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	12	535020	6988582	27-Aug	12:09	28-Aug	8:59	20.83	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	13	535027	6988568	27-Aug	12:11	28-Aug	9:00	20.82	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	14	535041	6988560	27-Aug	12:12	28-Aug	9:04	20.87	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D33	15	535052	6988551	27-Aug	12:14	28-Aug	9:05	20.85	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	16	535177	6988875	28-Aug	11:00	29-Aug	9:09	22.15	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	17	535195	6988863	28-Aug	11:02	29-Aug	9:10	22.13	1	0	0	0	1	1.08	0.00	0.00	0.00	1.08
2021	D31	18	535196	6988846	28-Aug	11:04	29-Aug	9:09	22.08	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	19	535204	6988833	28-Aug	11:06	29-Aug	9:10	22.07	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	20	535215	6988826	28-Aug	11:08	29-Aug	9:12	22.07	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	21	535225	6988814	28-Aug	11:10	29-Aug	9:14	22.07	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	22	535234	6988799	28-Aug	11:12	29-Aug	9:16	22.07	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	23	535242	6988790	28-Aug	11:14	29-Aug	9:18	22.07	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	24	535253	6988780	28-Aug	11:16	29-Aug	9:20	22.07	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	D31	25	535270	6988765	28-Aug	11:18	29-Aug	9:22	22.07	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	A9	1	540196	6988068	28-Aug	13:45	29-Aug	10:17	20.53	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	A9	2	540183	6988065	28-Aug	13:46	29-Aug	10:16	20.50	1	0	0	0	1	1.17	0.00	0.00	0.00	1.17
2021	A9	3	540168	6988064	28-Aug	13:47	29-Aug	10:15	20.47	1	0	0	0	1	1.17	0.00	0.00	0.00	1.17
2021	A9	4	540156	6988066	28-Aug	13:48	29-Aug	10:12	20.40	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	A9	5	540228	6988085	28-Aug	13:42	29-Aug	10:20	20.63	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	1	540858	6988190	28-Aug	15:54	29-Aug	11:05	19.18	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	2	540863	6988184	28-Aug	15:53	29-Aug	11:07	19.23	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	3	540865	6988173	28-Aug	15:55	29-Aug	11:09	19.23	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	4	540875	6988165	28-Aug	15:57	29-Aug	11:10	19.22	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	5	540876	6988156	28-Aug	15:58	29-Aug	11:12	19.23	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	6	540882	6988148	28-Aug	15:59	29-Aug	11:15	19.27	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	7	540885	6988141	28-Aug	16:00	29-Aug	11:18	19.30	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	8	540900	6988132	28-Aug	16:01	29-Aug	11:15	19.23	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	9	540909	6988123	28-Aug	16:02	29-Aug	11:13	19.18	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	10	540913	6988111	28-Aug	16:03	29-Aug	11:11	19.13	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	11	540920	6988104	28-Aug	16:04	29-Aug	11:09	19.08	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	12	540930	6988094	28-Aug	16:06	29-Aug	11:21	19.25	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	13	540938	6988087	28-Aug	16:07	29-Aug	11:22	19.25	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	14	540946	6988078	28-Aug	16:10	29-Aug	11:21	19.18	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	J6	15	540960	6988069	28-Aug	16:18	29-Aug	11:20	19.03	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	W1	1	554688	6982543	29-Aug	14:09	30-Aug	11:41	21.53	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	W1	2	554686	6982556	29-Aug	14:11	30-Aug	11:43	21.53	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	W1	3	554686	6982568	29-Aug	14:12	30-Aug	11:44	21.53	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	W1	4	554684	6982576	29-Aug	14:13	30-Aug	11:45	21.53	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00

Table B-4:Minnow Trap Effort and Catch Data, 2020-2021

Year	Waterbody Name	Trap No.	Location (UTM)		Set		Pulled		Effort (decimal h)	No. of Fish					CPUE (# fish per trap per 24 h)				
			Easting	Northing	Date	Time	Date	Time		NSSB	TSSB	ARGR	BURB	TOTAL	NSSB	TSSB	ARGR	BURB	TOTAL
2021	W1	5	554688	6982587	29-Aug	14:14	30-Aug	11:50	21.60	5	0	0	0	5	5.56	0.00	0.00	0.00	5.56
2021	W1	6	554687	6982600	29-Aug	14:15	30-Aug	11:52	21.62	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	W1	7	554683	6982609	29-Aug	14:16	30-Aug	11:53	21.62	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	W1	8	554684	6982626	29-Aug	14:17	30-Aug	12:01	21.73	1	0	0	1	2	1.10	0.00	0.00	1.10	2.21
2021	W1	9	554688	6982637	29-Aug	14:18	30-Aug	11:52	21.57	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	W1	10	554692	6982647	29-Aug	14:19	30-Aug	11:54	21.58	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	W1	11	554680	6982659	29-Aug	14:20	30-Aug	12:15	21.92	25	0	0	0	25	27.38	0.00	0.00	0.00	27.38
2021	W1	12	554675	6982672	29-Aug	14:21	30-Aug	12:36	22.25	3	0	0	0	3	3.24	0.00	0.00	0.00	3.24
2021	W1	13	554668	6982688	29-Aug	14:22	30-Aug	12:41	22.32	1	0	0	0	1	1.08	0.00	0.00	0.00	1.08
2021	W1	14	554656	6982696	29-Aug	14:23	30-Aug	12:43	22.33	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	W1	15	554644	6982711	29-Aug	14:24	30-Aug	12:44	22.33	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	W1	16	554646	6982733	29-Aug	14:25	30-Aug	12:47	22.37	2	0	0	0	2	2.15	0.00	0.00	0.00	2.15
2021	W1	17	554656	6982751	29-Aug	14:26	30-Aug	12:58	22.53	1	0	0	0	1	1.07	0.00	0.00	0.00	1.07
2021	W1	18	554665	6982763	29-Aug	14:27	30-Aug	13:00	22.55	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2021	W1	19	554674	6982778	29-Aug	14:28	30-Aug	13:03	22.58	4	0	0	0	4	4.25	0.00	0.00	0.00	4.25
2021	W1	20	554687	6982788	29-Aug	14:30	30-Aug	13:20	22.83	3	0	0	0	3	3.15	0.00	0.00	0.00	3.15

Notes:

CPUE = Catch-Per-Unit-Effort (fish/trap/24 h)

NSSB = Ninespine Stickleback; TSSB= Threespine Stickleback; ARGR= Arctic Grayling; BURB= Burbot

All UTM coordinates in Zone 15V

Table B-5: Effort and Catch from Drift Netting Surveys, 2020

Waterbody Name	Set No.	Location (UTM)		Set		Pulled			No. of fish				CPUE (no. fish/m³ of water filtered)				Comments
		Easting	Northing	Date	Time	Date	Time	Effort (decimal h)	NSSB	TSSB	ARGR	Total	NSSB	TSSB	ARGR	Total	
B7 - B6	1	537920	6989382	5-Sep	7:42	6-Sep	14:44	31.03	0	0	0	0	0.000	0.000	0.000	0.000	
B7 - B6	2	537920	6989382	6-Sep	14:45	7-Sep	7:42	16.95	0	0	0	0	0.000	0.000	0.000	0.000	
B31 - B5	1	538106	6988787	5-Sep	8:34	6-Sep	15:00	30.43	1	0	0	1	0.001	0.000	0.000	0.001	
B31 - B5	2	538106	6988787	6-Sep	15:03	7-Sep	8:00	16.95	0	0	0	0	0.000	0.000	0.000	0.000	
B30 - B6	1	538007	6988907	5-Sep	9:10	6-Sep	14:30	29.33	0	0	0	0	0.000	0.000	0.000	0.000	
B30 - B6	2	538007	6988907	6-Sep	14:30	7-Sep	7:55	17.42	0	0	0	0	0.000	0.000	0.000	0.000	
A50 - A5	1	542601	6986210	7-Sep	10:05	8-Sep	9:00	22.92	**	**	0	8130*	-	-	0.000	11.249*	52 NSSB measured, 6 TSSB measured; approximately 8072 Stickleback counted via cup method (mostly NSSB, few TSSB)
A50 - A5	2	542607	6986212	7-Sep	10:15	8-Sep	9:50	23.58	**	**	1	18442*	-	-	0.001	24.797*	Captured approximately 18,441 Stickleback (mostly NSSB, few TSSB)
A52 - A51	1	542597	6986066	7-Sep	10:46	8-Sep	11:00	24.23	**	**	0	822*	-	-	0.000	1.076*	Captured approximately 822 Stickleback (mostly NSSB, few TSSB)
A1 - MEL	1	544267	6985978	8-Sep	12:12	8-Sep	15:00	2.80	**	**	3	1114*	-	-	0.034	12.616*	Captured approximately 1111 Stickleback (mostly NSSB, few TSSB)
A1 - MEL	2	544264	6985977	8-Sep	12:15	8-Sep	14:43	2.47	**	**	0	6941*	-	-	0.000	89.229*	Captured approximately 6941 Stickleback (mostly NSSB, few TSSB)
B4 - B2	1	538027	6987064	9-Sep	9:15	9-Sep	15:10	5.92	153	1	1	155	0.820	0.005	0.005	0.831	
B5 - B4	1	538264	6987776	9-Sep	10:18	9-Sep	16:00	5.70	0	0	0	0	0.000	0.000	0.000	0.000	
Total	**13**							**229.73**	**	**	**5**	**~35604**	**-**	**-**	**-**	**-**	

Notes:

***: fish counted using bulk measurement technique; refer to comments*

**: approximate number*

All UTM coordinates in Zone 15V

NSSB= Ninespine Stickleback; TSSB= Threespine Stickleback; ARGR= Arctic Grayling

CPUE = Catch-Per-Unit-Effort

Table B-6: Gillnet Effort and Catch Data, 2020-2021

Year	Waterbody Name	Date	Gillnet No.	Start Location (UTM)		End Location (UTM)		Time in	Time Out	Effort (decimal h)	No. of Fish				CPUE				Comments
				Easting	Northing	Easting	Northing				ARGR	CISC	ARCH	Total	ARGR	CISC	ARCH	Total	
2020	B7	25-Jul	1	537933	6989638	537883	6989687	7:41	8:06	0.4	2	1	0	3	5.93	2.96	0.00	8.89	
2020	B7	25-Jul	2	538134	6989418	538147	6989448	9:10	9:30	0.3	5	2	0	7	18.52	7.41	0.00	25.93	
2020	B7	25-Jul	3	537988	6989560	537932	6989584	10:43	11:03	0.3	3	0	0	3	11.11	0.00	0.00	11.11	
2020	B5	27-Jul	1	537822	6988721	537756	6988734	7:15	7:35	0.3	0	0	0	0	0.00	0.00	0.00	0.00	
2020	B5	27-Jul	2	538333	6988274	538282	6988241	7:47	8:17	0.5	1	0	0	1	2.47	0.00	0.00	2.47	
2020	B5	27-Jul	3	537921	6988620	537868	6988570	8:25	9:45	1.3	1	0	0	1	0.93	0.00	0.00	0.93	
2020	B5	27-Jul	4	537860	6988617	537781	6988623	10:09	11:10	1.0	1	0	0	1	1.21	0.00	0.00	1.21	
2020	B5	27-Jul	5	537663	6988800	537634	6988801	12:49	13:50	1.0	0	0	0	0	0.00	0.00	0.00	0.00	
2020	B4	29-Jul	1	538872	6986902	538850	6986962	7:08	8:08	1.0	0	0	0	0	0.00	0.00	0.00	0.00	
2020	B4	29-Jul	2	538978	6986778	538952	6986802	9:02	10:02	1.0	1	0	0	1	1.23	0.00	0.00	1.23	Adult, escaped net
2020	B4	29-Jul	3	538959	6986768	538919	6986798	10:16	11:30	1.2	0	0	0	0	0.00	0.00	0.00	0.00	
2020	B34	1-Aug	1	539233	6987779	539277	6987735	7:08	8:15	1.1	0	0	0	0	0.00	0.00	0.00	0.00	
2020	B34	1-Aug	2	539262	6987733	539292	6987698	8:20	9:30	1.2	0	0	0	0	0.00	0.00	0.00	0.00	
2020	B34	1-Aug	3	539294	6987697	539334	6987663	9:35	10:35	1.0	0	0	0	0	0.00	0.00	0.00	0.00	
2020	B34	1-Aug	4	539211	6987777	539256	6987748	10:55	12:00	1.1	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A1	26-Aug	1	544441	6985851	544393	6985832	8:24	8:44	0.3	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A1	26-Aug	2	544289	6985925	544243	6985895	8:54	9:34	0.7	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A1	26-Aug	3	544320	6985801	544354	6985833	9:43	10:43	1.0	0	1	1	2	0.00	1.23	1.23	2.47	
2020	A1	26-Aug	4	544377	6985770	544426	6985793	10:54	11:54	1.0	1	0	1	2	1.23	0.00	1.23	2.47	
2020	A1	26-Aug	5	544306	6985825	544354	6985852	12:07	13:15	1.1	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A1	26-Aug	6	544398	6985759	544399	6985808	13:22	14:30	1.1	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A1	26-Aug	7	544299	6985772	544334	6985814	14:39	15:56	1.3	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A6	30-Aug	1	542089	6985961	542056	6985996	7:18	7:48	0.5	1	0	0	1	2.47	0.00	0.00	2.47	
2020	A6	30-Aug	2	542191	6986045	542155	6986076	7:35	8:05	0.5	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A6	30-Aug	3	541973	6985832	541925	6985835	7:56	8:58	1.0	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A6	30-Aug	4	542134	6986042	542092	6986066	8:09	9:15	1.1	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A6	30-Aug	5	541989	6985713	541942	6985719	9:08	10:10	1.0	1	0	0	1	1.19	0.00	0.00	1.19	
2020	A6	30-Aug	6	542028	6985659	541976	6985645	9:23	10:26	1.1	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A6	30-Aug	7	541966	6985596	541923	6985608	10:21	11:20	1.0	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A6	30-Aug	8	541895	6985539	541886	6985595	10:35	11:37	1.0	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A6	30-Aug	9	541746	6985887	541728	6985854	11:29	12:35	1.1	1	0	0	1	1.12	0.00	0.00	1.12	
2020	A6	30-Aug	10	541671	6985816	541722	6985831	11:46	12:50	1.1	0	0	1	1	0.00	0.00	1.16	1.16	
2020	A6	30-Aug	11	541859	6985904	541881	6985868	12:46	14:00	1.2	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A6	30-Aug	12	541956	6986034	542004	6986034	13:01	14:14	1.2	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A6	30-Aug	13	541979	6986157	542005	6986124	14:11	15:21	1.2	2	0	0	2	2.12	0.00	0.00	2.12	
2020	A6	30-Aug	14	542004	6986020	541986	6986035	14:15	15:35	1.3	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A8	1-Sep	1	540271	6987460	540372	6987369	7:25	8:10	0.7	4	0	0	4	6.58	0.00	0.00	6.58	
2020	A8	1-Sep	2	540411	6987450	540417	6987500	7:31	8:30	1.0	1	0	0	1	1.26	0.00	0.00	1.26	
2020	A8	2-Sep	3	540686	6987196	540635	6987180	7:32	8:05	0.6	5	0	0	5	11.22	0.00	0.00	11.22	
2020	A8	2-Sep	4	540662	6987158	540625	6987119	7:37	8:15	0.6	1	0	0	1	1.95	0.00	0.00	1.95	
2020	A8	2-Sep	5	540334	6987524	540362	6987479	9:16	9:55	0.6	2	0	0	2	3.80	0.00	0.00	3.80	1 of 2 escaped
2020	A8	2-Sep	6	539910	6987708	539898	6987660	11:24	12:05	0.7	1	0	0	1	1.81	0.00	0.00	1.81	
2020	A8	2-Sep	7	539981	6987673	539946	6987629	11:32	12:10	0.6	1	0	0	1	1.95	0.00	0.00	1.95	
2020	A8	2-Sep	8	540649	6987262	540596	6987246	12:23	12:57	0.6	2	0	0	2	4.36	0.00	0.00	4.36	1 of 2 escaped
2020	A8	2-Sep	9	540677	6987221	540635	6987188	12:26	13:05	0.7	0	0	0	0	0.00	0.00	0.00	0.00	
2020	A8	2-Sep	10	539898	6987470	539943	6987456	14:09	14:50	0.7	0	0	0	0	0.00	0.00	0.00	0.00	

Table B-6: Gillnet Effort and Catch Data, 2020-2021

Year	Waterbody Name	Date	Gillnet No.	Start Location (UTM)		End Location (UTM)		Time in	Time Out	Effort (decimal h)	No. of Fish				CPUE				Comments
				Easting	Northing	Easting	Northing				ARGR	CISC	ARCH	Total	ARGR	CISC	ARCH	Total	
2020	A8	2-Sep	11	539945	6987413	539992	6987408	14:14	14:55	0.7	1	0	0	1	1.81	0.00	0.00	1.81	
2020	E4	3-Sep	1	536705	6989943	536752	6989963	13:00	13:33	0.6	0	0	0	0	0.00	0.00	0.00	0.00	
2020	E4	3-Sep	2	536814	6989898	536857	6989912	13:05	13:42	0.6	0	0	0	0	0.00	0.00	0.00	0.00	
2020	E4	3-Sep	3	536783	6989884	536834	6989871	13:39	14:41	1.0	0	0	0	0	0.00	0.00	0.00	0.00	
2020	E4	3-Sep	4	536886	6989909	536866	6989867	13:50	14:53	1.1	0	1	0	1	0.00	1.18	0.00	1.18	
2020	E4	3-Sep	5	536794	6989947	536836	6989910	14:48	15:50	1.0	0	0	0	0	0.00	0.00	0.00	0.00	
2020	E4	3-Sep	6	536888	6989884	536921	6989853	15:00	15:58	1.0	0	0	0	0	0.00	0.00	0.00	0.00	
2020	E4	4-Sep	7	536841	6989900	536817	6989858	8:19	9:20	1.0	0	0	0	0	0.00	0.00	0.00	0.00	
2020	E4	4-Sep	8	536903	6989895	536901	6989841	8:23	9:30	1.1	0	0	0	0	0.00	0.00	0.00	0.00	
2020	E4	4-Sep	9	536894	6989905	536927	6989867	9:25	10:35	1.2	0	0	0	0	0.00	0.00	0.00	0.00	
2020	E4	4-Sep	10	536815	6989904	536846	6989863	9:37	10:45	1.1	0	0	0	0	0.00	0.00	0.00	0.00	
2020	E4	4-Sep	11	536855	6989914	536854	6989862	10:39	11:55	1.3	0	0	0	0	0.00	0.00	0.00	0.00	
2020	E4	4-Sep	12	536899	6989911	536889	6989857	10:48	11:57	1.2	0	0	0	0	0.00	0.00	0.00	0.00	
2020	E5	4-Sep	1	537159	6989605	537209	6989610	14:29	15:25	0.9	0	0	0	0	0.00	0.00	0.00	0.00	
2020	E5	4-Sep	2	537147	6989616	537189	6989632	14:35	15:27	0.9	0	0	0	0	0.00	0.00	0.00	0.00	
2020	E5	4-Sep	3	537151	6989633	537191	6989593	15:34	16:15	0.7	0	0	0	0	0.00	0.00	0.00	0.00	
2021	W1	30-Aug	1	554645	6982584	554600	6982604	16:15	16:40	0.4	0	0	0	0	0.00	0.00	0.00	0.00	
2021	W1	31-Aug	2	554609	6982640	554589	6982639	9:00	10:30	1.5	0	0	0	0	0.00	0.00	0.00	0.00	
2021	W1	31-Aug	3	554531	6982672	554531	6982728	9:15	10:00	0.8	0	0	0	0	0.00	0.00	0.00	0.00	
2021	W1	31-Aug	4	554583	6982742	554554	6982792	11:07	11:20	0.2	0	0	0	0	0.00	0.00	0.00	0.00	Net set cut short due to thunderstorm

Notes:
CPUE = Catch-Per-Unit-Effort (fish/100 m²/h)
All UTM coordinates in Zone 15V
ARCH= Arctic Char; ARGR= Arctic Grayling; CISC= Cisco

Table B-7: Angling Effort and Catch Data, 2020

Waterbody Name	Set ID	No. of Rods	Set Date	Location (UTM)		Time		Effort (decimal h)	Fish	
				Easting	Northing	Start	End		Arctic Grayling	CPUE (fish/rod/hour)
B6	1	2	24-Jul-20	537973	6989059	2:15	2:35	0.33	0	0.00
B6	2	2	24-Jul-20	537940	6989237	15:07	16:00	0.88	3	1.70
B7	1	1	25-Jul-20	538043	6989493	9:15	9:30	0.25	1	4.00
B7	2	2	25-Jul-20	537895	6989633	10:49	11:00	0.18	0	0.00
B5	1	1	27-Jul-20	537700	6988727	7:27	7:37	0.17	0	0.00
B5	2	2	27-Jul-20	538217	6988311	7:53	8:10	0.28	0	0.00
B5	3	2	27-Jul-20	537779	6988622	10:21	11:10	0.82	0	0.00
B5	4	2	27-Jul-20	537627	6988805	13:00	13:36	0.60	0	0.00
B4	1	2	29-Jul-20	538850	6986963	7:17	8:00	0.72	0	0.00
B4	2	2	29-Jul-20	538923	6986813	10:25	11:21	0.93	0	0.00
B34	1	2	1-Aug-20	539276	6987725	7:20	8:10	0.83	0	0.00
A1	1	1	26-Aug-20	544354	6985873	9:11	9:31	0.33	0	0.00
A1	2	2	26-Aug-20	544424	6985759	9:49	10:42	0.88	0	0.00
A1	3	2	26-Aug-20	544336	6985816	11:26	11:52	0.43	0	0.00
A1	4	2	26-Aug-20	544358	6985832	14:00	14:26	0.43	0	0.00
A1	5	2	26-Aug-20	544444	6985828	14:46	15:56	1.17	0	0.00
A6	*1*	2	30-Aug-20	541886	6985624	9:30	10:05	0.58	0	0.00
A6	2	2	30-Aug-20	541872	6985914	11:53	12:14	0.35	0	0.00
A8	1	2	1-Sep-20	540324	6987461	7:40	8:05	0.42	0	0.00
A8	2	2	2-Sep-20	540570	6987244	7:42	8:00	0.30	0	0.00
A8	3	2	2-Sep-20	540364	6987466	9:21	9:50	0.48	0	0.00
A8	4	2	2-Sep-20	539891	6987616	11:35	12:00	0.42	0	0.00
A8	5	2	2-Sep-20	539904	6987529	14:18	14:45	0.45	0	0.00
E4	1	2	3-Sep-20	536887	6989874	13:10	13:25	0.25	0	0.00
E4	2	2	3-Sep-20	536929	6989853	14:22	14:37	0.25	0	0.00

Notes:
CPUE = Catch-Per-Unit-Effort
All UTM coordinates in Zone 15V

Table B-8a: Biological Characteristics of Fish Sampled in Gillnetting and Angling Surveys, 2020

Site	Date	Fish No.	Species Code	Net No. (set)	Fork Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Ageing Structure	Age (years)	Sex	Reproductive Status	DELT (Y/N)	Comments
B6	24-Jul	1	ARGR	ANGLING-SetID2	206	226	2.59	N	FR, S	5	U	0	N	
B6	24-Jul	2	ARGR	ANGLING-SetID2	340	490	1.25	N	FR, S	3	U	0	N	
B6	24-Jul	3	ARGR	ANGLING-SetID2	330	444	1.24	N	FR, S	6	U	0	N	
B7	25-Jul	1	ARGR	1	295	278	1.08	N	FR, S	5	U	0	N	
B7	25-Jul	2	ARGR	1	284	270	1.18	N	FR, S	6	U	0	N	
B7	25-Jul	3	CISC	1	265	206	1.11	N	FR, S	5	U	0	N	
B7	25-Jul	4	ARGR	ANGLING-SetID1	310	324	1.09	N	FR, S	8	U	0	N	
B7	25-Jul	5	ARGR	2	305	317	1.12	N	FR, S	5	U	0	N	
B7	25-Jul	6	ARGR	2	325	381	1.11	N	FR, S	7	U	0	N	
B7	25-Jul	7	ARGR	2	325	449	1.31	N	FR, S	6	U	0	N	
B7	25-Jul	8	ARGR	2	295	300	1.17	N	FR, S	6	U	0	N	
B7	25-Jul	9	CISC	2	265	220	1.18	N	FR, S	5	U	0	N	
B7	25-Jul	10	ARGR	2	280	261	1.19	N	FR, S	5	U	0	N	
B7	25-Jul	11	CISC	2	269	254	1.30	N	FR, S	5	U	0	N	
B7	25-Jul	12	ARGR	3	260	192	1.09	N	FR, S	4	U	0	N	
B7	25-Jul	13	ARGR	3	285	260	1.12	N	FR, S	5	U	0	N	
B7	25-Jul	14	ARGR	3	299	300	1.12	N	FR, S	6	U	0	N	
B5	27-Jul	1	ARGR	2	250	222	1.42	N	FR, S	2	U	0	N	
B5	27-Jul	2	ARGR	3	285	349	1.51	N	FR, S	3	U	0	N	
B5	27-Jul	3	ARGR	4	235	207	1.60	N	FR, S	2	U	0	N	
A1	26-Aug	1	ARCH	3	328	460	1.30	N	FR, S	2	U	0	N	
A1	26-Aug	2	CISC	3	124	18	0.94	N	FR, S	0	U	0	N	
A1	26-Aug	3	ARGR	4	267	270	1.42	N	FR, S	5	U	0	N	
A1	26-Aug	4	ARCH	4	315	325	1.04	Y	FR, S, O	4	M	1	Y	NSSB in gut contents (see photos)
A6	30-Aug	1	ARGR	1	380	630	1.15	N	FR, S	7	U	0	Y	Parasite both gills
A6	30-Aug	2	ARGR	5	365	630	1.30	N	FR, S	5	U	0	Y	Parasite RT gills
A6	30-Aug	3	ARGR	9	368	635	1.27	N	FR, S	6	U	0	Y	Parasite LT gills
A6	30-Aug	4	ARCH	10	240	173	1.25	N	FR, S	3	U	0	N	
A6	30-Aug	5	ARGR	13	365	620	1.28	N	FR, S	5	U	0	Y	Parasite both gills
A6	30-Aug	6	ARGR	13	395	736	1.19	N	FR, S	6	U	0	Y	Parasite both gills
A8	1-Sep	1	ARGR	2	415	820	1.15	N	FR, S	7	U	0	Y	
A8	1-Sep	2	ARGR	1	415	863	1.21	N	FR, S	7	U	0	Y	
A8	1-Sep	3	ARGR	1	373	630	1.21	N	FR, S	6	U	0	Y	
A8	1-Sep	4	ARGR	1	374	683	1.31	N	FR, S	6	U	0	Y	
A8	1-Sep	5	ARGR	1	380	750	1.37	N	FR, S	8	U	0	Y	
A8	2-Sep	6	ARGR	4	353	570	1.30	N	FR, S	5	U	0	Y	
A8	2-Sep	7	ARGR	3	350	607	1.42	N	FR, S	5	U	0	Y	
A8	2-Sep	8	ARGR	3	360	569	1.22	N	FR, S	6	U	0	N	
A8	2-Sep	9	ARGR	3	365	625	1.29	N	FR, S	5	U	0	Y	
A8	2-Sep	10	ARGR	5	425	812	1.06	N	FR, S	7	U	0	Y	
A8	2-Sep	11	ARGR	3	376	650	1.22	Y	FR, S, O	7	F	2	Y	NSSB, water beetles and bugs in gut contents (see photos)
A8	2-Sep	12	ARGR	3	395	770	1.25	Y	FR, S, O	6	F	2	Y	NSSB, SLSC, and bugs in gut contents (see photos)
A8	2-Sep	13	ARGR	6	390	630	1.06	N	FR, S	6	U	0	Y	
A8	2-Sep	14	ARGR	7	370	620	1.22	N	FR, S	6	U	0	Y	
A8	2-Sep	15	ARGR	8	363	571	1.19	N	FR, S	6	U	0	N	
A8	2-Sep	16	ARGR	11	395	740	1.20	N	FR, S	6	U	0	Y	
E4	3-Sep	1	CISC	4	93	-	-	N	FR, S	1	U	0	N	

Notes:
ARCH= Arctic Char; ARGR= Arctic Grayling; CISC= Cisco
DELT= Deformities, erosions, lesions and tumors; Y= Yes, N= No
Ageing Structure: FR= Fin Ray, O= Otolith, S= Scales
Sex: M=Male, F=Female, U= Unknown
Reproductive Status: 0= Unknown, 1= Undeveloped, 2= Green, 3= Ripe
Dashes indicate data not collected
Mort: Y= Yes, N= No

Table B-8b: DELT Summary for Fish Sampled in Gillnetting and Angling Surveys, 2020

Date	Site	Fish No.	Species Code	Net No. (set)	DELT Analysis						Gill	Eye	Parasites (Y/N)		
					Deformity	Erosion	Lesion	Tumour	Other	Comments (Type, Size)			Blackspot	External	Internal
26-Aug	A1	4	ARCH	4	-	-	-	-	Cyst	Cyst @ isthmus	Parasites	-	N	N	N
30-Aug	A6	1	ARGR	1	-	-	-	-	-	-	Parasites	-	N	H - gill	-
30-Aug	A6	2	ARGR	5	-	-	-	-	-	-	Parasites	-	N	L - gill	-
30-Aug	A6	3	ARGR	9	-	-	-	-	-	-	Parasites	-	N	L - gill	-
30-Aug	A6	5	ARGR	13	-	-	-	-	-	-	Parasites	-	N	L - gill	-
30-Aug	A6	6	ARGR	13	-	-	-	-	-	-	Parasites	-	N	H - gill	-
1-Sep	A8	1	ARGR	2	-	-	-	-	-	-	Parasites	-	N	L - gill	-
1-Sep	A8	2	ARGR	1	-	-	-	-	-	-	Parasites	-	N	L - gill	-
1-Sep	A8	3	ARGR	1	-	Fins	-	-	-	-	-	Cloudy	H - fins and body	N	-
1-Sep	A8	4	ARGR	1	-	-	-	-	-	-	Parasites	-	N	L - gill	-
1-Sep	A8	5	ARGR	1	-	-	-	-	-	Lump on lower lip	-	-	N	N	-
2-Sep	A8	6	ARGR	4	-	Fins	-	-	-	-	Parasites	-	N	H - gill	-
2-Sep	A8	7	ARGR	3	-	Fins	-	-	-	-	-	-	N	N	-
2-Sep	A8	9	ARGR	3	-	Fins	-	-	-	-	-	-	N	N	-
2-Sep	A8	10	ARGR	5	-	Fins	-	-	-	-	-	-	N	N	-
2-Sep	A8	11	ARGR	3	-	Fins	-	-	-	-	Parasites	-	N	L - gill	N
2-Sep	A8	12	ARGR	3	-	Fins	-	-	Internal cysts	-	Parasites	-	H - fins and body	L - gill	N
2-Sep	A8	13	ARGR	6	-	Tail	-	-	-	-	Parasites	-	-	L - gill	-
2-Sep	A8	14	ARGR	7	-	-	-	Black lump on upper lip	-	-	Parasites	-	L - fins	H - gill	-
2-Sep	A8	16	ARGR	11	-	Fins	-	-	-	-	Parasites	-	-	L - gill	-

Notes:

Parasites: L= light infestation; H= heavy infestation; Y= Yes, N= No

ARCH= Arctic Char; ARGR= Arctic Grayling

Dashes indicate not available/applicable

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	21-Jun	A3	MT	7	1	NSSB	65	2.40	0.87	N	Windy - scale erratic
2020	21-Jun	A3	MT	8	2	NSSB	63	1.80	0.72	N	
2020	21-Jun	A3	MT	8	3	NSSB	58	1.38	0.71	N	
2020	21-Jun	A3	MT	8	4	NSSB	60	1.35	0.63	N	
2020	21-Jun	A3	MT	8	5	NSSB	58	1.15	0.59	N	
2020	21-Jun	A3	MT	8	6	NSSB	53	1.50	1.01	Y	Head caught in trap mesh
2020	21-Jun	A3	MT	8	7	NSSB	50	1.10	0.88	Y	Head caught in trap mesh
2020	21-Jun	A3	MT	9	8	NSSB	75	4.50	1.07	N	
2020	21-Jun	A3	MT	9	9	NSSB	62	1.70	0.71	N	
2020	21-Jun	A3	MT	9	10	NSSB	69	3.10	0.94	N	
2020	21-Jun	A3	MT	9	11	NSSB	57	1.10	0.59	N	
2020	21-Jun	A3	MT	1	12	NSSB	56	1.40	0.80	N	multiple photos
2020	21-Jun	A3	MT	4	13	NSSB	56	1.38	0.79	N	
2020	21-Jun	A3	MT	4	14	NSSB	61	1.30	0.57	N	
2020	21-Jun	A3	MT	4	15	NSSB	56	1.40	0.80	N	
2020	21-Jun	A3	MT	3	16	NSSB	54	1.30	0.83	N	
2020	21-Jun	A3	MT	3	17	NSSB	54	1.50	0.95	Y	Head caught in trap mesh
2020	21-Jun	A3	MT	2	18	NSSB	51	1.16	0.87	N	
2020	21-Jun	A4	MT	3	1	NSSB	65	1.30	0.47	N	
2020	21-Jun	A4	MT	3	2	NSSB	59	1.25	0.61	N	
2020	21-Jun	A4	MT	3	3	NSSB	68	2.50	0.80	N	
2020	21-Jun	A4	MT	3	4	NSSB	56	1.40	0.80	N	
2020	21-Jun	A4	MT	3	5	NSSB	57	1.18	0.64	N	
2020	21-Jun	A4	MT	3	6	NSSB	56	1.10	0.63	N	
2020	21-Jun	A4	MT	3	7	NSSB	59	1.60	0.78	N	
2020	21-Jun	A4	MT	3	8	NSSB	66	1.80	0.63	N	
2020	21-Jun	A4	MT	2	9	NSSB	50	0.70	0.56	N	
2020	21-Jun	A4	MT	1	10	NSSB	66	3.10	1.08	N	
2020	21-Jun	A4	MT	1	11	NSSB	67	2.48	0.82	N	
2020	21-Jun	A4	MT	4	12	NSSB	58	1.30	0.67	N	
2020	21-Jun	A4	MT	4	13	NSSB	61	1.68	0.74	N	
2020	21-Jun	A5	MT	1	1	NSSB	57	1.26	0.68	N	
2020	21-Jun	A5	MT	1	2	NSSB	67	1.90	0.63	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	21-Jun	A5	MT	1	3	NSSB	55	1.00	0.60	N	
2020	21-Jun	A5	MT	1	4	NSSB	61	1.60	0.70	N	
2020	21-Jun	A5	MT	1	5	NSSB	55	1.40	0.84	N	
2020	21-Jun	A5	MT	1	6	NSSB	54	1.30	0.83	N	
2020	21-Jun	A5	MT	1	7	NSSB	54	1.11	0.70	N	
2020	21-Jun	A5	MT	1	8	NSSB	61	1.23	0.54	N	
2020	21-Jun	A5	MT	1	9	NSSB	56	1.49	0.85	N	
2020	21-Jun	A5	MT	1	10	NSSB	53	1.33	0.89	N	
2020	21-Jun	A5	MT	1	11	NSSB	60	1.90	0.88	N	
2020	21-Jun	A5	MT	1	12	NSSB	55	1.18	0.71	N	
2020	21-Jun	A5	MT	1	13	NSSB	59	1.17	0.57	N	
2020	21-Jun	A5	MT	1	14	NSSB	64	1.53	0.58	N	
2020	21-Jun	A5	MT	1	15	NSSB	51	0.90	0.68	N	
2020	21-Jun	A5	MT	1	16	NSSB	64	1.70	0.65	N	
2020	21-Jun	A5	MT	1	17	NSSB	54	1.20	0.76	N	
2020	21-Jun	A5	MT	2	18	NSSB	60	1.30	0.60	N	
2020	21-Jun	A5	MT	3	19	NSSB	58	1.65	0.85	N	
2020	21-Jun	A5	MT	3	20	NSSB	71	2.50	0.70	N	
2020	21-Jun	A5	MT	3	21	NSSB	66	1.20	0.42	N	
2020	21-Jun	A5	MT	3	22	NSSB	60	1.30	0.60	N	
2020	21-Jun	A5	MT	9	23	NSSB	74	3.10	0.77	N	too windy for scale
2020	21-Jun	A5	MT	9	24	NSSB	55	-	-	N	too windy for scale
2020	21-Jun	A5	MT	9	25	NSSB	56	-	-	N	too windy for scale
2020	21-Jun	A5	MT	9	26	NSSB	54	-	-	N	too windy for scale
2020	21-Jun	A5	MT	9	27	NSSB	56	-	-	N	too windy for scale
2020	21-Jun	A5	MT	9	28	NSSB	52	-	-	N	too windy for scale
2020	21-Jun	A5	MT	9	29	NSSB	54	-	-	N	too windy for scale
2020	21-Jun	A5	MT	9	30	NSSB	59	-	-	N	too windy for scale
2020	21-Jun	A5	MT	9	31	NSSB	52	-	-	N	too windy for scale
2020	21-Jun	A5	MT	13	32	NSSB	56	-	-	N	too windy for scale
2020	21-Jun	A5	MT	12	33	NSSB	61	-	-	N	too windy for scale
2020	21-Jun	A5	MT	12	34	NSSB	59	-	-	N	too windy for scale
2020	22-Jun	A19	MT	4	1	NSSB	56	1.40	0.80	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	22-Jun	A19	MT	5	2	NSSB	49	1.10	0.93	N	
2020	22-Jun	A19	MT	10	3	NSSB	48	0.85	0.77	N	
2020	22-Jun	A19	MT	10	4	NSSB	48	0.75	0.68	N	
2020	22-Jun	A50	MT	6	1	NSSB	65	2.05	0.75	N	
2020	22-Jun	A50	MT	6	2	NSSB	57	1.60	0.86	N	
2020	22-Jun	A50	MT	6	3	NSSB	58	-	-	N	too windy for scale
2020	22-Jun	A50	MT	5	4	NSSB	61	1.60	0.70	N	
2020	22-Jun	A50	MT	5	5	NSSB	52	1.15	0.82	N	
2020	22-Jun	A50	MT	5	6	NSSB	71	2.90	0.81	N	
2020	22-Jun	A50	MT	5	7	NSSB	58	1.30	0.67	N	
2020	22-Jun	A50	MT	5	8	NSSB	60	1.55	0.72	N	
2020	22-Jun	A50	MT	5	9	NSSB	57	1.10	0.59	N	
2020	22-Jun	A50	MT	5	10	NSSB	57	1.15	0.62	N	
2020	22-Jun	A50	MT	5	11	NSSB	61	1.80	0.79	N	
2020	22-Jun	A50	MT	5	12	NSSB	54	1.30	0.83	N	
2020	22-Jun	A50	MT	5	13	NSSB	53	1.45	0.97	N	
2020	22-Jun	A50	MT	5	14	NSSB	50	1.10	0.88	N	
2020	22-Jun	A50	MT	5	15	NSSB	61	2.05	0.90	N	
2020	22-Jun	A50	MT	5	16	NSSB	55	1.60	0.96	N	
2020	22-Jun	A50	MT	5	17	NSSB	56	0.85	0.48	N	
2020	22-Jun	A50	MT	5	18	NSSB	60	1.70	0.79	N	
2020	22-Jun	A50	MT	5	19	NSSB	66	2.40	0.83	N	
2020	22-Jun	A50	MT	5	20	NSSB	54	1.05	0.67	N	
2020	22-Jun	A50	MT	5	21	NSSB	58	1.55	0.79	N	
2020	22-Jun	A50	MT	5	22	NSSB	55	1.05	0.63	N	
2020	22-Jun	A50	MT	5	23	NSSB	59	1.65	0.80	N	
2020	22-Jun	A50	MT	5	24	NSSB	60	1.05	0.49	N	
2020	22-Jun	A50	MT	5	25	NSSB	62	1.60	0.67	N	
2020	22-Jun	A50	MT	5	26	NSSB	66	1.80	0.63	N	
2020	22-Jun	A50	MT	5	27	NSSB	59	1.85	0.90	N	
2020	22-Jun	A50	MT	5	28	NSSB	59	1.35	0.66	N	
2020	22-Jun	A50	MT	5	29	NSSB	63	1.85	0.74	N	
2020	22-Jun	A50	MT	5	30	NSSB	71	1.85	0.52	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	22-Jun	A50	MT	5	31	NSSB	66	3.70	1.29	N	Confirm species from photo
2020	22-Jun	A50	MT	5	32	NSSB	55	1.15	0.69	N	31 NSSB counted not measured
2020	22-Jun	A50	MT	4	33	NSSB	70	2.30	0.67	N	
2020	22-Jun	A50	MT	4	34	NSSB	55	1.25	0.75	N	
2020	22-Jun	A50	MT	4	35	NSSB	56	1.75	1.00	N	
2020	22-Jun	A50	MT	4	36	NSSB	49	0.60	0.51	N	
2020	22-Jun	A50	MT	3	37	NSSB	56	1.30	0.74	N	
2020	22-Jun	A50	MT	3	38	NSSB	57	1.55	0.84	N	
2020	22-Jun	A50	MT	3	39	NSSB	59	1.50	0.73	N	
2020	22-Jun	A50	MT	3	40	NSSB	59	1.55	0.75	N	
2020	22-Jun	A50	MT	3	41	NSSB	54	1.10	0.70	N	
2020	22-Jun	A50	MT	3	42	NSSB	58	1.45	0.74	N	
2020	22-Jun	A50	MT	3	43	NSSB	66	1.70	0.59	N	
2020	22-Jun	A50	MT	3	44	NSSB	55	1.15	0.69	N	
2020	22-Jun	A50	MT	3	45	NSSB	64	2.05	0.78	N	
2020	22-Jun	A50	MT	3	46	NSSB	58	1.50	0.77	N	
2020	22-Jun	A50	MT	3	47	NSSB	59	1.60	0.78	N	
2020	22-Jun	A50	MT	3	48	NSSB	64	2.05	0.78	N	
2020	22-Jun	A50	MT	3	49	NSSB	59	1.40	0.68	N	
2020	22-Jun	A50	MT	3	50	NSSB	66	1.55	0.54	N	
2020	22-Jun	A50	MT	3	51	NSSB	54	1.55	0.98	N	
2020	22-Jun	A50	MT	3	52	NSSB	51	0.60	0.45	N	
2020	22-Jun	A50	MT	3	53	NSSB	49	0.65	0.55	N	
2020	22-Jun	A50	MT	3	54	NSSB	55	1.20	0.72	N	
2020	22-Jun	A50	MT	3	55	NSSB	54	0.90	0.57	N	
2020	22-Jun	A50	MT	3	56	NSSB	56	1.60	0.91	N	
2020	22-Jun	A50	MT	3	57	NSSB	59	1.30	0.63	N	23 NSSB counted not measured
2020	22-Jun	A50	MT	2	58	NSSB	66	1.85	0.64	N	
2020	22-Jun	A50	MT	2	59	NSSB	59	1.65	0.80	N	
2020	22-Jun	A51	MT	5	1	NSSB	65	1.75	0.64	N	
2020	22-Jun	A51	MT	1	2	NSSB	61	1.75	0.77	N	
2020	22-Jun	A51	MT	13	3	NSSB	50	1.25	1.00	N	
2020	22-Jun	A51	MT	11	4	NSSB	55	1.85	1.11	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	22-Jun	A51	MT	11	5	NSSB	62	1.50	0.63	N	
2020	22-Jun	A51	MT	11	6	NSSB	61	1.80	0.79	N	
2020	22-Jun	A51	MT	11	7	NSSB	60	1.75	0.81	N	
2020	22-Jun	A51	MT	11	8	NSSB	56	0.55	0.31	N	Scale issues
2020	22-Jun	A51	MT	11	9	NSSB	59	0.85	0.41	N	Scale issues
2020	22-Jun	A51	MT	11	10	NSSB	60	0.65	0.30	N	Scale issues
2020	22-Jun	A51	MT	11	11	NSSB	60	0.90	0.42	N	Scale issues
2020	22-Jun	A51	MT	11	12	NSSB	59	1.15	0.56	N	Scale issues
2020	22-Jun	A51	MT	11	13	NSSB	63	-	-	N	Scale issues
2020	22-Jun	A51	MT	11	14	NSSB	59	-	-	N	Scale issues
2020	22-Jun	A51	MT	11	15	NSSB	55	-	-	N	Scale issues
2020	22-Jun	A51	MT	11	16	NSSB	59	-	-	N	Scale issues
2020	22-Jun	A51	MT	11	17	NSSB	59	-	-	N	Scale issues
2020	22-Jun	A51	MT	11	18	NSSB	58	-	-	N	Scale issues
2020	22-Jun	A51	MT	11	19	NSSB	66	-	-	N	Scale issues
2020	22-Jun	A51	MT	11	20	NSSB	57	-	-	N	Scale issues
2020	22-Jun	A51	MT	11	21	NSSB	60	-	-	N	Scale issues
2020	22-Jun	A51	MT	11	22	NSSB	55	-	-	N	Scale issues
2020	22-Jun	A51	MT	11	23	NSSB	66	-	-	N	Scale issues
2020	22-Jun	A51	MT	11	24	NSSB	54	-	-	N	Scale issues; 22 fish counted but not measured
2020	22-Jun	A51	MT	7	25	NSSB	65	1.90	0.69	N	
2020	22-Jun	A51	MT	7	26	NSSB	54	1.35	0.86	N	
2020	22-Jun	A51	MT	7	27	NSSB	56	1.40	0.80	N	
2020	22-Jun	A51	MT	6	28	NSSB	70	2.40	0.70	N	
2020	22-Jun	A51	MT	6	29	NSSB	62	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	6	30	NSSB	57	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	6	31	NSSB	62	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	6	32	NSSB	56	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	33	NSSB	59	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	34	NSSB	68	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	35	NSSB	65	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	36	NSSB	62	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	37	NSSB	60	-	-	N	scale issues/windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	22-Jun	A51	MT	10	38	NSSB	57	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	39	NSSB	59	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	40	NSSB	66	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	41	NSSB	64	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	42	NSSB	65	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	43	NSSB	56	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	44	NSSB	56	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	45	NSSB	64	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	46	NSSB	55	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	47	NSSB	64	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	48	NSSB	66	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	49	NSSB	45	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	50	NSSB	66	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	51	NSSB	54	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	52	NSSB	52	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	53	NSSB	62	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	54	NSSB	56	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	55	NSSB	61	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	56	NSSB	59	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	57	NSSB	50	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	58	NSSB	54	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	59	NSSB	55	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	60	NSSB	64	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	61	NSSB	55	-	-	N	scale issues/windy
2020	22-Jun	A51	MT	10	62	NSSB	53	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	12	1	NSSB	63	2.05	0.82	N	scale issues/windy
2020	23-Jun	A52	MT	30	2	NSSB	64	2.15	0.82	N	scale issues/windy
2020	23-Jun	A52	MT	11	3	NSSB	62	1.60	0.67	N	scale issues/windy
2020	23-Jun	A52	MT	8	4	NSSB	54	1.30	0.83	N	scale issues/windy
2020	23-Jun	A52	MT	8	5	NSSB	54	1.05	0.67	N	scale issues/windy
2020	23-Jun	A52	MT	7	6	NSSB	74	3.15	0.78	N	scale issues/windy
2020	23-Jun	A52	MT	7	7	NSSB	69	1.55	0.47	N	scale issues/windy
2020	23-Jun	A52	MT	7	8	NSSB	58	1.60	0.82	N	scale issues/windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Jun	A52	MT	7	9	NSSB	60	1.55	0.72	N	scale issues/windy
2020	23-Jun	A52	MT	7	10	NSSB	62	1.65	0.69	N	scale issues/windy
2020	23-Jun	A52	MT	6	11	NSSB	66	2.35	0.82	N	scale issues/windy
2020	23-Jun	A52	MT	6	12	NSSB	54	1.35	0.86	N	scale issues/windy
2020	23-Jun	A52	MT	6	13	NSSB	54	1.25	0.79	N	scale issues/windy
2020	23-Jun	A52	MT	5	14	NSSB	56	1.25	0.71	N	scale issues/windy
2020	23-Jun	A52	MT	5	15	NSSB	55	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	16	NSSB	56	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	17	NSSB	53	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	18	NSSB	53	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	19	NSSB	64	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	20	NSSB	71	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	21	NSSB	55	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	22	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	23	NSSB	56	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	24	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	25	NSSB	56	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	26	NSSB	58	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	27	NSSB	73	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	28	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	29	NSSB	60	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	30	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	31	NSSB	68	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	32	NSSB	48	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	33	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	34	NSSB	51	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	35	NSSB	62	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	36	NSSB	58	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	37	NSSB	52	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	38	NSSB	53	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	5	39	NSSB	56	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	40	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	41	NSSB	59	-	-	N	scale issues/windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Jun	A52	MT	4	42	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	43	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	44	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	45	NSSB	62	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	46	NSSB	60	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	47	NSSB	63	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	48	NSSB	51	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	49	NSSB	56	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	50	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	51	NSSB	53	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	52	NSSB	53	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	53	NSSB	53	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	54	NSSB	58	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	55	NSSB	55	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	56	NSSB	57	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	57	NSSB	58	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	4	58	NSSB	53	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	3	59	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	3	60	NSSB	56	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	3	61	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	3	62	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	3	63	NSSB	64	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	3	64	NSSB	52	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	3	65	NSSB	64	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	3	66	NSSB	54	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	3	67	NSSB	55	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	2	68	NSSB	75	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	2	69	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	15	70	NSSB	65	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	15	71	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	15	72	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	15	73	NSSB	63	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	15	74	NSSB	56	-	-	N	scale issues/windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Jun	A52	MT	15	75	NSSB	57	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	15	76	NSSB	59	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	15	77	NSSB	54	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	15	78	NSSB	64	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	15	79	NSSB	52	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	15	80	NSSB	52	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	15	81	NSSB	54	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	15	82	NSSB	55	-	-	Y	scale issues/windy
2020	23-Jun	A52	MT	16	83	NSSB	55	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	17	84	NSSB	54	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	18	85	NSSB	56	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	18	86	NSSB	66	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	18	87	NSSB	63	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	19	88	NSSB	71	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	19	89	NSSB	65	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	19	90	NSSB	56	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	19	91	NSSB	56	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	20	92	NSSB	65	-	-	N	scale issues/windy
2020	23-Jun	A52	MT	24	93	NSSB	52	-	-	Y	scale issues/windy
2020	23-Jun	A52	MT	27	94	NSSB	72	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	16	1	NSSB	52	-	-	Y	scale issues/windy
2020	24-Jun	A2	MT	15	2	TSSB	62	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	15	3	TSSB	60	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	15	4	TSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	14	5	NSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	14	6	NSSB	58	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	14	7	NSSB	63	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	14	8	NSSB	60	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	14	9	NSSB	58	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	14	10	NSSB	54	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	14	11	TSSB	53	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	14	12	TSSB	60	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	14	13	NSSB	75	-	-	N	scale issues/windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Jun	A2	MT	14	14	NSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	14	15	NSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	13	16	NSSB	47	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	13	17	NSSB	62	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	11	18	TSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	11	19	NSSB	49	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	11	20	NSSB	49	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	11	21	NSSB	64	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	22	NSSB	70	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	23	NSSB	49	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	24	NSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	25	NSSB	74	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	26	NSSB	46	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	27	NSSB	75	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	28	NSSB	52	-	-	Y	scale issues/windy
2020	24-Jun	A2	MT	12	29	NSSB	52	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	30	NSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	31	NSSB	66	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	32	NSSB	60	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	33	NSSB	46	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	34	NSSB	76	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	35	NSSB	58	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	36	NSSB	56	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	37	NSSB	66	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	38	NSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	39	TSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	40	TSSB	61	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	41	TSSB	61	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	42	NSSB	49	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	43	TSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	44	NSSB	45	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	45	NSSB	48	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	46	NSSB	50	-	-	N	scale issues/windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Jun	A2	MT	12	47	NSSB	62	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	48	NSSB	45	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	12	49	NSSB	50	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	9	50	NSSB	66	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	9	51	NSSB	58	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	52	NSSB	65	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	53	NSSB	57	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	54	NSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	55	NSSB	57	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	56	NSSB	65	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	57	NSSB	66	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	58	NSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	59	NSSB	48	-	-	Y	scale issues/windy
2020	24-Jun	A2	MT	8	60	NSSB	62	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	61	NSSB	49	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	62	NSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	63	NSSB	64	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	64	NSSB	58	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	65	NSSB	63	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	66	NSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	67	TSSB	60	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	68	NSSB	58	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	69	NSSB	51	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	70	NSSB	56	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	71	TSSB	58	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	72	NSSB	57	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	8	73	NSSB	62	-	-	N	scale issues/windy; 19 NSSB counted not measured
2020	24-Jun	A2	MT	7	74	NSSB	53	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	7	75	NSSB	64	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	76	NSSB	52	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	77	NSSB	78	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	78	NSSB	72	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	79	NSSB	65	-	-	N	scale issues/windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Jun	A2	MT	5	80	NSSB	64	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	81	NSSB	76	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	82	NSSB	69	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	83	NSSB	50	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	84	NSSB	56	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	85	NSSB	67	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	86	NSSB	64	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	87	NSSB	67	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	88	TSSB	53	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	89	TSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	90	TSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	91	NSSB	53	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	92	NSSB	62	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	93	NSSB	70	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	94	NSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	95	TSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	96	NSSB	58	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	97	NSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	5	98	TSSB	54	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	99	NSSB	65	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	100	NSSB	51	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	101	NSSB	65	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	102	NSSB	54	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	103	NSSB	61	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	104	TSSB	64	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	105	TSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	106	TSSB	57	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	107	NSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	108	NSSB	78	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	109	NSSB	71	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	110	NSSB	51	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	111	NSSB	53	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	112	NSSB	65	-	-	N	scale issues/windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Jun	A2	MT	4	113	NSSB	64	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	114	NSSB	70	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	115	NSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	116	NSSB	51	-	-	Y	scale issues/windy
2020	24-Jun	A2	MT	4	117	NSSB	54	-	-	Y	scale issues/windy
2020	24-Jun	A2	MT	4	118	NSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	119	TSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	120	NSSB	60	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	121	NSSB	63	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	122	NSSB	76	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	123	NSSB	70	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	124	NSSB	65	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	4	125	NSSB	74	-	-	N	scale issues/windy; 30 NSSB counted not measured, 2 TSSB counted not measured
2020	24-Jun	A2	MT	1	126	NSSB	70	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	1	127	NSSB	66	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	1	128	NSSB	75	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	1	129	NSSB	65	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	1	130	NSSB	46	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	3	131	NSSB	66	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	3	132	NSSB	66	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	17	133	TSSB	65	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	17	134	NSSB	56	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	17	135	NSSB	75	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	17	136	NSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	17	137	TSSB	57	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	17	138	NSSB	60	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	139	NSSB	60	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	140	NSSB	57	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	141	NSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	142	NSSB	63	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	143	NSSB	74	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	144	NSSB	58	-	-	N	scale issues/windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Jun	A2	MT	18	145	NSSB	68	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	146	TSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	147	NSSB	54	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	148	NSSB	54	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	149	NSSB	58	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	150	NSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	151	NSSB	48	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	152	TSSB	56	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	18	153	NSSB	56	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	19	154	NSSB	65	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	19	155	NSSB	63	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	19	156	NSSB	50	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	19	157	NSSB	52	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	19	158	TSSB	50	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	19	159	NSSB	60	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	20	160	NSSB	54	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	21	161	TSSB	60	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	21	162	NSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	21	163	NSSB	72	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	21	164	NSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	21	165	NSSB	60	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	21	166	TSSB	58	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	21	167	NSSB	48	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	22	168	TSSB	63	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	22	169	NSSB	46	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	22	170	NSSB	64	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	22	171	NSSB	52	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	22	172	TSSB	60	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	24	173	NSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	24	174	NSSB	69	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	24	175	TSSB	63	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	24	176	TSSB	51	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	24	177	NSSB	49	-	-	N	scale issues/windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Jun	A2	MT	24	178	NSSB	49	-	-	Y	scale issues/windy
2020	24-Jun	A2	MT	25	179	TSSB	62	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	25	180	TSSB	61	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	25	181	NSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	26	182	NSSB	56	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	26	183	NSSB	55	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	26	184	TSSB	60	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	26	185	TSSB	54	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	26	186	NSSB	54	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	27	187	NSSB	57	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	27	188	NSSB	49	-	-	Y	scale issues/windy
2020	24-Jun	A2	MT	29	189	NSSB	65	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	30	190	NSSB	59	-	-	N	scale issues/windy
2020	24-Jun	A2	MT	30	191	TSSB	54	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	1	1	TSSB	54	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	2	2	NSSB	65	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	2	3	TSSB	61	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	2	4	TSSB	59	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	5	TSSB	55	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	6	TSSB	59	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	7	TSSB	55	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	8	TSSB	53	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	9	TSSB	65	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	10	TSSB	54	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	11	TSSB	60	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	12	TSSB	65	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	13	TSSB	60	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	14	TSSB	55	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	15	TSSB	59	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	16	TSSB	64	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	17	TSSB	61	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	3	18	TSSB	60	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	7	19	TSSB	58	-	-	N	scale issues/windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	26-Jun	A1	MT	10	20	NSSB	70	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	11	21	TSSB	55	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	11	22	TSSB	58	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	13	23	NSSB	55	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	17	24	TSSB	61	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	17	25	TSSB	57	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	17	26	TSSB	50	-	-	N	scale issues/windy
2020	26-Jun	A1	MT	17	27	NSSB	59	-	-	Y	
2020	26-Jun	A1	MT	17	28	TSSB	64	-	-	N	
2020	26-Jun	A1	MT	17	29	NSSB	53	-	-	N	
2020	26-Jun	A1	MT	18	30	TSSB	55	-	-	N	
2020	26-Jun	A1	MT	18	31	TSSB	59	-	-	N	
2020	26-Jun	A1	MT	22	32	NSSB	72	-	-	N	1 got away
2020	26-Jun	A1	MT	23	33	NSSB	53	-	-	Y	Unknown reason for mort
2020	26-Jun	A1	MT	26	34	TSSB	50	-	-	N	
2020	27-Jun	A31	MT	6	1	NSSB	63	-	-	N	
2020	27-Jun	A6	MT	1	1	NSSB	56	-	-	N	
2020	27-Jun	A6	MT	2	2	NSSB	57	-	-	N	
2020	27-Jun	A6	MT	2	3	NSSB	53	-	-	N	
2020	27-Jun	A6	MT	3	4	NSSB	64	-	-	N	
2020	27-Jun	A6	MT	3	5	NSSB	62	-	-	N	
2020	27-Jun	A6	MT	3	6	NSSB	58	-	-	N	
2020	27-Jun	A6	MT	3	7	NSSB	59	-	-	N	
2020	27-Jun	A6	MT	3	8	NSSB	57	-	-	N	
2020	27-Jun	A6	MT	3	9	NSSB	56	-	-	N	
2020	27-Jun	A6	MT	4	10	NSSB	55	-	-	N	
2020	27-Jun	A6	MT	4	11	NSSB	70	-	-	N	
2020	27-Jun	A6	MT	4	12	NSSB	63	-	-	N	
2020	27-Jun	A6	MT	5	13	NSSB	65	-	-	N	
2020	27-Jun	A6	MT	6	14	NSSB	59	-	-	N	
2020	27-Jun	A6	MT	6	15	NSSB	63	-	-	N	
2020	27-Jun	A6	MT	6	16	NSSB	55	-	-	N	
2020	27-Jun	A6	MT	6	17	NSSB	54	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	27-Jun	A6	MT	6	18	NSSB	63	-	-	N	
2020	27-Jun	A6	MT	6	19	NSSB	53	-	-	N	
2020	27-Jun	A6	MT	6	20	NSSB	60	-	-	N	
2020	27-Jun	A6	MT	6	21	NSSB	59	-	-	N	
2020	27-Jun	A6	MT	7	22	NSSB	59	-	-	N	
2020	27-Jun	A6	MT	7	23	NSSB	63	-	-	N	
2020	27-Jun	A6	MT	7	24	NSSB	60	-	-	N	
2020	27-Jun	A6	MT	7	25	NSSB	53	-	-	N	
2020	27-Jun	A6	MT	7	26	NSSB	60	-	-	N	
2020	27-Jun	A6	MT	7	27	NSSB	54	-	-	N	
2020	27-Jun	A6	MT	7	28	NSSB	56	-	-	N	
2020	27-Jun	A6	MT	7	29	NSSB	51	-	-	N	
2020	27-Jun	A6	MT	7	30	NSSB	60	-	-	N	
2020	27-Jun	A6	MT	7	31	NSSB	55	-	-	N	
2020	27-Jun	A6	MT	8	32	NSSB	52	-	-	N	
2020	27-Jun	A6	MT	11	33	NSSB	56	-	-	N	
2020	27-Jun	A6	MT	11	34	NSSB	50	-	-	N	
2020	27-Jun	A6	MT	11	35	NSSB	59	-	-	N	
2020	27-Jun	A6	MT	11	36	NSSB	58	-	-	N	
2020	27-Jun	A6	MT	11	37	NSSB	56	-	-	N	
2020	27-Jun	A6	MT	13	38	NSSB	53	-	-	N	
2020	27-Jun	A6	MT	13	39	NSSB	65	-	-	N	
2020	27-Jun	A6	MT	13	40	NSSB	54	-	-	N	
2020	27-Jun	A6	MT	15	41	NSSB	52	-	-	N	
2020	27-Jun	A6	MT	15	42	NSSB	58	-	-	N	
2020	28-Jun	A40	MT	14	1	NSSB	60	1.75	0.81	N	
2020	28-Jun	A40	MT	15	2	NSSB	62	1.55	0.65	N	
2020	28-Jun	A40	MT	15	3	NSSB	55	1.40	0.84	N	
2020	28-Jun	A40	MT	15	4	NSSB	58	1.65	0.85	N	
2020	28-Jun	A40	MT	15	5	NSSB	52	1.10	0.78	N	
2020	28-Jun	A40	MT	15	6	NSSB	53	1.60	1.07	N	
2020	28-Jun	A8	MT	1	1	NSSB	56	1.10	0.63	N	
2020	28-Jun	A8	MT	1	2	NSSB	54	1.00	0.64	N	scale inconsistent

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	28-Jun	A8	MT	1	3	NSSB	54	1.20	0.76	N	
2020	28-Jun	A8	MT	1	4	NSSB	49	1.00	0.85	N	
2020	28-Jun	A8	MT	1	5	NSSB	60	1.55	0.72	N	
2020	28-Jun	A8	MT	1	6	NSSB	63	1.85	0.74	N	
2020	28-Jun	A8	MT	1	7	NSSB	56	1.15	0.65	N	
2020	28-Jun	A8	MT	1	8	NSSB	59	1.05	0.51	N	
2020	28-Jun	A8	MT	1	9	NSSB	56	1.55	0.88	N	
2020	28-Jun	A8	MT	1	10	NSSB	55	1.55	0.93	N	
2020	28-Jun	A8	MT	1	11	NSSB	58	1.35	0.69	N	
2020	28-Jun	A8	MT	1	12	NSSB	59	1.05	0.51	N	
2020	28-Jun	A8	MT	2	13	NSSB	70	2.40	0.70	N	
2020	28-Jun	A8	MT	2	14	NSSB	59	1.65	0.80	N	
2020	28-Jun	A8	MT	2	15	NSSB	66	2.85	0.99	N	
2020	28-Jun	A8	MT	2	16	NSSB	64	1.75	0.67	N	
2020	28-Jun	A8	MT	2	17	NSSB	59	1.55	0.75	N	
2020	28-Jun	A8	MT	2	18	NSSB	53	1.80	1.21	N	
2020	28-Jun	A8	MT	2	19	NSSB	65	2.40	0.87	N	
2020	28-Jun	A8	MT	2	20	NSSB	47	0.90	0.87	N	
2020	28-Jun	A8	MT	2	21	NSSB	45	0.60	0.66	N	
2020	28-Jun	A8	MT	2	22	NSSB	57	1.60	0.86	N	
2020	28-Jun	A8	MT	2	23	NSSB	53	1.10	0.74	N	
2020	28-Jun	A8	MT	2	24	NSSB	56	1.20	0.68	N	
2020	28-Jun	A8	MT	2	25	NSSB	60	1.40	0.65	N	
2020	28-Jun	A8	MT	2	26	NSSB	57	1.60	0.86	N	
2020	28-Jun	A8	MT	2	27	NSSB	59	1.05	0.51	N	
2020	28-Jun	A8	MT	2	28	NSSB	62	1.35	0.57	N	7 NSSB counted, not measured
2020	28-Jun	A8	MT	3	29	NSSB	59	1.55	0.75	N	
2020	28-Jun	A8	MT	3	30	NSSB	59	1.55	0.75	N	
2020	28-Jun	A8	MT	3	31	NSSB	56	1.70	0.97	N	
2020	28-Jun	A8	MT	3	32	NSSB	74	3.25	0.80	N	
2020	28-Jun	A8	MT	3	33	NSSB	55	1.00	0.60	N	
2020	28-Jun	A8	MT	3	34	NSSB	55	1.15	0.69	N	
2020	28-Jun	A8	MT	3	35	NSSB	57	1.15	0.62	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	28-Jun	A8	MT	3	36	NSSB	55	1.25	0.75	N	
2020	28-Jun	A8	MT	3	37	NSSB	59	1.70	0.83	N	
2020	28-Jun	A8	MT	3	38	NSSB	64	2.00	0.76	N	
2020	28-Jun	A8	MT	3	39	NSSB	65	2.25	0.82	N	
2020	28-Jun	A8	MT	3	40	NSSB	54	1.10	0.70	N	
2020	28-Jun	A8	MT	3	41	NSSB	59	1.75	0.85	N	
2020	28-Jun	A8	MT	3	42	NSSB	55	1.45	0.87	N	
2020	28-Jun	A8	MT	3	43	NSSB	48	1.05	0.95	N	12 NSSB counted, not measured
2020	28-Jun	A8	MT	4	44	NSSB	65	2.20	0.80	N	
2020	28-Jun	A8	MT	4	45	NSSB	63	1.20	0.48	N	
2020	28-Jun	A8	MT	4	46	NSSB	60	1.85	0.86	N	
2020	28-Jun	A8	MT	4	47	NSSB	52	1.00	0.71	N	
2020	28-Jun	A8	MT	4	48	NSSB	57	1.55	0.84	N	
2020	28-Jun	A8	MT	4	49	NSSB	53	1.05	0.71	N	
2020	28-Jun	A8	MT	4	50	NSSB	55	1.55	0.93	N	
2020	28-Jun	A8	MT	4	51	NSSB	65	2.20	0.80	N	
2020	28-Jun	A8	MT	4	52	NSSB	53	1.60	1.07	N	
2020	28-Jun	A8	MT	4	53	NSSB	70	2.85	0.83	N	
2020	28-Jun	A8	MT	4	54	NSSB	68	2.30	0.73	N	
2020	28-Jun	A8	MT	4	55	NSSB	54	1.25	0.79	N	
2020	28-Jun	A8	MT	4	56	NSSB	58	2.05	1.05	N	
2020	28-Jun	A8	MT	4	57	NSSB	49	0.70	0.59	N	
2020	28-Jun	A8	MT	4	58	NSSB	59	1.65	0.80	N	13 NSSB counted, not measured
2020	28-Jun	A8	MT	5	59	NSSB	60	1.55	0.72	N	
2020	28-Jun	A8	MT	5	60	NSSB	54	1.05	0.67	N	
2020	28-Jun	A8	MT	5	61	NSSB	63	2.05	0.82	N	
2020	28-Jun	A8	MT	5	62	NSSB	65	2.55	0.93	N	
2020	28-Jun	A8	MT	5	63	NSSB	53	0.95	0.64	N	
2020	28-Jun	A8	MT	5	64	NSSB	61	2.25	0.99	N	
2020	28-Jun	A8	MT	5	65	NSSB	58	1.65	0.85	N	
2020	28-Jun	A8	MT	5	66	NSSB	52	0.85	0.60	N	
2020	28-Jun	A8	MT	5	67	NSSB	62	2.05	0.86	N	
2020	28-Jun	A8	MT	5	68	NSSB	55	1.40	0.84	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	28-Jun	A8	MT	5	69	NSSB	67	1.55	0.52	N	
2020	28-Jun	A8	MT	5	70	NSSB	52	1.05	0.75	N	
2020	28-Jun	A8	MT	5	71	NSSB	53	1.15	0.77	N	
2020	28-Jun	A8	MT	5	72	NSSB	50	1.05	0.84	N	
2020	28-Jun	A8	MT	5	73	NSSB	53	1.55	1.04	N	3 NSSB counted, not measured
2020	28-Jun	A8	MT	6	74	NSSB	-	1.05	-	N	fish got away
2020	28-Jun	A8	MT	6	75	NSSB	67	2.40	0.80	N	
2020	28-Jun	A8	MT	6	76	NSSB	52	1.05	0.75	N	
2020	28-Jun	A8	MT	6	77	NSSB	60	1.40	0.65	N	
2020	28-Jun	A8	MT	6	78	NSSB	60	1.60	0.74	N	
2020	28-Jun	A8	MT	6	79	NSSB	53	1.15	0.77	N	
2020	28-Jun	A8	MT	6	80	NSSB	52	1.00	0.71	N	
2020	28-Jun	A8	MT	6	81	NSSB	60	1.50	0.69	N	
2020	28-Jun	A8	MT	6	82	NSSB	55	1.20	0.72	N	
2020	28-Jun	A8	MT	6	83	NSSB	55	1.45	0.87	N	
2020	28-Jun	A8	MT	6	84	NSSB	55	2.15	1.29	N	
2020	28-Jun	A8	MT	6	85	NSSB	50	0.80	0.64	N	
2020	28-Jun	A8	MT	6	86	NSSB	72	2.55	0.68	N	
2020	28-Jun	A8	MT	6	87	NSSB	60	2.00	0.93	N	
2020	28-Jun	A8	MT	6	88	NSSB	60	1.45	0.67	N	11 NSSB counted, not measured
2020	28-Jun	A8	MT	7	89	NSSB	55	1.20	0.72	N	
2020	28-Jun	A8	MT	7	90	NSSB	55	1.25	0.75	N	
2020	28-Jun	A8	MT	7	91	NSSB	62	1.85	0.78	N	
2020	28-Jun	A8	MT	7	92	NSSB	60	1.70	0.79	N	
2020	28-Jun	A8	MT	7	93	NSSB	65	1.70	0.62	N	
2020	28-Jun	A8	MT	7	94	NSSB	60	1.45	0.67	N	
2020	28-Jun	A8	MT	7	95	NSSB	61	2.10	0.93	N	
2020	28-Jun	A8	MT	7	96	NSSB	55	1.30	0.78	N	
2020	28-Jun	A8	MT	7	97	NSSB	51	0.80	0.60	N	
2020	28-Jun	A8	MT	7	98	NSSB	56	1.25	0.71	N	
2020	28-Jun	A8	MT	9	99	NSSB	50	1.10	0.88	N	
2020	28-Jun	A8	MT	9	100	NSSB	67	2.00	0.66	N	
2020	28-Jun	A8	MT	9	101	NSSB	53	1.25	0.84	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	28-Jun	A8	MT	9	102	NSSB	60	1.60	0.74	N	
2020	28-Jun	A8	MT	9	103	NSSB	59	1.30	0.63	N	
2020	28-Jun	A8	MT	9	104	NSSB	68	2.55	0.81	N	
2020	28-Jun	A8	MT	9	105	NSSB	62	1.85	0.78	N	
2020	28-Jun	A8	MT	9	106	NSSB	55	1.35	0.81	N	
2020	28-Jun	A8	MT	9	107	NSSB	54	1.20	0.76	N	
2020	28-Jun	A8	MT	9	108	NSSB	56	1.25	0.71	N	
2020	28-Jun	A8	MT	9	109	NSSB	61	1.55	0.68	N	
2020	28-Jun	A8	MT	9	110	NSSB	61	1.75	0.77	N	
2020	28-Jun	A8	MT	9	111	NSSB	51	1.10	0.83	N	
2020	28-Jun	A8	MT	9	112	NSSB	59	1.60	0.78	N	
2020	28-Jun	A8	MT	9	113	NSSB	57	1.25	0.67	N	10 NSSB counted, not measured
2020	28-Jun	A8	MT	10	114	NSSB	57	1.45	0.78	N	
2020	28-Jun	A8	MT	10	115	NSSB	47	0.70	0.67	N	
2020	28-Jun	A8	MT	10	116	NSSB	53	1.10	0.74	N	
2020	28-Jun	A8	MT	10	117	NSSB	55	1.45	0.87	N	
2020	28-Jun	A8	MT	10	118	NSSB	59	1.40	0.68	N	
2020	28-Jun	A8	MT	10	119	NSSB	65	1.80	0.66	N	
2020	28-Jun	A8	MT	10	120	NSSB	60	1.65	0.76	N	
2020	28-Jun	A8	MT	10	121	NSSB	55	1.30	0.78	N	
2020	28-Jun	A8	MT	10	122	NSSB	54	1.55	0.98	N	
2020	28-Jun	A8	MT	10	123	NSSB	58	1.40	0.72	N	
2020	28-Jun	A8	MT	10	124	NSSB	53	1.20	0.81	N	
2020	28-Jun	A8	MT	10	125	NSSB	47	0.90	0.87	N	
2020	28-Jun	A8	MT	10	126	NSSB	53	1.10	0.74	N	
2020	28-Jun	A8	MT	10	127	NSSB	62	1.90	0.80	N	
2020	28-Jun	A8	MT	10	128	NSSB	60	2.00	0.93	N	23 NSSB counted, not measured
2020	28-Jun	A8	MT	11	129	NSSB	54	1.15	0.73	N	
2020	28-Jun	A8	MT	11	130	NSSB	54	1.50	0.95	N	
2020	28-Jun	A8	MT	11	131	NSSB	55	1.55	0.93	N	
2020	28-Jun	A8	MT	11	132	NSSB	55	1.15	0.69	N	
2020	28-Jun	A8	MT	11	133	NSSB	65	2.35	0.86	N	
2020	28-Jun	A8	MT	11	134	NSSB	52	1.00	0.71	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	28-Jun	A8	MT	11	135	NSSB	57	1.40	0.76	N	
2020	28-Jun	A8	MT	11	136	NSSB	50	1.00	0.80	N	
2020	28-Jun	A8	MT	11	137	NSSB	52	1.15	0.82	N	
2020	28-Jun	A8	MT	13	138	NSSB	52	1.15	0.82	N	
2020	28-Jun	A8	MT	13	139	NSSB	60	1.70	0.79	N	
2020	28-Jun	A8	MT	13	140	NSSB	50	0.90	0.72	N	
2020	28-Jun	A8	MT	13	141	NSSB	72	2.60	0.70	N	
2020	28-Jun	A8	MT	13	142	NSSB	60	1.70	0.79	N	
2020	28-Jun	A8	MT	13	143	NSSB	62	1.55	0.65	N	
2020	28-Jun	A8	MT	13	144	NSSB	49	1.00	0.85	N	
2020	28-Jun	A8	MT	13	145	NSSB	56	1.30	0.74	N	
2020	28-Jun	A8	MT	13	146	NSSB	50	1.05	0.84	N	
2020	28-Jun	A8	MT	13	147	NSSB	56	1.30	0.74	N	
2020	28-Jun	A8	MT	13	148	NSSB	61	1.70	0.75	N	
2020	28-Jun	A8	MT	13	149	NSSB	62	2.00	0.84	N	
2020	28-Jun	A8	MT	13	150	NSSB	55	1.45	0.87	N	
2020	28-Jun	A8	MT	13	151	NSSB	49	0.85	0.72	N	
2020	28-Jun	A8	MT	13	152	NSSB	60	1.55	0.72	N	31 NSSB counted, not measured
2020	28-Jun	A8	MT	14	153	NSSB	52	1.10	0.78	N	
2020	28-Jun	A8	MT	14	154	NSSB	58	1.45	0.74	N	
2020	28-Jun	A8	MT	14	155	NSSB	55	1.35	0.81	N	
2020	28-Jun	A8	MT	14	156	NSSB	69	2.20	0.67	N	
2020	28-Jun	A8	MT	14	157	NSSB	60	1.70	0.79	N	
2020	28-Jun	A8	MT	14	158	NSSB	50	1.00	0.80	N	
2020	28-Jun	A8	MT	14	159	NSSB	59	1.45	0.71	N	
2020	28-Jun	A8	MT	14	160	NSSB	61	1.60	0.70	N	
2020	28-Jun	A8	MT	14	161	NSSB	50	0.95	0.76	N	
2020	28-Jun	A8	MT	14	162	NSSB	50	1.00	0.80	N	
2020	28-Jun	A8	MT	14	163	NSSB	53	1.65	1.11	N	
2020	28-Jun	A8	MT	14	164	NSSB	52	1.05	0.75	N	
2020	28-Jun	A8	MT	14	165	NSSB	49	0.90	0.76	N	
2020	28-Jun	A8	MT	14	166	NSSB	56	1.50	0.85	N	
2020	28-Jun	A8	MT	14	167	NSSB	55	1.30	0.78	N	23 NSSB counted, not measured

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	28-Jun	A8	MT	15	168	NSSB	59	1.40	0.68	N	
2020	28-Jun	A8	MT	15	169	NSSB	56	1.35	0.77	N	
2020	28-Jun	A8	MT	15	170	NSSB	61	1.75	0.77	N	
2020	28-Jun	A8	MT	15	171	NSSB	55	1.35	0.81	N	
2020	28-Jun	A8	MT	15	172	NSSB	53	1.15	0.77	N	
2020	28-Jun	A8	MT	15	173	NSSB	50	1.25	1.00	N	
2020	28-Jun	A8	MT	15	174	NSSB	52	1.25	0.89	N	
2020	28-Jun	A8	MT	15	175	NSSB	64	1.90	0.72	N	
2020	28-Jun	A8	MT	15	176	NSSB	59	1.55	0.75	N	
2020	28-Jun	A8	MT	15	177	NSSB	59	1.45	0.71	N	
2020	28-Jun	A8	MT	15	178	NSSB	72	2.30	0.62	N	
2020	28-Jun	A8	MT	15	179	NSSB	60	1.65	0.76	N	
2020	28-Jun	A8	MT	15	180	NSSB	56	1.35	0.77	N	
2020	28-Jun	A8	MT	15	181	NSSB	64	1.90	0.72	N	
2020	28-Jun	A8	MT	15	182	NSSB	54	1.20	0.76	N	29 NSSB counted, not measured
2020	30-Jun	B61	MT	14	1	NSSB	54	1.60	1.02	N	
2020	23-Jul	B7	MT	14	1	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	13	2	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	13	3	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	13	4	NSSB	49	-	-	N	
2020	23-Jul	B7	MT	13	5	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	13	6	NSSB	51	-	-	N	
2020	23-Jul	B7	MT	13	7	NSSB	66	-	-	N	
2020	23-Jul	B7	MT	13	8	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	13	9	NSSB	69	-	-	N	
2020	23-Jul	B7	MT	13	10	NSSB	65	-	-	N	
2020	23-Jul	B7	MT	13	11	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	13	12	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	13	13	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	13	14	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	13	15	NSSB	46	-	-	N	
2020	23-Jul	B7	MT	13	16	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	13	17	NSSB	57	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Jul	B7	MT	13	18	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	13	19	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	13	20	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	13	21	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	13	22	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	13	23	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	13	24	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	13	25	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	13	26	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	12	27	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	12	28	NSSB	60	-	-	N	
2020	23-Jul	B7	MT	12	29	NSSB	59	-	-	N	
2020	23-Jul	B7	MT	12	30	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	12	31	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	12	32	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	12	33	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	12	34	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	1	35	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	1	36	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	1	37	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	1	38	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	1	39	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	1	40	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	2	41	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	2	42	NSSB	49	-	-	N	
2020	23-Jul	B7	MT	2	43	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	2	44	NSSB	59	-	-	N	
2020	23-Jul	B7	MT	2	45	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	2	46	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	2	47	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	2	48	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	4	49	NSSB	60	-	-	N	
2020	23-Jul	B7	MT	4	50	NSSB	55	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Jul	B7	MT	4	51	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	4	52	NSSB	49	-	-	N	
2020	23-Jul	B7	MT	4	53	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	4	54	NSSB	47	-	-	N	
2020	23-Jul	B7	MT	4	55	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	4	56	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	4	57	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	4	58	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	4	59	NSSB	65	-	-	N	
2020	23-Jul	B7	MT	4	60	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	4	61	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	4	62	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	4	63	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	4	64	NSSB	45	-	-	N	
2020	23-Jul	B7	MT	5	65	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	5	66	NSSB	64	-	-	N	
2020	23-Jul	B7	MT	5	67	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	5	68	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	5	69	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	5	70	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	5	71	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	5	72	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	5	73	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	5	74	NSSB	59	-	-	N	
2020	23-Jul	B7	MT	6	75	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	7	76	NSSB	59	-	-	N	
2020	23-Jul	B7	MT	7	77	NSSB	59	-	-	N	
2020	23-Jul	B7	MT	7	78	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	7	79	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	7	80	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	7	81	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	7	82	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	7	83	NSSB	53	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Jul	B7	MT	7	84	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	7	85	NSSB	57	-	-	N	
2020	23-Jul	B7	MT	7	86	NSSB	61	-	-	N	
2020	23-Jul	B7	MT	7	87	NSSB	51	-	-	N	
2020	23-Jul	B7	MT	7	88	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	7	89	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	7	90	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	7	91	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	10	92	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	10	93	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	10	94	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	10	95	NSSB	47	-	-	N	
2020	23-Jul	B7	MT	10	96	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	24	97	NSSB	61	-	-	N	
2020	23-Jul	B7	MT	24	98	NSSB	48	-	-	N	
2020	23-Jul	B7	MT	24	99	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	24	100	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	24	101	NSSB	59	-	-	N	
2020	23-Jul	B7	MT	24	102	NSSB	57	-	-	N	
2020	23-Jul	B7	MT	24	103	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	24	104	NSSB	59	-	-	N	
2020	23-Jul	B7	MT	24	105	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	24	106	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	24	107	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	24	108	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	24	109	NSSB	51	-	-	N	
2020	23-Jul	B7	MT	24	110	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	24	111	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	24	112	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	24	113	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	24	114	NSSB	51	-	-	N	
2020	23-Jul	B7	MT	24	115	NSSB	60	-	-	N	
2020	23-Jul	B7	MT	24	116	NSSB	60	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Jul	B7	MT	24	117	NSSB	60	-	-	N	
2020	23-Jul	B7	MT	24	118	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	24	119	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	24	120	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	24	121	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	24	122	NSSB	49	-	-	N	
2020	23-Jul	B7	MT	24	123	NSSB	60	-	-	N	
2020	23-Jul	B7	MT	22	124	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	21	125	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	21	126	NSSB	49	-	-	N	
2020	23-Jul	B7	MT	21	127	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	21	128	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	21	129	NSSB	63	-	-	N	
2020	23-Jul	B7	MT	21	130	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	21	131	NSSB	47	-	-	N	
2020	23-Jul	B7	MT	21	132	NSSB	64	-	-	N	
2020	23-Jul	B7	MT	21	133	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	21	134	NSSB	51	-	-	N	
2020	23-Jul	B7	MT	21	135	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	21	136	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	21	137	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	21	138	NSSB	57	-	-	N	
2020	23-Jul	B7	MT	21	139	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	21	140	NSSB	57	-	-	N	
2020	23-Jul	B7	MT	21	141	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	21	142	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	21	143	NSSB	45	-	-	N	
2020	23-Jul	B7	MT	20	144	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	20	145	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	20	146	NSSB	48	-	-	N	
2020	23-Jul	B7	MT	20	147	NSSB	64	-	-	N	
2020	23-Jul	B7	MT	20	148	NSSB	49	-	-	N	
2020	23-Jul	B7	MT	20	149	NSSB	54	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Jul	B7	MT	20	150	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	20	151	NSSB	59	-	-	N	
2020	23-Jul	B7	MT	19	152	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	19	153	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	19	154	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	19	155	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	19	156	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	19	157	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	19	158	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	17	159	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	17	160	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	17	161	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	17	162	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	17	163	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	17	164	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	17	165	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	17	166	NSSB	61	-	-	N	
2020	23-Jul	B7	MT	17	167	NSSB	51	-	-	N	
2020	23-Jul	B7	MT	17	168	NSSB	59	-	-	N	
2020	23-Jul	B7	MT	17	169	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	17	170	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	17	171	NSSB	48	-	-	N	
2020	23-Jul	B7	MT	17	172	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	17	173	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	17	174	NSSB	63	-	-	N	
2020	23-Jul	B7	MT	16	175	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	16	176	NSSB	60	-	-	N	
2020	23-Jul	B7	MT	16	177	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	16	178	NSSB	51	-	-	N	
2020	23-Jul	B7	MT	16	179	NSSB	44	-	-	N	
2020	23-Jul	B7	MT	16	180	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	16	181	NSSB	60	-	-	N	
2020	23-Jul	B7	MT	16	182	NSSB	50	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Jul	B7	MT	16	183	NSSB	73	-	-	N	
2020	23-Jul	B7	MT	16	184	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	16	185	NSSB	51	-	-	N	
2020	23-Jul	B7	MT	16	186	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	16	187	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	16	188	NSSB	57	-	-	N	
2020	23-Jul	B7	MT	16	189	NSSB	44	-	-	N	
2020	23-Jul	B7	MT	16	190	NSSB	62	-	-	N	
2020	23-Jul	B7	MT	16	191	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	16	192	NSSB	49	-	-	N	
2020	23-Jul	B7	MT	16	193	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	16	194	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	16	195	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	16	196	NSSB	59	-	-	N	
2020	23-Jul	B7	MT	25	197	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	25	198	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	25	199	NSSB	51	-	-	N	
2020	23-Jul	B7	MT	25	200	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	25	201	NSSB	70	-	-	N	
2020	23-Jul	B7	MT	25	202	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	25	203	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	25	204	NSSB	64	-	-	N	
2020	23-Jul	B7	MT	25	205	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	25	206	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	25	207	NSSB	59	-	-	N	
2020	23-Jul	B7	MT	25	208	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	25	209	NSSB	49	-	-	N	
2020	23-Jul	B7	MT	25	210	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	26	211	NSSB	70	-	-	N	
2020	23-Jul	B7	MT	26	212	NSSB	61	-	-	N	
2020	23-Jul	B7	MT	27	213	NSSB	58	-	-	N	
2020	23-Jul	B7	MT	27	214	NSSB	50	-	-	N	
2020	23-Jul	B7	MT	27	215	NSSB	55	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Jul	B7	MT	27	216	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	27	217	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	29	218	NSSB	59	-	-	N	
2020	23-Jul	B7	MT	29	219	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	29	220	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	29	221	NSSB	56	-	-	N	
2020	23-Jul	B7	MT	30	222	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	30	223	NSSB	62	-	-	N	
2020	23-Jul	B7	MT	30	224	NSSB	52	-	-	N	
2020	23-Jul	B7	MT	30	225	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	30	226	NSSB	49	-	-	N	
2020	23-Jul	B7	MT	30	227	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	30	228	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	30	229	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	30	230	NSSB	55	-	-	N	
2020	23-Jul	B7	MT	30	231	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	30	232	NSSB	60	-	-	N	
2020	23-Jul	B7	MT	30	233	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	30	234	NSSB	53	-	-	N	
2020	23-Jul	B7	MT	30	235	NSSB	54	-	-	N	
2020	23-Jul	B7	MT	30	236	NSSB	47	-	-	N	48 NSSB counted, not measured
2020	24-Jul	B25	MT	20	1	NSSB	80	3.23	0.63	N	
2020	24-Jul	B25	MT	20	2	NSSB	57	1.40	0.76	N	
2020	24-Jul	B25	MT	2	3	NSSB	55	1.16	0.70	N	
2020	24-Jul	B25	MT	3	4	NSSB	53	1.10	0.74	N	
2020	24-Jul	B25	MT	3	5	NSSB	59	1.55	0.75	N	
2020	24-Jul	B25	MT	3	6	NSSB	52	1.07	0.76	N	
2020	24-Jul	B25	MT	3	7	NSSB	55	1.14	0.69	N	
2020	24-Jul	B25	MT	3	8	NSSB	58	1.46	0.75	N	
2020	24-Jul	B25	MT	3	9	NSSB	55	1.18	0.71	N	
2020	24-Jul	B25	MT	4	10	NSSB	53	1.20	0.81	N	
2020	24-Jul	B25	MT	4	11	NSSB	76	3.12	0.71	N	
2020	24-Jul	B25	MT	4	12	NSSB	75	2.35	0.56	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Jul	B25	MT	4	13	NSSB	54	1.20	0.76	N	
2020	24-Jul	B25	MT	4	14	NSSB	52	1.18	0.84	N	
2020	24-Jul	B25	MT	4	15	NSSB	49	0.96	0.82	N	
2020	24-Jul	B25	MT	6	16	NSSB	70	2.25	0.66	N	
2020	24-Jul	B25	MT	6	17	NSSB	55	1.34	0.81	N	
2020	24-Jul	B25	MT	6	18	NSSB	59	1.60	0.78	N	
2020	24-Jul	B25	MT	7	19	NSSB	57	1.60	0.86	N	
2020	24-Jul	B25	MT	10	20	NSSB	58	1.45	0.74	N	
2020	24-Jul	B25	MT	10	21	NSSB	64	2.20	0.84	N	
2020	24-Jul	B25	MT	10	22	NSSB	84	3.60	0.61	N	
2020	24-Jul	B25	MT	10	23	NSSB	55	1.07	0.64	N	
2020	24-Jul	B25	MT	10	24	NSSB	55	1.30	0.78	N	
2020	24-Jul	B25	MT	10	25	NSSB	63	1.70	0.68	N	
2020	24-Jul	B25	MT	11	26	NSSB	55	1.20	0.72	N	
2020	25-Jul	B6	MT	4	1	NSSB	50	1.00	0.80	N	
2020	25-Jul	B6	MT	6	2	NSSB	51	0.90	0.68	N	
2020	25-Jul	B6	MT	9	3	NSSB	66	1.56	0.54	N	
2020	25-Jul	B6	MT	9	4	NSSB	54	0.70	0.44	N	
2020	25-Jul	B6	MT	15	5	NSSB	55	0.80	0.48	N	
2020	25-Jul	B6	MT	16	6	NSSB	54	1.16	0.74	N	
2020	25-Jul	B6	MT	18	7	NSSB	49	1.10	0.93	N	
2020	25-Jul	B6	MT	20	8	NSSB	50	0.76	0.61	N	
2020	25-Jul	B6	MT	20	9	NSSB	49	0.87	0.74	N	
2020	25-Jul	B6	MT	20	10	NSSB	50	1.10	0.88	N	
2020	25-Jul	B6	MT	20	11	NSSB	62	1.68	0.70	N	
2020	25-Jul	B6	MT	20	12	NSSB	54	1.45	0.92	N	
2020	25-Jul	B6	MT	20	13	NSSB	53	1.16	0.78	N	
2020	25-Jul	B6	MT	20	14	NSSB	63	1.80	0.72	N	
2020	25-Jul	B6	MT	20	15	NSSB	53	1.20	0.81	N	
2020	25-Jul	B6	MT	20	16	NSSB	69	1.76	0.54	N	
2020	25-Jul	B6	MT	20	17	NSSB	54	1.00	0.64	N	
2020	25-Jul	B6	MT	20	18	NSSB	51	0.90	0.68	N	
2020	25-Jul	B6	MT	20	19	NSSB	53	1.05	0.71	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	25-Jul	B6	MT	20	20	NSSB	55	1.30	0.78	N	
2020	25-Jul	B6	MT	20	21	NSSB	46	0.70	0.72	N	
2020	25-Jul	B6	MT	22	22	NSSB	61	1.26	0.56	N	
2020	25-Jul	B6	MT	22	23	NSSB	54	1.21	0.77	N	
2020	25-Jul	B6	MT	22	24	NSSB	45	0.77	0.84	Y	
2020	25-Jul	B6	MT	24	25	NSSB	54	0.90	0.57	N	
2020	25-Jul	B6	MT	25	26	NSSB	61	1.13	0.50	N	
2020	25-Jul	B6	MT	25	27	NSSB	50	1.00	0.80	N	
2020	25-Jul	B6	MT	25	28	NSSB	50	0.80	0.64	Y	
2020	25-Jul	B6	MT	25	29	NSSB	56	1.60	0.91	N	
2020	25-Jul	B6	MT	25	30	NSSB	50	0.98	0.78	N	
2020	25-Jul	B6	MT	25	31	NSSB	57	1.43	0.77	N	
2020	25-Jul	B6	MT	25	32	NSSB	50	0.76	0.61	N	
2020	25-Jul	B6	MT	25	33	NSSB	56	1.53	0.87	N	
2020	25-Jul	B6	MT	25	34	NSSB	54	1.07	0.68	N	
2020	25-Jul	B6	MT	26	35	NSSB	53	1.14	0.77	N	
2020	25-Jul	B6	MT	26	36	NSSB	48	0.68	0.61	N	
2020	25-Jul	B6	MT	28	37	NSSB	60	1.37	0.63	N	
2020	25-Jul	B6	MT	28	38	NSSB	54	1.23	0.78	N	
2020	26-Jul	B31	MT	9	1	NSSB	55	1.13	0.68	N	
2020	26-Jul	B31	MT	3	2	NSSB	55	1.17	0.70	N	
2020	26-Jul	B32	MT	14	1	NSSB	60	-	-	N	windy
2020	26-Jul	B32	MT	5	2	NSSB	63	-	-	N	windy
2020	26-Jul	B32	MT	6	3	NSSB	81	-	-	N	windy
2020	26-Jul	B32	MT	7	4	NSSB	60	-	-	N	windy
2020	26-Jul	B32	MT	8	5	NSSB	71	-	-	N	windy
2020	26-Jul	B32	MT	8	6	NSSB	83	-	-	N	windy
2020	26-Jul	B32	MT	8	7	NSSB	59	-	-	N	windy
2020	26-Jul	B32	MT	12	8	NSSB	62	-	-	N	windy
2020	26-Jul	B32	MT	12	9	NSSB	55	-	-	N	windy
2020	26-Jul	B32	MT	12	10	NSSB	65	-	-	N	windy
2020	27-Jul	B5	MT	30	1	NSSB	48	0.80	0.72	N	
2020	27-Jul	B5	MT	30	2	NSSB	57	-	-	N	too windy for scale

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	27-Jul	B5	MT	30	3	NSSB	48	-	-	N	too windy for scale
2020	27-Jul	B5	MT	30	4	NSSB	37	-	-	N	too windy for scale
2020	27-Jul	B5	MT	30	5	NSSB	51	-	-	N	too windy for scale
2020	27-Jul	B5	MT	29	6	ARGR	86	5.70	0.90	N	
2020	27-Jul	B5	MT	29	7	NSSB	49	0.93	0.79	Y	
2020	27-Jul	B5	MT	29	8	NSSB	65	1.17	0.43	N	
2020	27-Jul	B5	MT	29	9	NSSB	67	1.83	0.61	N	
2020	27-Jul	B5	MT	29	10	NSSB	49	0.74	0.63	N	
2020	27-Jul	B5	MT	29	11	NSSB	63	1.60	0.64	N	
2020	27-Jul	B5	MT	29	12	NSSB	56	1.15	0.65	N	
2020	27-Jul	B5	MT	29	13	NSSB	56	1.41	0.80	N	
2020	27-Jul	B5	MT	29	14	NSSB	63	1.55	0.62	N	
2020	27-Jul	B5	MT	29	15	NSSB	55	0.92	0.55	N	
2020	27-Jul	B5	MT	29	16	NSSB	55	1.15	0.69	N	
2020	27-Jul	B5	MT	27	17	NSSB	52	-	-	N	
2020	27-Jul	B5	MT	27	18	NSSB	52	-	-	N	
2020	27-Jul	B5	MT	24	19	NSSB	55	-	-	N	
2020	27-Jul	B5	MT	23	20	NSSB	65	1.52	0.55	N	
2020	27-Jul	B5	MT	23	21	NSSB	58	1.52	0.78	N	
2020	27-Jul	B5	MT	23	22	NSSB	58	1.26	0.65	N	
2020	27-Jul	B5	MT	23	23	NSSB	57	1.20	0.65	N	
2020	27-Jul	B5	MT	23	24	NSSB	51	0.74	0.56	N	
2020	27-Jul	B5	MT	23	25	NSSB	43	0.75	0.94	N	
2020	27-Jul	B5	MT	23	26	NSSB	59	1.48	0.72	N	
2020	27-Jul	B5	MT	23	27	NSSB	58	1.14	0.58	N	
2020	27-Jul	B5	MT	23	28	NSSB	49	0.78	0.66	N	
2020	27-Jul	B5	MT	23	29	NSSB	46	0.76	0.78	N	
2020	27-Jul	B5	MT	23	30	NSSB	49	0.76	0.65	N	
2020	27-Jul	B5	MT	23	31	NSSB	46	0.69	0.71	N	
2020	27-Jul	B5	MT	21	32	NSSB	49	-	-	N	
2020	27-Jul	B5	MT	21	33	NSSB	53	-	-	N	
2020	27-Jul	B5	MT	21	34	NSSB	48	-	-	N	
2020	27-Jul	B5	MT	22	35	NSSB	45	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	27-Jul	B5	MT	18	36	NSSB	51	-	-	N	
2020	27-Jul	B5	MT	18	37	NSSB	46	-	-	Y	
2020	27-Jul	B5	MT	17	38	NSSB	54	-	-	N	
2020	27-Jul	B5	MT	17	39	NSSB	56	-	-	N	
2020	27-Jul	B5	MT	17	40	NSSB	53	-	-	N	
2020	27-Jul	B5	MT	17	41	NSSB	55	-	-	N	
2020	27-Jul	B5	MT	16	42	NSSB	48	-	-	N	
2020	27-Jul	B5	MT	16	43	NSSB	49	-	-	N	
2020	27-Jul	B5	MT	16	44	NSSB	53	-	-	N	
2020	27-Jul	B5	MT	16	45	NSSB	51	-	-	N	
2020	27-Jul	B5	MT	16	46	NSSB	50	-	-	N	
2020	27-Jul	B5	MT	16	47	NSSB	43	-	-	N	
2020	27-Jul	B5	MT	15	48	NSSB	55	-	-	N	
2020	27-Jul	B5	MT	15	49	NSSB	56	-	-	N	
2020	27-Jul	B5	MT	15	50	NSSB	52	-	-	N	
2020	27-Jul	B5	MT	2	51	NSSB	65	-	-	N	
2020	27-Jul	B5	MT	2	52	NSSB	57	-	-	N	
2020	27-Jul	B5	MT	2	53	NSSB	57	-	-	N	
2020	27-Jul	B5	MT	2	54	NSSB	58	-	-	N	
2020	27-Jul	B5	MT	2	55	NSSB	63	-	-	N	
2020	27-Jul	B5	MT	2	56	NSSB	51	-	-	N	
2020	27-Jul	B5	MT	1	57	NSSB	65	-	-	N	
2020	27-Jul	B5	MT	1	58	NSSB	45	-	-	N	
2020	27-Jul	B5	MT	1	59	NSSB	51	-	-	Y	
2020	27-Jul	B5	MT	1	60	NSSB	41	-	-	N	
2020	27-Jul	B5	MT	1	61	NSSB	49	-	-	N	
2020	27-Jul	B5	MT	1	62	NSSB	45	-	-	Y	
2020	27-Jul	B5	MT	3	63	NSSB	52	-	-	N	
2020	27-Jul	B5	MT	3	64	NSSB	55	-	-	N	
2020	27-Jul	B5	MT	3	65	NSSB	57	-	-	N	
2020	27-Jul	B5	MT	3	66	NSSB	55	-	-	N	
2020	27-Jul	B5	MT	3	67	NSSB	60	-	-	N	
2020	27-Jul	B5	MT	5	68	NSSB	48	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	27-Jul	B5	MT	5	69	NSSB	51	-	-	N	
2020	27-Jul	B5	MT	5	70	NSSB	51	-	-	N	
2020	27-Jul	B5	MT	5	71	NSSB	49	-	-	N	
2020	27-Jul	B5	MT	5	72	NSSB	57	-	-	N	
2020	27-Jul	B5	MT	5	73	NSSB	57	-	-	N	
2020	27-Jul	B5	MT	5	74	NSSB	50	-	-	N	
2020	27-Jul	B5	MT	5	75	NSSB	54	-	-	N	
2020	27-Jul	B5	MT	6	76	NSSB	50	-	-	N	
2020	27-Jul	B5	MT	9	77	NSSB	57	-	-	N	
2020	27-Jul	B5	MT	9	78	NSSB	53	-	-	N	
2020	27-Jul	B5	MT	9	79	NSSB	55	-	-	N	
2020	27-Jul	B5	MT	9	80	NSSB	47	-	-	N	
2020	27-Jul	B5	MT	9	81	NSSB	50	-	-	N	
2020	27-Jul	B5	MT	9	82	NSSB	49	-	-	N	
2020	27-Jul	B5	MT	10	83	NSSB	50	-	-	N	
2020	27-Jul	B5	MT	10	84	NSSB	46	-	-	N	
2020	27-Jul	B5	MT	10	85	NSSB	68	-	-	N	
2020	27-Jul	B5	MT	10	86	NSSB	50	-	-	N	
2020	27-Jul	B5	MT	10	87	NSSB	52	-	-	N	
2020	27-Jul	B5	MT	10	88	NSSB	41	-	-	Y	
2020	27-Jul	B5	MT	10	89	NSSB	58	-	-	N	
2020	27-Jul	B5	MT	10	90	NSSB	45	-	-	Y	
2020	27-Jul	B5	MT	12	91	NSSB	59	-	-	N	
2020	27-Jul	B5	MT	13	92	NSSB	48	-	-	N	
2020	27-Jul	B5	MT	13	93	NSSB	52	-	-	N	
2020	27-Jul	B5	MT	13	94	NSSB	53	-	-	N	
2020	27-Jul	B5	MT	14	95	NSSB	45	-	-	Y	
2020	27-Jul	B5	MT	14	96	NSSB	55	-	-	N	
2020	27-Jul	B5	MT	14	97	NSSB	44	-	-	Y	
2020	27-Jul	B5	MT	14	98	NSSB	48	-	-	N	
2020	27-Jul	B5	MT	4	99	NSSB	62	-	-	N	
2020	27-Jul	B5	MT	4	100	NSSB	51	-	-	N	
2020	29-Jul	B4	MT	13	1	NSSB	57	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	29-Jul	B4	MT	13	2	NSSB	59	-	-	N	
2020	29-Jul	B4	MT	13	3	NSSB	45	-	-	Y	
2020	29-Jul	B4	MT	12	4	NSSB	55	-	-	N	
2020	29-Jul	B4	MT	12	5	NSSB	58	-	-	N	
2020	29-Jul	B4	MT	11	6	NSSB	64	-	-	N	
2020	29-Jul	B4	MT	11	7	NSSB	57	-	-	N	
2020	29-Jul	B4	MT	11	8	NSSB	55	-	-	N	
2020	29-Jul	B4	MT	11	9	NSSB	61	-	-	N	
2020	29-Jul	B4	MT	11	10	NSSB	59	-	-	N	
2020	29-Jul	B4	MT	11	11	NSSB	55	-	-	N	
2020	29-Jul	B4	MT	11	12	NSSB	80	-	-	N	
2020	29-Jul	B4	MT	11	13	NSSB	57	-	-	N	
2020	29-Jul	B4	MT	11	14	NSSB	56	-	-	N	
2020	29-Jul	B4	MT	10	15	NSSB	62	-	-	N	
2020	29-Jul	B4	MT	8	16	NSSB	54	-	-	N	
2020	29-Jul	B4	MT	6	17	NSSB	58	-	-	N	
2020	29-Jul	B4	MT	5	18	NSSB	55	-	-	N	
2020	29-Jul	B4	MT	5	19	NSSB	59	-	-	N	
2020	29-Jul	B4	MT	5	20	NSSB	53	-	-	N	
2020	29-Jul	B4	MT	5	21	NSSB	59	-	-	N	
2020	29-Jul	B4	MT	5	22	NSSB	54	-	-	N	
2020	29-Jul	B4	MT	3	23	NSSB	59	-	-	N	
2020	29-Jul	B4	MT	2	24	NSSB	45	-	-	N	
2020	29-Jul	B4	MT	2	25	NSSB	59	-	-	N	
2020	29-Jul	B4	MT	2	26	NSSB	50	-	-	Y	
2020	29-Jul	B4	MT	2	27	NSSB	51	-	-	N	
2020	29-Jul	B4	MT	2	28	NSSB	58	-	-	N	
2020	29-Jul	B4	MT	2	29	NSSB	55	-	-	N	
2020	29-Jul	B4	MT	2	30	NSSB	52	-	-	N	
2020	29-Jul	B4	MT	2	31	NSSB	55	-	-	N	
2020	29-Jul	B4	MT	2	32	NSSB	65	-	-	Y	
2020	29-Jul	B4	MT	1	33	NSSB	67	-	-	N	
2020	29-Jul	B4	MT	1	34	NSSB	61	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	29-Jul	B4	MT	29	35	NSSB	54	-	-	N	
2020	29-Jul	B4	MT	28	36	NSSB	53	-	-	N	
2020	29-Jul	B4	MT	28	37	NSSB	47	-	-	N	
2020	29-Jul	B4	MT	28	38	NSSB	50	-	-	N	
2020	29-Jul	B4	MT	28	39	NSSB	49	-	-	N	
2020	29-Jul	B4	MT	28	40	NSSB	55	-	-	N	
2020	29-Jul	B4	MT	28	41	NSSB	53	-	-	N	
2020	29-Jul	B4	MT	28	42	NSSB	50	-	-	N	
2020	29-Jul	B4	MT	28	43	NSSB	53	-	-	N	
2020	29-Jul	B4	MT	28	44	NSSB	58	-	-	Y	
2020	29-Jul	B4	MT	27	45	NSSB	53	-	-	N	
2020	29-Jul	B4	MT	26	46	NSSB	51	-	-	N	
2020	29-Jul	B4	MT	26	47	NSSB	45	-	-	N	
2020	29-Jul	B4	MT	26	48	NSSB	52	-	-	N	
2020	29-Jul	B4	MT	26	49	NSSB	55	-	-	N	
2020	29-Jul	B4	MT	25	50	NSSB	54	-	-	N	
2020	29-Jul	B4	MT	25	51	NSSB	53	-	-	N	
2020	29-Jul	B4	MT	25	52	NSSB	66	-	-	N	
2020	29-Jul	B4	MT	25	53	NSSB	53	-	-	N	
2020	29-Jul	B4	MT	25	54	NSSB	54	-	-	N	
2020	29-Jul	B4	MT	25	55	NSSB	49	-	-	N	
2020	29-Jul	B4	MT	24	56	NSSB	54	-	-	N	
2020	29-Jul	B4	MT	23	57	NSSB	59	-	-	N	
2020	29-Jul	B4	MT	23	58	NSSB	51	-	-	N	
2020	29-Jul	B4	MT	22	59	NSSB	59	-	-	N	Eyeball issue?
2020	29-Jul	B4	MT	22	60	NSSB	57	-	-	N	
2020	29-Jul	B4	MT	22	61	NSSB	49	-	-	N	
2020	29-Jul	B4	MT	22	62	NSSB	55	-	-	N	
2020	29-Jul	B4	MT	22	63	NSSB	53	-	-	N	
2020	29-Jul	B4	MT	22	64	NSSB	53	-	-	N	
2020	29-Jul	B4	MT	22	65	NSSB	58	-	-	N	
2020	29-Jul	B4	MT	22	66	NSSB	62	-	-	N	
2020	29-Jul	B4	MT	22	67	NSSB	60	-	-	Y	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	29-Jul	B4	MT	21	68	NSSB	53	-	-	N	
2020	29-Jul	B4	MT	21	69	NSSB	55	-	-	Y	
2020	29-Jul	B4	MT	21	70	NSSB	52	-	-	N	
2020	29-Jul	B4	MT	20	71	NSSB	57	-	-	N	
2020	29-Jul	B4	MT	20	72	NSSB	53	-	-	N	
2020	29-Jul	B4	MT	19	73	NSSB	56	-	-	N	
2020	29-Jul	B4	MT	19	74	NSSB	55	-	-	N	
2020	29-Jul	B4	MT	18	75	NSSB	57	-	-	N	
2020	29-Jul	B4	MT	18	76	NSSB	61	-	-	N	
2020	29-Jul	B4	MT	18	77	NSSB	59	-	-	N	
2020	29-Jul	B4	MT	18	78	NSSB	63	-	-	N	
2020	29-Jul	B4	MT	18	79	NSSB	55	-	-	N	
2020	29-Jul	B4	MT	18	80	NSSB	48	-	-	N	
2020	29-Jul	B4	MT	18	81	NSSB	51	-	-	N	
2020	29-Jul	B4	MT	18	82	NSSB	48	-	-	N	
2020	29-Jul	B4	MT	18	83	NSSB	42	-	-	N	
2020	29-Jul	B4	MT	18	84	NSSB	49	-	-	N	
2020	29-Jul	B4	MT	18	85	NSSB	47	-	-	N	
2020	29-Jul	B4	MT	18	86	NSSB	52	-	-	N	
2020	29-Jul	B4	MT	18	87	NSSB	46	-	-	N	
2020	29-Jul	B4	MT	17	88	NSSB	59	-	-	N	
2020	29-Jul	B4	MT	17	89	NSSB	53	-	-	N	
2020	29-Jul	B4	MT	17	90	NSSB	49	-	-	N	
2020	29-Jul	B4	MT	17	91	NSSB	57	-	-	N	
2020	29-Jul	B4	MT	17	92	NSSB	64	-	-	N	
2020	29-Jul	B4	MT	17	93	NSSB	54	-	-	N	
2020	29-Jul	B4	MT	17	94	NSSB	50	-	-	N	
2020	29-Jul	B4	MT	17	95	NSSB	57	-	-	N	
2020	29-Jul	B4	MT	17	96	NSSB	63	-	-	N	
2020	29-Jul	B4	MT	17	97	NSSB	55	-	-	N	
2020	29-Jul	B4	MT	17	98	NSSB	52	-	-	N	
2020	29-Jul	B4	MT	17	99	NSSB	51	-	-	N	
2020	29-Jul	B4	MT	17	100	NSSB	54	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	29-Jul	B4	MT	15	101	NSSB	58	-	-	N	
2020	30-Jul	B36	MT	2	1	NSSB	58	1.50	0.77	N	
2020	30-Jul	B36	MT	2	2	NSSB	53	1.08	0.73	N	
2020	30-Jul	B36	MT	2	3	NSSB	44	0.66	0.77	N	
2020	30-Jul	B36	MT	5	4	NSSB	60	1.73	0.80	N	
2020	30-Jul	B36	MT	5	5	NSSB	55	1.41	0.85	N	
2020	30-Jul	B36	MT	7	6	NSSB	54	1.35	0.86	N	
2020	30-Jul	B36	MT	7	7	NSSB	56	1.65	0.94	N	
2020	30-Jul	B36	MT	9	8	NSSB	58	1.70	0.87	N	
2020	30-Jul	B36	MT	9	9	NSSB	52	1.12	0.80	N	
2020	30-Jul	B37	MT	9	1	NSSB	64	2.27	0.87	N	
2020	30-Jul	B37	MT	9	2	NSSB	68	2.11	0.67	N	
2020	30-Jul	B37	MT	9	3	NSSB	68	2.22	0.71	N	
2020	30-Jul	B38	MT	3	1	NSSB	49	0.76	0.65	N	
2020	30-Jul	B38	MT	3	2	NSSB	57	1.40	0.76	N	
2020	30-Jul	B38	MT	4	3	NSSB	46	0.77	0.79	N	
2020	30-Jul	B38	MT	4	4	NSSB	43	0.70	0.88	N	
2020	30-Jul	B38	MT	9	5	NSSB	43	0.64	0.80	N	
2020	31-Jul	B62	MT	19	1	NSSB	63	1.66	0.66	N	
2020	31-Jul	B62	MT	18	2	NSSB	59	1.64	0.80	N	
2020	31-Jul	B62	MT	17	3	NSSB	68	2.00	0.64	N	
2020	31-Jul	B62	MT	14	4	NSSB	69	1.70	0.52	N	
2020	31-Jul	B62	MT	13	5	NSSB	56	1.63	0.93	N	
2020	31-Jul	B62	MT	13	6	NSSB	59	1.40	0.68	N	
2020	31-Jul	B62	MT	11	7	NSSB	60	1.63	0.75	N	
2020	31-Jul	B62	MT	3	8	NSSB	59	1.39	0.68	N	
2020	31-Jul	B62	MT	4	9	NSSB	64	2.00	0.76	N	
2020	31-Jul	B62	MT	5	10	NSSB	61	1.50	0.66	N	
2020	31-Jul	B62	MT	5	11	NSSB	58	1.40	0.72	N	
2020	31-Jul	B62	MT	5	12	NSSB	61	2.10	0.93	N	
2020	31-Jul	B62	MT	5	13	NSSB	62	1.97	0.83	N	
2020	31-Jul	B62	MT	5	14	NSSB	61	-	-	N	too windy for scale
2020	31-Jul	B62	MT	5	15	NSSB	61	1.80	0.79	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	31-Jul	B62	MT	5	16	NSSB	70	2.33	0.68	N	
2020	31-Jul	B62	MT	5	17	NSSB	59	1.40	0.68	N	
2020	31-Jul	B62	MT	5	18	NSSB	60	1.40	0.65	N	
2020	31-Jul	B62	MT	5	19	NSSB	61	1.50	0.66	N	
2020	31-Jul	B62	MT	5	20	NSSB	57	1.38	0.75	N	
2020	31-Jul	B62	MT	6	21	NSSB	78	2.97	0.63	N	
2020	31-Jul	B62	MT	6	22	NSSB	60	-	-	Y	too windy for scale
2020	31-Jul	B62	MT	8	23	NSSB	54	-	-	N	too windy for scale
2020	31-Jul	B62	MT	8	24	NSSB	62	-	-	N	too windy for scale
2020	31-Jul	B62	MT	8	25	NSSB	61	-	-	N	too windy for scale
2020	31-Jul	B62	MT	8	26	NSSB	62	-	-	N	too windy for scale
2020	31-Jul	B62	MT	9	27	NSSB	55	-	-	N	too windy for scale
2020	31-Jul	B62	MT	9	28	NSSB	73	-	-	N	too windy for scale
2020	31-Jul	B62	MT	10	29	NSSB	65	-	-	N	too windy for scale
2020	31-Jul	B62	MT	10	30	NSSB	59	-	-	N	too windy for scale
2020	2-Aug	B34	MT	1	1	NSSB	62	1.78	0.75	N	
2020	2-Aug	B34	MT	1	2	NSSB	55	1.20	0.72	N	
2020	2-Aug	B34	MT	1	3	NSSB	45	0.81	0.89	Y	
2020	2-Aug	B34	MT	2	4	NSSB	84	3.40	0.57	N	
2020	2-Aug	B34	MT	3	5	NSSB	58	1.55	0.79	N	
2020	2-Aug	B34	MT	3	6	NSSB	53	0.58	0.39	N	
2020	2-Aug	B34	MT	3	7	NSSB	62	1.43	0.60	N	
2020	2-Aug	B34	MT	5	8	NSSB	74	2.47	0.61	N	
2020	2-Aug	B34	MT	6	9	NSSB	57	1.21	0.65	N	
2020	2-Aug	B34	MT	6	10	NSSB	55	1.10	0.66	N	
2020	2-Aug	B34	MT	6	11	NSSB	57	1.31	0.71	N	
2020	2-Aug	B34	MT	7	12	NSSB	67	1.61	0.54	N	
2020	2-Aug	B34	MT	7	13	NSSB	68	1.91	0.61	N	
2020	2-Aug	B34	MT	8	14	NSSB	57	1.30	0.70	N	
2020	2-Aug	B34	MT	9	15	NSSB	57	1.35	0.73	N	
2020	2-Aug	B34	MT	9	16	NSSB	60	1.42	0.66	N	
2020	2-Aug	B34	MT	9	17	NSSB	62	1.56	0.65	N	
2020	2-Aug	B34	MT	11	18	NSSB	48	0.65	0.59	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	2-Aug	B34	MT	13	19	NSSB	58	1.70	0.87	N	
2020	2-Aug	B34	MT	13	20	NSSB	61	1.60	0.70	N	
2020	2-Aug	B34	MT	13	21	NSSB	65	1.85	0.67	N	
2020	2-Aug	B34	MT	13	22	NSSB	65	1.71	0.62	N	
2020	2-Aug	B34	MT	13	23	NSSB	45	0.77	0.84	Y	
2020	2-Aug	B34	MT	13	24	NSSB	60	1.46	0.68	N	
2020	2-Aug	B34	MT	13	25	NSSB	57	1.27	0.69	N	
2020	2-Aug	B34	MT	13	26	NSSB	45	0.64	0.70	N	
2020	2-Aug	B34	MT	15	27	NSSB	58	1.38	0.71	N	
2020	2-Aug	B34	MT	15	28	NSSB	59	1.17	0.57	N	
2020	2-Aug	B34	MT	15	29	NSSB	59	2.03	0.99	N	
2020	2-Aug	B34	MT	15	30	NSSB	48	0.77	0.70	N	
2020	2-Aug	B34	MT	16	31	NSSB	46	0.61	0.63	N	
2020	2-Aug	B34	MT	16	32	NSSB	47	0.68	0.65	N	
2020	2-Aug	B34	MT	16	33	NSSB	45	0.70	0.77	N	
2020	2-Aug	B34	MT	17	34	NSSB	64	1.72	0.66	N	
2020	2-Aug	B34	MT	17	35	NSSB	63	1.48	0.59	N	
2020	2-Aug	B34	MT	17	36	NSSB	63	1.87	0.75	N	
2020	2-Aug	B34	MT	17	37	NSSB	74	2.70	0.67	N	
2020	2-Aug	B34	MT	17	38	NSSB	49	0.68	0.58	N	
2020	2-Aug	B34	MT	17	39	NSSB	57	1.28	0.69	N	
2020	2-Aug	B34	MT	17	40	NSSB	55	1.34	0.81	N	
2020	2-Aug	B34	MT	18	41	NSSB	76	2.02	0.46	N	
2020	2-Aug	B34	MT	18	42	NSSB	63	1.90	0.76	N	
2020	2-Aug	B34	MT	19	43	NSSB	72	2.12	0.57	N	
2020	2-Aug	B34	MT	19	44	NSSB	62	1.37	0.57	N	
2020	2-Aug	B34	MT	19	45	NSSB	66	1.43	0.50	N	
2020	2-Aug	B34	MT	20	46	NSSB	65	1.50	0.55	N	
2020	2-Aug	B34	MT	20	47	NSSB	50	0.70	0.56	N	
2020	23-Aug	E10	MT	4	1	NSSB	69	2.16	0.66	N	
2020	23-Aug	E10	MT	4	2	NSSB	63	1.60	0.64	N	
2020	23-Aug	E10	MT	4	3	NSSB	59	1.40	0.68	N	
2020	23-Aug	E10	MT	7	4	NSSB	60	1.49	0.69	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Aug	E10	MT	1	5	NSSB	63	1.80	0.72	N	
2020	23-Aug	E10	MT	1	6	NSSB	59	1.30	0.63	N	
2020	23-Aug	E4	MT	13	1	NSSB	56	1.14	0.65	N	
2020	23-Aug	E4	MT	13	2	NSSB	51	0.95	0.72	N	
2020	23-Aug	E4	MT	13	3	NSSB	47	0.74	0.71	N	
2020	23-Aug	E4	MT	13	4	NSSB	50	0.80	0.64	N	
2020	23-Aug	E4	MT	13	5	NSSB	61	1.60	0.70	N	
2020	23-Aug	E4	MT	13	6	NSSB	53	0.99	0.66	N	
2020	23-Aug	E4	MT	16	7	NSSB	54	1.10	0.70	N	
2020	23-Aug	E4	MT	17	8	NSSB	54	0.95	0.60	N	
2020	23-Aug	E4	MT	17	9	NSSB	54	0.97	0.62	N	
2020	23-Aug	E4	MT	17	10	NSSB	55	0.96	0.58	N	
2020	23-Aug	E4	MT	17	11	NSSB	46	0.74	0.76	N	
2020	23-Aug	E4	MT	18	12	NSSB	53	0.90	0.60	N	
2020	23-Aug	E4	MT	2	13	NSSB	49	0.72	0.61	N	
2020	23-Aug	E4	MT	4	14	NSSB	58	1.03	0.53	N	
2020	23-Aug	E4	MT	4	15	NSSB	55	1.15	0.69	N	
2020	23-Aug	E4	MT	5	16	NSSB	53	0.82	0.55	N	
2020	23-Aug	E4	MT	7	17	NSSB	41	0.60	0.87	N	
2020	23-Aug	E4	MT	7	18	NSSB	54	0.83	0.53	N	
2020	23-Aug	E4	MT	7	19	NSSB	49	0.85	0.72	N	
2020	23-Aug	E4	MT	7	20	NSSB	51	0.89	0.67	N	
2020	23-Aug	E4	MT	8	21	NSSB	59	1.31	0.64	N	
2020	23-Aug	E4	MT	8	22	NSSB	51	0.79	0.60	N	
2020	23-Aug	E4	MT	8	23	NSSB	47	0.85	0.82	N	
2020	23-Aug	E4	MT	8	24	NSSB	54	0.85	0.54	N	
2020	23-Aug	E4	MT	9	25	NSSB	55	0.85	0.51	N	
2020	23-Aug	E4	MT	9	26	NSSB	49	0.71	0.60	N	
2020	23-Aug	E4	MT	9	27	NSSB	59	1.13	0.55	N	
2020	23-Aug	E4	MT	10	28	NSSB	55	0.95	0.57	N	
2020	23-Aug	E4	MT	10	29	NSSB	51	0.81	0.61	N	
2020	23-Aug	E4	MT	10	30	NSSB	53	0.95	0.64	N	
2020	23-Aug	E4	MT	10	31	NSSB	61	1.36	0.60	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Aug	E4	MT	10	32	NSSB	53	0.88	0.59	N	
2020	23-Aug	E4	MT	10	33	NSSB	48	0.72	0.65	N	
2020	23-Aug	E4	MT	10	34	NSSB	54	0.87	0.55	N	
2020	23-Aug	E4	MT	10	35	NSSB	65	1.65	0.60	N	
2020	23-Aug	E4	MT	10	36	NSSB	52	0.94	0.67	N	
2020	23-Aug	E4	MT	10	37	NSSB	54	1.02	0.65	N	
2020	23-Aug	E4	MT	10	38	NSSB	57	1.03	0.56	N	
2020	23-Aug	E4	MT	11	39	NSSB	55	1.07	0.64	N	
2020	23-Aug	E4	MT	11	40	NSSB	50	0.79	0.63	N	
2020	23-Aug	E4	MT	11	41	NSSB	58	1.28	0.66	N	
2020	23-Aug	E4	MT	11	42	NSSB	54	0.89	0.57	N	
2020	23-Aug	E4	MT	11	43	NSSB	53	0.84	0.56	N	
2020	23-Aug	E4	MT	11	44	NSSB	56	0.93	0.53	N	
2020	23-Aug	E4	MT	11	45	NSSB	57	1.34	0.72	N	
2020	23-Aug	E4	MT	11	46	NSSB	53	0.82	0.55	N	
2020	23-Aug	E4	MT	11	47	NSSB	54	1.11	0.70	N	
2020	23-Aug	E4	MT	11	48	NSSB	44	0.73	0.86	N	
2020	23-Aug	E4	MT	11	49	NSSB	47	0.92	0.89	N	
2020	23-Aug	E4	MT	11	50	NSSB	54	1.04	0.66	N	
2020	23-Aug	E4	MT	11	51	NSSB	53	0.94	0.63	N	
2020	23-Aug	E4	MT	11	52	NSSB	49	-	-	Y	0.28 g, fish dead and well eaten by others
2020	23-Aug	E4	MT	11	53	NSSB	54	1.08	0.69	N	
2020	23-Aug	E4	MT	11	54	NSSB	47	0.60	0.58	N	
2020	23-Aug	E4	MT	11	55	NSSB	55	0.93	0.56	N	
2020	23-Aug	E4	MT	12	56	NSSB	45	0.67	0.74	N	
2020	23-Aug	E4	MT	12	57	NSSB	54	1.40	0.89	N	parasites?
2020	23-Aug	E4	MT	12	58	NSSB	53	1.02	0.69	N	
2020	24-Aug	E5	MT	1	1	NSSB	53	0.82	0.55	N	
2020	24-Aug	E5	MT	1	2	NSSB	53	0.85	0.57	N	
2020	24-Aug	E5	MT	1	3	NSSB	50	0.80	0.64	N	
2020	24-Aug	E5	MT	1	4	NSSB	51	0.79	0.60	N	
2020	24-Aug	E5	MT	1	5	NSSB	58	1.19	0.61	N	
2020	24-Aug	E5	MT	1	6	NSSB	53	0.89	0.60	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Aug	E5	MT	1	7	NSSB	54	1.09	0.69	N	
2020	24-Aug	E5	MT	1	8	NSSB	56	1.10	0.63	N	
2020	24-Aug	E5	MT	1	9	NSSB	58	1.45	0.74	N	
2020	24-Aug	E5	MT	1	10	NSSB	54	1.12	0.71	N	
2020	24-Aug	E5	MT	1	11	NSSB	55	1.05	0.63	N	
2020	24-Aug	E5	MT	1	12	NSSB	55	1.17	0.70	N	
2020	24-Aug	E5	MT	1	13	NSSB	55	1.08	0.65	N	
2020	24-Aug	E5	MT	1	14	NSSB	52	0.78	0.55	N	
2020	24-Aug	E5	MT	1	15	NSSB	54	0.88	0.56	N	
2020	24-Aug	E5	MT	1	16	NSSB	50	0.89	0.71	N	
2020	24-Aug	E5	MT	1	17	NSSB	52	0.90	0.64	N	
2020	24-Aug	E5	MT	1	18	NSSB	48	0.65	0.59	N	
2020	24-Aug	E5	MT	1	19	NSSB	53	1.00	0.67	N	
2020	24-Aug	E5	MT	2	20	NSSB	61	1.26	0.56	N	
2020	24-Aug	E5	MT	2	21	NSSB	54	1.06	0.67	N	
2020	24-Aug	E5	MT	2	22	NSSB	49	0.87	0.74	N	
2020	24-Aug	E5	MT	2	23	NSSB	61	1.14	0.50	N	
2020	24-Aug	E5	MT	2	24	NSSB	52	0.87	0.62	N	
2020	24-Aug	E5	MT	2	25	NSSB	57	1.16	0.63	N	
2020	24-Aug	E5	MT	2	26	NSSB	59	1.20	0.58	N	
2020	24-Aug	E5	MT	2	27	NSSB	67	1.18	0.39	N	
2020	24-Aug	E5	MT	2	28	NSSB	53	0.94	0.63	N	
2020	24-Aug	E5	MT	2	29	NSSB	61	1.25	0.55	N	
2020	24-Aug	E5	MT	2	30	NSSB	49	0.70	0.59	N	
2020	24-Aug	E5	MT	2	31	NSSB	56	0.90	0.51	N	
2020	24-Aug	E5	MT	2	32	NSSB	55	0.97	0.58	N	
2020	24-Aug	E5	MT	2	33	NSSB	50	0.80	0.64	N	
2020	24-Aug	E5	MT	2	34	NSSB	54	0.90	0.57	N	
2020	24-Aug	E5	MT	2	35	NSSB	50	-	-	Y	eaten by others
2020	24-Aug	E5	MT	3	36	NSSB	54	0.80	0.51	N	
2020	24-Aug	E5	MT	3	37	NSSB	60	1.09	0.50	N	
2020	24-Aug	E5	MT	3	38	NSSB	54	0.95	0.60	N	
2020	24-Aug	E5	MT	3	39	NSSB	55	0.97	0.58	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Aug	E5	MT	3	40	NSSB	62	1.59	0.67	N	
2020	24-Aug	E5	MT	3	41	NSSB	55	1.15	0.69	N	
2020	24-Aug	E5	MT	3	42	NSSB	59	1.30	0.63	N	
2020	24-Aug	E5	MT	3	43	NSSB	54	1.00	0.64	N	
2020	24-Aug	E5	MT	3	44	NSSB	52	0.62	0.44	N	
2020	24-Aug	E5	MT	3	45	NSSB	55	1.27	0.76	N	
2020	24-Aug	E5	MT	3	46	NSSB	53	0.80	0.54	N	
2020	24-Aug	E5	MT	3	47	NSSB	55	0.95	0.57	N	
2020	24-Aug	E5	MT	3	48	NSSB	52	0.85	0.60	N	
2020	24-Aug	E5	MT	3	49	NSSB	52	0.80	0.57	N	
2020	24-Aug	E5	MT	3	50	NSSB	51	0.88	0.66	N	
2020	24-Aug	E5	MT	3	51	NSSB	60	1.11	0.51	N	
2020	24-Aug	E5	MT	3	52	NSSB	64	1.85	0.71	N	
2020	24-Aug	E5	MT	3	53	NSSB	53	0.90	0.60	N	
2020	24-Aug	E5	MT	3	54	NSSB	66	1.67	0.58	N	
2020	24-Aug	E5	MT	3	55	NSSB	46	0.65	0.67	N	
2020	24-Aug	E5	MT	3	56	NSSB	50	0.67	0.54	N	
2020	24-Aug	E5	MT	3	57	NSSB	55	0.86	0.52	N	
2020	24-Aug	E5	MT	3	58	NSSB	53	0.94	0.63	N	
2020	24-Aug	E5	MT	3	59	NSSB	54	0.97	0.62	N	
2020	24-Aug	E5	MT	3	60	NSSB	60	1.13	0.52	N	
2020	24-Aug	E5	MT	4	61	NSSB	58	0.98	0.50	N	
2020	24-Aug	E5	MT	4	62	NSSB	53	1.03	0.69	N	
2020	24-Aug	E5	MT	4	63	NSSB	59	1.49	0.73	N	
2020	24-Aug	E5	MT	4	64	NSSB	66	1.90	0.66	N	
2020	24-Aug	E5	MT	4	65	NSSB	60	1.30	0.60	N	
2020	24-Aug	E5	MT	4	66	NSSB	52	0.89	0.63	N	
2020	24-Aug	E5	MT	4	67	NSSB	55	0.86	0.52	N	
2020	24-Aug	E5	MT	4	68	NSSB	53	0.70	0.47	N	
2020	24-Aug	E5	MT	4	69	NSSB	56	1.37	0.78	N	
2020	24-Aug	E5	MT	5	70	NSSB	51	0.60	0.45	N	
2020	24-Aug	E5	MT	5	71	NSSB	58	1.20	0.62	N	
2020	24-Aug	E5	MT	5	72	NSSB	54	0.67	0.43	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Aug	E5	MT	6	73	NSSB	54	1.10	0.70	N	
2020	24-Aug	E5	MT	6	74	NSSB	48	0.65	0.59	N	
2020	24-Aug	E5	MT	6	75	NSSB	53	-	-	Y	eaten by others
2020	24-Aug	E5	MT	7	76	NSSB	54	0.80	0.51	N	
2020	24-Aug	E5	MT	7	77	NSSB	53	0.76	0.51	N	
2020	24-Aug	E5	MT	7	78	NSSB	54	0.79	0.50	N	
2020	24-Aug	E5	MT	8	79	NSSB	56	1.02	0.58	N	
2020	24-Aug	E5	MT	8	80	NSSB	52	0.78	0.55	N	
2020	24-Aug	E5	MT	8	81	NSSB	59	0.90	0.44	N	
2020	24-Aug	E5	MT	8	82	NSSB	57	-	-	N	windy
2020	24-Aug	E5	MT	8	83	NSSB	53	-	-	N	windy
2020	24-Aug	E5	MT	9	84	NSSB	55	0.98	0.59	N	
2020	24-Aug	E5	MT	9	85	NSSB	46	0.78	0.80	N	
2020	24-Aug	E5	MT	9	86	NSSB	50	0.79	0.63	N	
2020	24-Aug	E5	MT	9	87	NSSB	50	0.76	0.61	N	
2020	24-Aug	E5	MT	9	88	NSSB	48	-	-	Y	windy; eaten by others
2020	24-Aug	E5	MT	10	89	NSSB	53	-	-	N	windy
2020	24-Aug	E5	MT	10	90	NSSB	53	-	-	N	windy
2020	24-Aug	E5	MT	10	91	NSSB	54	-	-	N	windy
2020	24-Aug	E5	MT	10	92	NSSB	45	-	-	N	windy
2020	24-Aug	E5	MT	10	93	NSSB	52	-	-	N	windy
2020	24-Aug	E5	MT	10	94	NSSB	63	-	-	N	windy
2020	24-Aug	E5	MT	10	95	NSSB	59	-	-	N	windy
2020	24-Aug	E5	MT	10	96	NSSB	58	-	-	N	windy
2020	24-Aug	E5	MT	10	97	NSSB	56	-	-	N	windy
2020	24-Aug	E5	MT	10	98	NSSB	53	-	-	N	windy
2020	24-Aug	E5	MT	10	99	NSSB	58	-	-	N	windy
2020	24-Aug	E5	MT	10	100	NSSB	57	-	-	N	windy
2020	24-Aug	E5	MT	10	101	NSSB	46	-	-	N	windy
2020	24-Aug	E5	MT	10	102	NSSB	51	-	-	N	windy
2020	24-Aug	E5	MT	10	103	NSSB	56	-	-	N	windy
2020	24-Aug	E5	MT	10	104	NSSB	51	-	-	N	windy
2020	24-Aug	E5	MT	10	105	NSSB	46	-	-	N	windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Aug	E5	MT	10	106	NSSB	71	-	-	N	windy
2020	24-Aug	E5	MT	10	107	NSSB	53	-	-	N	windy
2020	24-Aug	E5	MT	10	108	NSSB	55	-	-	N	windy
2020	24-Aug	E5	MT	10	109	NSSB	54	-	-	N	windy
2020	24-Aug	E5	MT	10	110	NSSB	68	-	-	N	windy
2020	24-Aug	E5	MT	10	111	NSSB	50	-	-	N	windy
2020	24-Aug	E5	MT	10	112	NSSB	55	-	-	N	windy
2020	24-Aug	E5	MT	10	113	NSSB	53	-	-	N	windy
2020	24-Aug	E5	MT	10	114	NSSB	58	-	-	N	windy
2020	24-Aug	E5	MT	10	115	NSSB	48	-	-	N	windy
2020	24-Aug	E5	MT	10	116	NSSB	54	-	-	N	windy
2020	24-Aug	E5	MT	10	117	NSSB	57	-	-	N	windy
2020	24-Aug	E5	MT	10	118	NSSB	60	-	-	N	windy
2020	24-Aug	E5	MT	10	119	NSSB	45	-	-	N	windy
2020	24-Aug	E5	MT	10	120	NSSB	55	-	-	N	windy
2020	24-Aug	E12	MT	1	1	NSSB	79	2.68	0.54	N	
2020	24-Aug	E12	MT	1	2	NSSB	76	2.50	0.57	N	
2020	24-Aug	E12	MT	1	3	NSSB	78	2.74	0.58	N	
2020	24-Aug	E12	MT	1	4	NSSB	63	1.30	0.52	N	
2020	24-Aug	E12	MT	1	5	NSSB	65	2.00	0.73	N	
2020	24-Aug	E12	MT	1	6	NSSB	66	-	-	N	windy
2020	24-Aug	E12	MT	1	7	NSSB	74	-	-	N	windy
2020	24-Aug	E12	MT	1	8	NSSB	77	2.50	0.55	N	
2020	24-Aug	E12	MT	1	9	NSSB	65	1.60	0.58	N	
2020	24-Aug	E12	MT	1	10	NSSB	74	2.50	0.62	N	
2020	24-Aug	E12	MT	1	11	NSSB	64	1.50	0.57	N	
2020	24-Aug	E12	MT	1	12	NSSB	67	2.45	0.81	N	
2020	24-Aug	E12	MT	1	13	NSSB	81	3.09	0.58	N	
2020	24-Aug	E12	MT	1	14	NSSB	80	3.10	0.61	N	
2020	24-Aug	E12	MT	1	15	NSSB	79	3.50	0.71	N	
2020	24-Aug	E12	MT	1	16	NSSB	58	1.30	0.67	N	
2020	24-Aug	E12	MT	1	17	NSSB	79	3.57	0.72	N	
2020	24-Aug	E12	MT	1	18	NSSB	66	1.85	0.64	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Aug	E12	MT	1	19	NSSB	80	3.29	0.64	N	
2020	24-Aug	E12	MT	1	20	NSSB	80	3.31	0.65	N	
2020	24-Aug	E12	MT	1	21	NSSB	53	0.98	0.66	N	
2020	24-Aug	E12	MT	1	22	NSSB	79	3.32	0.67	N	
2020	24-Aug	E12	MT	1	23	NSSB	83	3.30	0.58	N	
2020	24-Aug	E12	MT	1	24	NSSB	68	2.20	0.70	N	
2020	24-Aug	E12	MT	1	25	NSSB	80	2.45	0.48	N	34 NSSB counted not measured
2020	24-Aug	E12	MT	2	26	NSSB	64	2.30	0.88	N	
2020	24-Aug	E12	MT	2	27	NSSB	78	2.98	0.63	N	
2020	24-Aug	E12	MT	2	28	NSSB	68	1.85	0.59	N	
2020	24-Aug	E12	MT	2	29	NSSB	67	2.15	0.71	N	
2020	24-Aug	E12	MT	2	30	NSSB	77	2.81	0.62	N	
2020	24-Aug	E12	MT	2	31	NSSB	50	0.76	0.61	N	
2020	24-Aug	E12	MT	2	32	NSSB	80	3.52	0.69	N	
2020	24-Aug	E12	MT	2	33	NSSB	79	2.48	0.50	N	
2020	24-Aug	E12	MT	2	34	NSSB	68	1.84	0.59	N	
2020	24-Aug	E12	MT	2	35	NSSB	59	1.34	0.65	N	
2020	24-Aug	E12	MT	2	36	NSSB	64	1.86	0.71	N	
2020	24-Aug	E12	MT	2	37	NSSB	64	1.34	0.51	N	
2020	24-Aug	E12	MT	2	38	NSSB	67	2.24	0.74	N	
2020	24-Aug	E12	MT	2	39	NSSB	78	2.93	0.62	N	
2020	24-Aug	E12	MT	2	40	NSSB	47	0.70	0.67	N	
2020	24-Aug	E12	MT	2	41	NSSB	70	1.93	0.56	N	
2020	24-Aug	E12	MT	2	42	NSSB	67	1.58	0.53	N	
2020	24-Aug	E12	MT	2	43	NSSB	48	0.74	0.67	N	
2020	24-Aug	E12	MT	2	44	NSSB	47	0.62	0.60	N	
2020	24-Aug	E12	MT	3	45	NSSB	49	0.82	0.70	N	
2020	24-Aug	E12	MT	3	46	NSSB	44	0.61	0.72	N	
2020	24-Aug	E12	MT	4	47	NSSB	68	2.50	0.80	N	
2020	24-Aug	E12	MT	4	48	NSSB	70	2.30	0.67	N	
2020	24-Aug	E12	MT	4	49	NSSB	46	0.65	0.67	N	
2020	24-Aug	E12	MT	4	50	NSSB	70	2.10	0.61	N	
2020	24-Aug	E12	MT	4	51	NSSB	66	2.32	0.81	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Aug	E12	MT	4	52	NSSB	60	1.52	0.70	N	
2020	24-Aug	E12	MT	4	53	NSSB	80	3.43	0.67	N	
2020	24-Aug	E12	MT	4	54	NSSB	78	3.09	0.65	N	
2020	24-Aug	E12	MT	4	55	NSSB	73	2.76	0.71	N	
2020	24-Aug	E12	MT	4	56	NSSB	50	0.93	0.74	N	
2020	24-Aug	E12	MT	4	57	NSSB	63	1.51	0.60	N	
2020	24-Aug	E12	MT	4	58	NSSB	57	1.10	0.59	N	
2020	24-Aug	E12	MT	4	59	NSSB	50	0.75	0.60	N	
2020	24-Aug	E12	MT	8	60	NSSB	62	1.44	0.60	N	
2020	24-Aug	E12	MT	9	61	NSSB	68	2.10	0.67	N	
2020	24-Aug	E12	MT	9	62	NSSB	70	2.31	0.67	N	
2020	24-Aug	E12	MT	9	63	NSSB	58	1.16	0.59	N	
2020	24-Aug	E12	MT	9	64	NSSB	68	2.29	0.73	N	
2020	24-Aug	E12	MT	9	65	NSSB	68	2.26	0.72	N	
2020	24-Aug	E12	MT	9	66	NSSB	78	2.67	0.56	N	
2020	24-Aug	E12	MT	9	67	NSSB	66	2.01	0.70	N	
2020	24-Aug	E12	MT	9	68	NSSB	49	0.83	0.71	N	
2020	24-Aug	E11	MT	8	1	NSSB	81	2.51	0.47	N	
2020	24-Aug	E11	MT	8	2	NSSB	76	2.34	0.53	N	
2020	24-Aug	E11	MT	8	3	NSSB	69	2.01	0.61	N	
2020	24-Aug	E11	MT	8	4	NSSB	75	-	-	N	windy
2020	24-Aug	E11	MT	8	5	NSSB	58	1.20	0.62	N	
2020	24-Aug	E11	MT	7	6	NSSB	79	2.32	0.47	N	
2020	24-Aug	E11	MT	7	7	NSSB	83	3.17	0.55	N	
2020	24-Aug	E11	MT	7	8	NSSB	60	1.63	0.75	N	
2020	24-Aug	E11	MT	7	9	NSSB	69	1.72	0.52	N	
2020	24-Aug	E11	MT	7	10	NSSB	56	1.24	0.71	N	
2020	24-Aug	E11	MT	7	11	NSSB	53	0.85	0.57	N	
2020	24-Aug	E11	MT	7	12	NSSB	60	1.51	0.70	N	
2020	24-Aug	E11	MT	7	13	NSSB	75	2.31	0.55	N	
2020	24-Aug	E11	MT	7	14	NSSB	69	1.72	0.52	N	
2020	24-Aug	E11	MT	7	15	NSSB	69	1.82	0.55	N	
2020	24-Aug	E11	MT	6	16	NSSB	59	1.75	0.85	Y	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Aug	E11	MT	6	17	NSSB	63	1.60	0.64	N	
2020	24-Aug	E11	MT	6	18	NSSB	62	1.50	0.63	N	
2020	24-Aug	E11	MT	6	19	NSSB	66	1.72	0.60	N	
2020	24-Aug	E11	MT	6	20	NSSB	63	1.52	0.61	N	
2020	24-Aug	E11	MT	5	21	NSSB	69	1.70	0.52	N	
2020	24-Aug	E11	MT	5	22	NSSB	69	1.72	0.52	N	
2020	24-Aug	E11	MT	5	23	NSSB	64	1.71	0.65	N	
2020	30-Jun	B62	EF	-	1	NSSB	64	1.85	0.71	N	
2020	30-Jun	B62	EF	-	2	NSSB	74	3.80	0.94	N	
2020	30-Jun	B62	EF	-	3	NSSB	70	3.35	0.98	N	
2020	30-Jun	B62	EF	-	4	NSSB	60	1.75	0.81	N	
2020	30-Jun	B62	EF	-	5	NSSB	55	1.30	0.78	N	
2020	30-Jun	B62	EF	-	6	NSSB	58	1.20	0.62	N	
2020	30-Jun	B62	EF	-	7	NSSB	59	2.00	0.97	N	
2020	30-Jun	B62	EF	-	8	NSSB	65	2.15	0.78	N	
2020	30-Jun	B62	EF	-	9	NSSB	55	1.25	0.75	N	
2020	30-Jun	B62	EF	-	10	NSSB	68	3.25	1.03	N	
2020	30-Jun	B62	EF	-	11	NSSB	69	2.90	0.88	N	
2020	30-Jun	B62	EF	-	12	NSSB	63	1.70	0.68	N	
2020	30-Jun	B62	EF	-	13	NSSB	65	2.15	0.78	N	
2020	30-Jun	B62	EF	-	14	NSSB	65	2.20	0.80	N	
2020	30-Jun	B62	EF	-	15	NSSB	59	1.50	0.73	N	
2020	30-Jun	B62	EF	-	16	NSSB	60	2.05	0.95	N	
2020	30-Jun	B63	EF	-	1	NSSB	55	1.25	0.75	N	
2020	30-Jun	B63	EF	-	2	NSSB	56	1.40	0.80	N	
2020	1-Jul	A6	EF	-	1	SLSC	78	5.50	1.16	N	
2020	1-Jul	A6	EF	-	2	NSSB	56	-	-	N	
2020	1-Jul	A6	EF	-	3	NSSB	60	1.05	0.49	N	
2020	1-Jul	A6	EF	-	4	NSSB	55	-	-	N	
2020	1-Jul	A6	EF	-	5	NSSB	35	-	-	N	
2020	1-Jul	A6	EF	-	6	NSSB	43	-	-	N	
2020	1-Jul	A6	EF	-	7	NSSB	30	-	-	N	
2020	1-Jul	A6	EF	-	8	NSSB	35	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	1-Jul	A6	EF	-	9	NSSB	38	-	-	N	
2020	1-Jul	A6	EF	-	10	NSSB	51	-	-	N	
2020	1-Jul	A6	EF	-	11	NSSB	55	-	-	N	
2020	1-Jul	A6	EF	-	12	NSSB	29	-	-	N	
2020	1-Jul	A6	EF	-	13	NSSB	38	-	-	N	
2020	1-Jul	A6	EF	-	14	NSSB	35	-	-	N	
2020	1-Jul	A6	EF	-	15	NSSB	50	-	-	N	
2020	1-Jul	A6	EF	-	16	NSSB	42	-	-	N	
2020	1-Jul	A6	EF	-	17	NSSB	39	-	-	N	
2020	1-Jul	A6	EF	-	18	NSSB	29	-	-	N	
2020	1-Jul	A6	EF	-	19	NSSB	35	-	-	N	majority of NSSB possible YOY
2020	1-Jul	A6	EF	-	20	NSSB	44	-	-	N	
2020	1-Jul	A6	EF	-	21	NSSB	42	-	-	N	23 NSSB counted, not measured
2020	1-Jul	A8	EF	-	1	SLSC	59	1.80	0.88	N	
2020	1-Jul	A8	EF	-	2	NSSB	49	0.65	0.55	N	
2020	1-Jul	A8	EF	-	3	NSSB	30	0.25	0.93	N	
2020	1-Jul	A8	EF	-	4	NSSB	60	1.60	0.74	N	
2020	1-Jul	A8	EF	-	5	NSSB	56	1.55	0.88	N	
2020	1-Jul	A8	EF	-	6	NSSB	59	1.50	0.73	N	
2020	1-Jul	A8	EF	-	7	NSSB	50	0.80	0.64	N	
2020	1-Jul	A8	EF	-	8	NSSB	59	1.65	0.80	N	
2020	1-Jul	A8	EF	-	9	NSSB	33	0.30	0.83	N	
2020	1-Jul	A8	EF	-	10	NSSB	47	0.75	0.72	N	
2020	1-Jul	A8	EF	-	11	NSSB	36	0.35	0.75	N	
2020	1-Jul	A8	EF	-	12	NSSB	43	0.55	0.69	N	
2020	1-Jul	A8	EF	-	13	NSSB	45	0.65	0.71	N	
2020	1-Jul	A8	EF	-	14	NSSB	25	0.05	0.32	N	
2020	1-Jul	A8	EF	-	15	NSSB	41	0.60	0.87	N	Majority NSSB possible YOY
2020	1-Jul	A8	EF	-	16	NSSB	43	0.65	0.82	N	
2020	1-Jul	A8	EF	-	17	NSSB	37	0.50	0.99	N	
2020	1-Jul	A8	EF	-	18	NSSB	31	0.30	1.01	N	
2020	1-Jul	A8	EF	-	19	NSSB	29	0.20	0.82	N	
2020	1-Jul	A8	EF	-	20	NSSB	22	0.05	0.47	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	1-Jul	A8	EF	-	21	NSSB	40	0.35	0.55	N	24 NSSB counted, not measured
2020	23-Jul	B25	EF	-	1	NSSB	39	-	-	N	
2020	23-Jul	B25	EF	-	2	NSSB	25	-	-	N	
2020	23-Jul	B25	EF	-	3	NSSB	29	-	-	N	
2020	23-Jul	B25	EF	-	4	NSSB	34	-	-	N	
2020	23-Jul	B25	EF	-	5	NSSB	33	-	-	N	
2020	23-Jul	B25	EF	-	6	NSSB	32	-	-	N	
2020	23-Jul	B25	EF	-	7	NSSB	25	-	-	N	
2020	23-Jul	B25	EF	-	8	NSSB	31	-	-	N	
2020	23-Jul	B25	EF	-	9	NSSB	27	-	-	N	
2020	23-Jul	B25	EF	-	10	NSSB	27	-	-	N	
2020	23-Jul	B25	EF	-	11	NSSB	19	-	-	N	
2020	23-Jul	B7	EF	-	1	BURB	253	76.00	0.47	N	
2020	23-Jul	B7	EF	-	2	NSSB	55	-	-	N	
2020	23-Jul	B7	EF	-	3	NSSB	43	-	-	N	
2020	23-Jul	B7	EF	-	4	NSSB	52	-	-	N	
2020	26-Jul	B30	EF	-	1	NSSB	24	-	-	N	
2020	26-Jul	B30	EF	-	2	NSSB	23	-	-	N	
2020	26-Jul	B30	EF	-	3	NSSB	22	-	-	N	
2020	26-Jul	B30	EF	-	4	NSSB	29	-	-	N	
2020	26-Jul	B30	EF	-	5	NSSB	15	-	-	N	
2020	26-Jul	B31	EF	-	1	NSSB	23	-	-	N	Too windy for scale
2020	26-Jul	B31	EF	-	2	NSSB	18	-	-	N	
2020	26-Jul	B31	EF	-	3	NSSB	17	-	-	N	
2020	26-Jul	B31	EF	-	4	NSSB	23	-	-	N	
2020	26-Jul	B31	EF	-	5	NSSB	22	-	-	N	
2020	26-Jul	B31	EF	-	6	NSSB	25	-	-	N	
2020	26-Jul	B31	EF	-	7	NSSB	23	-	-	N	
2020	26-Jul	B31	EF	-	8	NSSB	19	-	-	N	
2020	26-Jul	B31	EF	-	9	NSSB	29	-	-	N	
2020	26-Jul	B31	EF	-	10	NSSB	16	-	-	N	
2020	26-Jul	B31	EF	-	11	NSSB	25	-	-	N	
2020	26-Jul	B31	EF	-	12	NSSB	19	-	-	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	26-Jul	B31	EF	-	13	NSSB	14	-	-	N	
2020	26-Jul	B31	EF	-	14	NSSB	16	-	-	N	
2020	26-Jul	B32	EF	-	1	NSSB	39	0.27	0.46	N	
2020	26-Jul	B32	EF	-	2	NSSB	74	2.76	0.68	N	
2020	26-Jul	B32	EF	-	3	NSSB	27	-	-	N	too windy for scale
2020	26-Jul	B32	EF	-	4	NSSB	36	-	-	N	too windy for scale
2020	26-Jul	B32	EF	-	5	NSSB	34	0.24	0.61	N	
2020	26-Jul	B32	EF	-	6	NSSB	38	0.65	1.18	N	
2020	26-Jul	B32	EF	-	7	NSSB	39	0.44	0.74	N	
2020	26-Jul	B32	EF	-	8	NSSB	37	0.55	1.09	N	
2020	26-Jul	B32	EF	-	9	NSSB	29	-	-	N	too windy for scale
2020	26-Jul	B32	EF	-	10	NSSB	30	-	-	N	too windy for scale
2020	26-Jul	B32	EF	-	11	NSSB	38	-	-	N	Too windy for scale
2020	26-Jul	B32	EF	-	12	NSSB	32	-	-	N	
2020	26-Jul	B32	EF	-	13	NSSB	33	-	-	N	
2020	26-Jul	B32	EF	-	14	NSSB	34	-	-	N	
2020	26-Jul	B32	EF	-	15	NSSB	31	-	-	N	
2020	26-Jul	B32	EF	-	16	NSSB	30	-	-	N	
2020	26-Jul	B32	EF	-	17	NSSB	39	-	-	N	
2020	26-Jul	B32	EF	-	18	NSSB	25	-	-	N	
2020	26-Jul	B32	EF	-	19	NSSB	35	-	-	N	
2020	26-Jul	B32	EF	-	20	NSSB	37	-	-	N	
2020	26-Jul	B32	EF	-	21	NSSB	32	-	-	N	
2020	26-Jul	B32	EF	-	22	NSSB	29	-	-	N	
2020	26-Jul	B32	EF	-	23	NSSB	33	-	-	N	
2020	26-Jul	B32	EF	-	24	NSSB	35	-	-	N	
2020	26-Jul	B32	EF	-	25	NSSB	29	-	-	N	
2020	26-Jul	B32	EF	-	26	NSSB	29	-	-	N	
2020	26-Jul	B32	EF	-	27	NSSB	24	-	-	N	
2020	26-Jul	B32	EF	-	28	NSSB	23	-	-	N	
2020	26-Jul	B32	EF	-	29	NSSB	32	-	-	N	
2020	26-Jul	B32	EF	-	30	NSSB	24	-	-	N	
2020	26-Jul	B5	EF	-	1	NSSB	61	1.53	0.67	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	26-Jul	B5	EF	-	2	NSSB	45	0.75	0.82	N	
2020	26-Jul	B5	EF	-	3	NSSB	38	0.52	0.95	N	
2020	26-Jul	B5	EF	-	4	NSSB	46	0.55	0.57	N	
2020	26-Jul	B5	EF	-	5	NSSB	56	1.09	0.62	N	
2020	26-Jul	B5	EF	-	6	NSSB	43	0.61	0.77	N	
2020	26-Jul	B5	EF	-	7	ARGR	29	0.23	0.94	Y	YOY ?; injured on rocks during netting
2020	26-Jul	B6	EF	-	1	NSSB	33	0.42	1.17	N	
2020	26-Jul	B6	EF	-	2	NSSB	34	0.31	0.79	N	
2020	26-Jul	B6	EF	-	3	NSSB	34	0.40	1.02	N	
2020	26-Jul	B6	EF	-	4	SLSC	49	1.27	1.08	N	
2020	26-Jul	B6	EF	-	5	SLSC	46	1.00	1.03	N	
2020	26-Jul	B6	EF	-	6	SLSC	30	0.38	1.41	N	
2020	26-Jul	B6	EF	-	7	SLSC	33	0.28	0.78	N	
2020	26-Jul	B6	EF	-	8	SLSC	33	0.41	1.14	N	
2020	26-Jul	B6	EF	-	9	SLSC	44	1.06	1.24	N	
2020	26-Jul	B6	EF	-	10	NSSB	22	0.17	1.60	N	
2020	28-Jul	B36	EF	-	1	NSSB	33	0.32	0.89	N	
2020	28-Jul	B36	EF	-	2	NSSB	40	0.44	0.69	N	
2020	28-Jul	B36	EF	-	3	NSSB	35	0.23	0.54	N	
2020	28-Jul	B36	EF	-	4	NSSB	38	0.45	0.82	N	
2020	28-Jul	B36	EF	-	5	NSSB	40	0.45	0.70	N	
2020	28-Jul	B36	EF	-	6	NSSB	38	0.40	0.73	N	
2020	28-Jul	B36	EF	-	7	NSSB	42	0.56	0.76	N	
2020	28-Jul	B36	EF	-	8	NSSB	28	0.30	1.37	N	
2020	28-Jul	B36	EF	-	9	NSSB	36	0.30	0.64	N	
2020	28-Jul	B36	EF	-	10	NSSB	37	0.40	0.79	N	
2020	28-Jul	B36	EF	-	11	NSSB	29	0.18	0.74	N	
2020	28-Jul	B36	EF	-	12	NSSB	17	0.05	1.02	Y	
2020	28-Jul	B36	EF	-	13	NSSB	19	0.04	0.58	N	
2020	28-Jul	B36	EF	-	14	NSSB	24	0.13	0.94	N	
2020	28-Jul	B36	EF	-	15	NSSB	20	0.08	1.00	N	
2020	28-Jul	B36	EF	-	16	NSSB	27	0.20	1.02	N	
2020	28-Jul	B37	EF	-	1	NSSB	32	0.29	0.89	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	28-Jul	B37	EF	-	2	NSSB	35	0.33	0.77	N	
2020	28-Jul	B37	EF	-	3	NSSB	38	0.44	0.80	N	
2020	28-Jul	B37	EF	-	4	NSSB	35	0.39	0.91	N	
2020	28-Jul	B37	EF	-	5	NSSB	32	0.28	0.85	N	
2020	28-Jul	B37	EF	-	6	NSSB	34	0.28	0.71	N	
2020	28-Jul	B37	EF	-	7	NSSB	16	0.13	3.17	N	
2020	28-Jul	B38	EF	-	1	NSSB	41	0.79	1.15	N	
2020	28-Jul	B38	EF	-	2	NSSB	43	0.61	0.77	N	
2020	28-Jul	B38	EF	-	3	NSSB	45	0.78	0.86	N	
2020	28-Jul	B38	EF	-	4	NSSB	30	0.23	0.85	N	
2020	28-Jul	B38	EF	-	5	NSSB	31	0.27	0.91	N	
2020	28-Jul	B38	EF	-	6	NSSB	40	0.58	0.91	N	
2020	28-Jul	B38	EF	-	7	NSSB	41	0.50	0.73	N	
2020	28-Jul	B38	EF	-	8	NSSB	32	0.28	0.85	N	
2020	28-Jul	B4	EF	-	1	ARGR	39	0.58	0.98	N	YOY ?
2020	28-Jul	B4	EF	-	2	NSSB	48	0.97	0.88	N	
2020	28-Jul	B4	EF	-	3	NSSB	63	2.68	1.07	N	
2020	28-Jul	B4	EF	-	4	NSSB	44	0.68	0.80	N	
2020	28-Jul	B4	EF	-	5	NSSB	53	0.95	0.64	N	
2020	28-Jul	B4	EF	-	6	NSSB	35	0.30	0.70	N	
2020	28-Jul	B4	EF	-	7	NSSB	17	0.06	1.22	N	
2020	28-Jul	B4	EF	-	8	NSSB	20	0.09	1.13	N	
2020	28-Jul	B4	EF	-	9	NSSB	15	0.01	0.30	N	
2020	28-Jul	B4	EF	-	10	NSSB	20	0.06	0.75	N	
2020	1-Aug	B34	EF	-	1	NSSB	34	0.26	0.66	N	
2020	1-Aug	B34	EF	-	2	NSSB	24	0.13	0.94	N	
2020	1-Aug	B34	EF	-	3	NSSB	38	0.33	0.60	N	
2020	1-Aug	B34	EF	-	4	NSSB	36	0.32	0.69	N	
2020	1-Aug	B34	EF	-	5	NSSB	36	0.27	0.58	N	
2020	1-Aug	B34	EF	-	6	NSSB	42	0.47	0.63	N	
2020	1-Aug	B34	EF	-	7	NSSB	36	0.31	0.66	N	
2020	1-Aug	B34	EF	-	8	NSSB	33	0.22	0.61	N	
2020	1-Aug	B34	EF	-	9	NSSB	31	0.20	0.67	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	1-Aug	B34	EF	-	10	NSSB	41	0.50	0.73	N	
2020	1-Aug	B34	EF	-	11	NSSB	35	0.22	0.51	N	
2020	1-Aug	B34	EF	-	12	NSSB	37	0.35	0.69	N	
2020	1-Aug	B34	EF	-	13	NSSB	34	0.29	0.74	N	
2020	1-Aug	B34	EF	-	14	NSSB	33	0.32	0.89	N	
2020	1-Aug	B34	EF	-	15	NSSB	43	0.46	0.58	N	
2020	1-Aug	B34	EF	-	16	NSSB	32	0.23	0.70	N	
2020	1-Aug	B34	EF	-	17	NSSB	30	0.20	0.74	N	
2020	1-Aug	B34	EF	-	18	NSSB	30	0.16	0.59	N	
2020	1-Aug	B34	EF	-	19	NSSB	43	0.47	0.59	Y	Squished on rock during netting
2020	1-Aug	B34	EF	-	20	NSSB	27	0.16	0.81	N	
2020	1-Aug	B34	EF	-	21	NSSB	20	0.10	1.25	N	
2020	1-Aug	B34	EF	-	22	NSSB	25	0.10	0.64	N	
2020	1-Aug	B34	EF	-	23	NSSB	27	0.11	0.56	N	
2020	1-Aug	B34	EF	-	24	NSSB	28	0.13	0.59	N	
2020	1-Aug	B34	EF	-	25	NSSB	38	0.32	0.58	N	
2020	1-Aug	B34	EF	-	26	NSSB	25	0.10	0.64	N	
2020	1-Aug	B34	EF	-	27	NSSB	30	0.17	0.63	N	
2020	1-Aug	B34	EF	-	28	NSSB	29	0.16	0.66	N	
2020	22-Aug	E11	EF	-	1	NSSB	20	-	-	N	Windy
2020	22-Aug	E11	EF	-	2	NSSB	20	-	-	N	Windy
2020	22-Aug	E11	EF	-	3	NSSB	20	0.07	0.88	N	Windy
2020	22-Aug	E11	EF	-	4	NSSB	31	0.26	0.87	N	Windy
2020	22-Aug	E11	EF	-	5	NSSB	21	0.06	0.65	N	Windy
2020	22-Aug	E11	EF	-	6	NSSB	28	0.12	0.55	N	Windy
2020	22-Aug	E11	EF	-	7	NSSB	20	0.10	1.25	N	Windy
2020	22-Aug	E11	EF	-	8	NSSB	22	0.05	0.47	N	Windy
2020	22-Aug	E11	EF	-	9	NSSB	77	2.96	0.65	N	Windy
2020	22-Aug	E11	EF	-	10	NSSB	25	0.14	0.90	N	Windy
2020	22-Aug	E11	EF	-	11	NSSB	28	-	-	N	Windy
2020	22-Aug	E11	EF	-	12	NSSB	20	-	-	N	Windy
2020	22-Aug	E11	EF	-	13	NSSB	26	-	-	N	Windy
2020	22-Aug	E11	EF	-	14	NSSB	25	-	-	N	Windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	22-Aug	E11	EF	-	15	NSSB	26	-	-	N	Windy
2020	22-Aug	E11	EF	-	16	NSSB	23	-	-	N	Windy
2020	22-Aug	E11	EF	-	17	NSSB	25	-	-	N	Windy
2020	22-Aug	E11	EF	-	18	NSSB	13	-	-	N	Windy
2020	22-Aug	E11	EF	-	19	NSSB	19	-	-	N	Windy
2020	22-Aug	E11	EF	-	20	NSSB	22	-	-	N	Windy
2020	22-Aug	E11	EF	-	21	NSSB	31	-	-	N	Windy
2020	22-Aug	E11	EF	-	22	NSSB	25	-	-	N	Windy
2020	22-Aug	E11	EF	-	23	NSSB	20	-	-	N	Windy
2020	22-Aug	E11	EF	-	24	NSSB	27	-	-	N	Windy
2020	22-Aug	E11	EF	-	25	NSSB	22	-	-	N	Windy
2020	22-Aug	E11	EF	-	26	NSSB	17	-	-	N	Windy
2020	22-Aug	E11	EF	-	27	NSSB	18	-	-	N	Windy
2020	22-Aug	E11	EF	-	28	NSSB	21	-	-	N	Windy
2020	22-Aug	E11	EF	-	29	NSSB	19	-	-	N	Windy
2020	22-Aug	E11	EF	-	30	NSSB	24	-	-	N	Windy
2020	22-Aug	E11	EF	-	31	NSSB	18	-	-	N	Windy
2020	22-Aug	E11	EF	-	32	NSSB	35	-	-	N	Windy
2020	22-Aug	E11	EF	-	33	NSSB	21	-	-	N	Windy
2020	22-Aug	E11	EF	-	34	NSSB	27	-	-	N	Windy
2020	22-Aug	E11	EF	-	35	NSSB	22	-	-	N	Windy
2020	22-Aug	E11	EF	-	36	NSSB	30	-	-	N	Windy
2020	22-Aug	E11	EF	-	37	NSSB	-	-	-	Y	fish lost to tundra when it flipped off the measuring board- not measured
2020	22-Aug	E12	EF	-	1	NSSB	27	0.10	0.51	N	Windy
2020	22-Aug	E12	EF	-	2	NSSB	19	-	-	N	Windy
2020	22-Aug	E12	EF	-	3	NSSB	33	-	-	N	Windy
2020	22-Aug	E12	EF	-	4	NSSB	28	-	-	N	Windy
2020	22-Aug	E12	EF	-	5	NSSB	24	-	-	N	Windy
2020	22-Aug	E12	EF	-	6	NSSB	27	-	-	N	Windy
2020	22-Aug	E12	EF	-	7	NSSB	35	-	-	N	Windy
2020	22-Aug	E12	EF	-	8	NSSB	34	-	-	N	Windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	22-Aug	E12	EF	-	9	NSSB	28	-	-	N	Windy
2020	22-Aug	E12	EF	-	10	NSSB	28	-	-	N	Windy
2020	22-Aug	E12	EF	-	11	NSSB	29	-	-	N	Windy
2020	22-Aug	E12	EF	-	12	NSSB	32	-	-	N	Windy
2020	22-Aug	E12	EF	-	13	NSSB	25	-	-	N	Windy
2020	22-Aug	E12	EF	-	14	NSSB	25	-	-	N	Windy
2020	22-Aug	E12	EF	-	15	NSSB	29	-	-	N	Windy
2020	22-Aug	E12	EF	-	16	NSSB	25	-	-	N	Windy
2020	22-Aug	E12	EF	-	17	NSSB	37	-	-	N	Windy
2020	22-Aug	E12	EF	-	18	NSSB	25	-	-	N	Windy
2020	22-Aug	E12	EF	-	19	NSSB	31	-	-	N	Windy
2020	22-Aug	E12	EF	-	20	NSSB	21	-	-	N	Windy
2020	22-Aug	E12	EF	-	21	NSSB	33	-	-	N	Windy
2020	22-Aug	E12	EF	-	22	NSSB	26	-	-	N	Windy
2020	22-Aug	E12	EF	-	23	NSSB	25	-	-	N	Windy
2020	22-Aug	E12	EF	-	24	NSSB	27	-	-	N	Windy
2020	22-Aug	E12	EF	-	25	NSSB	23	-	-	N	Windy
2020	22-Aug	E12	EF	-	26	NSSB	29	-	-	N	Windy
2020	22-Aug	E12	EF	-	27	NSSB	24	-	-	N	Windy
2020	22-Aug	E12	EF	-	28	NSSB	33	-	-	N	Windy
2020	22-Aug	E12	EF	-	29	NSSB	19	-	-	N	Windy
2020	22-Aug	E12	EF	-	30	NSSB	18	-	-	N	Windy
2020	22-Aug	E4	EF	-	1	NSSB	45	0.58	0.64	N	Windy
2020	22-Aug	E4	EF	-	2	NSSB	42	0.57	0.77	N	Windy
2020	22-Aug	E4	EF	-	3	NSSB	44	0.57	0.67	N	Windy
2020	22-Aug	E4	EF	-	4	NSSB	28	0.15	0.68	N	Windy
2020	22-Aug	E4	EF	-	5	NSSB	40	0.41	0.64	N	Windy
2020	22-Aug	E4	EF	-	6	NSSB	46	0.54	0.55	N	Windy
2020	22-Aug	E4	EF	-	7	NSSB	26	0.13	0.74	N	Windy
2020	22-Aug	E4	EF	-	8	NSSB	24	0.13	0.94	N	Windy
2020	22-Aug	E4	EF	-	9	NSSB	27	0.13	0.66	N	Windy
2020	22-Aug	E4	EF	-	10	NSSB	44	0.65	0.76	N	Windy
2020	22-Aug	E4	EF	-	11	NSSB	45	0.51	0.56	N	Windy

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	22-Aug	E4	EF	-	12	NSSB	40	0.34	0.53	N	Windy
2020	22-Aug	E4	EF	-	13	NSSB	25	0.10	0.64	N	Windy
2020	22-Aug	E4	EF	-	14	NSSB	23	0.09	0.74	N	Windy
2020	22-Aug	E5	EF	-	1	NSSB	39	0.50	0.84	N	Windy
2020	22-Aug	E5	EF	-	2	NSSB	44	0.58	0.68	N	Windy
2020	22-Aug	E5	EF	-	3	NSSB	54	0.87	0.55	N	Windy
2020	22-Aug	E5	EF	-	4	NSSB	36	0.42	0.90	N	Windy
2020	22-Aug	E5	EF	-	5	NSSB	41	0.39	0.57	N	Windy
2020	22-Aug	E5	EF	-	6	NSSB	51	0.83	0.63	N	Windy
2020	22-Aug	E5	EF	-	7	NSSB	65	1.80	0.66	N	Windy
2020	22-Aug	E5	EF	-	8	NSSB	38	0.34	0.62	N	Windy
2020	22-Aug	E5	EF	-	9	NSSB	44	0.51	0.60	N	Windy
2020	22-Aug	E5	EF	-	10	NSSB	38	0.40	0.73	N	Windy
2020	22-Aug	E5	EF	-	11	NSSB	38	0.38	0.69	N	Windy
2020	22-Aug	E5	EF	-	12	NSSB	39	0.42	0.71	N	Windy
2020	22-Aug	E5	EF	-	13	NSSB	45	0.40	0.44	N	Windy
2020	22-Aug	E5	EF	-	14	NSSB	67	1.66	0.55	N	Windy
2020	22-Aug	E5	EF	-	15	NSSB	45	0.60	0.66	N	Windy
2020	22-Aug	E5	EF	-	16	NSSB	44	0.40	0.47	N	Windy
2020	22-Aug	E5	EF	-	17	NSSB	42	0.48	0.65	N	Windy
2020	22-Aug	E5	EF	-	18	NSSB	39	0.42	0.71	N	Windy
2020	22-Aug	E5	EF	-	19	NSSB	38	0.34	0.62	N	Windy
2020	22-Aug	E5	EF	-	20	NSSB	39	0.32	0.54	N	Windy
2020	22-Aug	E5	EF	-	21	NSSB	46	-	-	N	Windy
2020	22-Aug	E5	EF	-	22	NSSB	42	0.52	0.70	N	Windy
2020	22-Aug	E5	EF	-	23	NSSB	48	0.52	0.47	N	Windy
2020	22-Aug	E5	EF	-	24	NSSB	44	0.60	0.70	N	Windy
2020	22-Aug	E5	EF	-	25	NSSB	39	0.33	0.56	N	Windy
2020	22-Aug	E5	EF	-	26	NSSB	35	0.27	0.63	N	Windy
2020	22-Aug	E5	EF	-	27	NSSB	25	-	-	N	Windy
2020	22-Aug	E5	EF	-	28	NSSB	35	0.28	0.65	N	Windy
2020	22-Aug	E5	EF	-	29	NSSB	33	0.25	0.70	N	Windy
2020	22-Aug	E5	EF	-	30	NSSB	38	0.28	0.51	N	Windy; 16 NSSB counted but not measured

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Aug	E10	EF	-	1	NSSB	65	1.90	0.69	N	Light Breeze
2020	23-Aug	E10	EF	-	2	NSSB	37	0.30	0.59	N	Light Breeze
2020	23-Aug	E10	EF	-	3	NSSB	40	0.42	0.66	N	Light Breeze
2020	23-Aug	E10	EF	-	4	NSSB	34	0.30	0.76	N	Light Breeze
2020	23-Aug	E10	EF	-	5	NSSB	23	0.07	0.58	N	Light Breeze
2020	23-Aug	E10	EF	-	6	NSSB	28	0.13	0.59	N	Light Breeze
2020	23-Aug	E10	EF	-	7	NSSB	29	0.15	0.62	N	Light Breeze
2020	23-Aug	E10	EF	-	8	NSSB	24	0.10	0.72	N	Light Breeze
2020	23-Aug	E10	EF	-	9	NSSB	26	0.12	0.68	N	Light Breeze
2020	23-Aug	E10	EF	-	10	NSSB	27	0.12	0.61	N	Light Breeze
2020	23-Aug	E10	EF	-	11	NSSB	27	0.13	0.66	N	Light Breeze
2020	23-Aug	E10	EF	-	12	NSSB	20	0.07	0.88	N	Light Breeze
2020	23-Aug	E10	EF	-	13	NSSB	23	0.09	0.74	N	Light Breeze
2020	23-Aug	E10	EF	-	14	NSSB	30	0.17	0.63	N	Light Breeze
2020	23-Aug	E10	EF	-	15	NSSB	39	0.34	0.57	N	Light Breeze
2020	23-Aug	E10	EF	-	16	NSSB	23	0.07	0.58	N	Light Breeze
2020	23-Aug	E10	EF	-	17	NSSB	23	0.10	0.82	N	Light Breeze
2020	23-Aug	E10	EF	-	18	NSSB	35	0.28	0.65	N	Light Breeze
2020	23-Aug	E10	EF	-	19	NSSB	24	0.08	0.58	N	Light Breeze
2020	23-Aug	E10	EF	-	20	NSSB	29	0.17	0.70	N	Light Breeze
2020	23-Aug	E10	EF	-	21	NSSB	34	0.27	0.69	N	Light Breeze
2020	23-Aug	E10	EF	-	22	NSSB	26	0.16	0.91	N	Light Breeze
2020	23-Aug	E10	EF	-	23	NSSB	20	0.06	0.75	N	Light Breeze
2020	23-Aug	E10	EF	-	24	NSSB	20	0.08	1.00	N	Light Breeze
2020	23-Aug	E10	EF	-	25	NSSB	29	0.16	0.66	N	Light Breeze; 15 NSSB counted not measured
2020	23-Aug	E4	EF	-	15	NSSB	49	0.77	0.65	N	
2020	23-Aug	E4	EF	-	16	NSSB	26	0.18	1.02	N	
2020	23-Aug	E4	EF	-	17	NSSB	45	0.54	0.59	N	
2020	23-Aug	E4	EF	-	18	NSSB	50	0.79	0.63	N	
2020	23-Aug	E4	EF	-	19	NSSB	28	0.17	0.77	N	
2020	23-Aug	E4	EF	-	20	NSSB	46	0.70	0.72	N	
2020	23-Aug	E4	EF	-	21	NSSB	25	0.12	0.77	N	
2020	23-Aug	E4	EF	-	22	NSSB	25	0.11	0.70	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	23-Aug	E4	EF	-	23	NSSB	23	0.07	0.58	N	
2020	23-Aug	E4	EF	-	24	NSSB	29	0.17	0.70	N	
2020	23-Aug	E4	EF	-	25	NSSB	34	0.29	0.74	N	
2020	23-Aug	E4	EF	-	26	NSSB	26	0.12	0.68	N	
2020	23-Aug	E4	EF	-	27	NSSB	25	0.13	0.83	N	
2020	23-Aug	E4	EF	-	28	NSSB	23	0.07	0.58	N	
2020	23-Aug	E4	EF	-	29	NSSB	22	0.09	0.85	N	
2020	23-Aug	E4	EF	-	30	NSSB	25	0.10	0.64	N	
2020	23-Aug	E4	EF	-	31	NSSB	28	0.17	0.77	N	
2020	23-Aug	E4	EF	-	32	NSSB	18	0.09	1.54	N	
2020	23-Aug	E4	EF	-	33	NSSB	23	0.10	0.82	N	
2020	24-Aug	A19	EF	-	1	NSSB	44	0.60	0.70	N	
2020	24-Aug	A19	EF	-	2	NSSB	28	0.16	0.73	N	
2020	24-Aug	A19	EF	-	3	NSSB	32	0.24	0.73	N	
2020	24-Aug	A19	EF	-	4	NSSB	33	0.21	0.58	N	
2020	24-Aug	A19	EF	-	5	NSSB	45	0.55	0.60	N	
2020	24-Aug	A19	EF	-	6	NSSB	23	0.11	0.90	N	
2020	24-Aug	A19	EF	-	7	NSSB	30	0.20	0.74	N	
2020	24-Aug	A19	EF	-	8	NSSB	32	0.20	0.61	N	
2020	24-Aug	A19	EF	-	9	NSSB	27	0.16	0.81	N	
2020	24-Aug	A19	EF	-	10	NSSB	24	0.10	0.72	N	
2020	24-Aug	A19	EF	-	11	NSSB	23	0.07	0.58	N	
2020	24-Aug	A19	EF	-	12	NSSB	29	0.17	0.70	N	
2020	24-Aug	A19	EF	-	13	NSSB	35	0.22	0.51	N	
2020	24-Aug	A19	EF	-	14	NSSB	33	0.23	0.64	N	
2020	24-Aug	A19	EF	-	15	NSSB	27	0.12	0.61	N	
2020	24-Aug	A19	EF	-	16	NSSB	37	0.31	0.61	N	
2020	24-Aug	A5	EF	-	1	NSSB	36	0.27	0.58	N	
2020	24-Aug	A5	EF	-	2	NSSB	24	0.08	0.58	N	
2020	24-Aug	A5	EF	-	3	NSSB	18	0.06	1.03	N	
2020	24-Aug	A5	EF	-	4	NSSB	25	0.08	0.51	N	
2020	24-Aug	A5	EF	-	5	NSSB	30	0.17	0.63	N	
2020	24-Aug	A5	EF	-	6	NSSB	34	0.25	0.64	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	24-Aug	A5	EF	-	7	NSSB	32	0.21	0.64	N	
2020	24-Aug	A5	EF	-	8	NSSB	27	0.14	0.71	N	
2020	24-Aug	A5	EF	-	9	NSSB	33	0.24	0.67	N	
2020	24-Aug	A5	EF	-	10	NSSB	33	0.24	0.67	N	
2020	24-Aug	A5	EF	-	11	NSSB	42	0.47	0.63	N	
2020	24-Aug	A5	EF	-	12	NSSB	30	0.20	0.74	N	
2020	24-Aug	A5	EF	-	13	NSSB	30	0.21	0.78	N	
2020	24-Aug	A5	EF	-	14	NSSB	20	0.06	0.75	N	
2020	24-Aug	A5	EF	-	15	NSSB	25	0.12	0.77	N	
2020	24-Aug	A5	EF	-	16	NSSB	25	0.09	0.58	N	
2020	24-Aug	A5	EF	-	17	NSSB	25	0.12	0.77	N	
2020	24-Aug	A5	EF	-	18	NSSB	22	0.11	1.03	N	
2020	24-Aug	A5	EF	-	19	NSSB	25	0.13	0.83	N	
2020	24-Aug	A5	EF	-	20	NSSB	22	0.07	0.66	N	
2020	24-Aug	A5	EF	-	21	NSSB	23	0.08	0.66	N	
2020	24-Aug	A5	EF	-	22	NSSB	18	0.06	1.03	N	
2020	24-Aug	A5	EF	-	23	NSSB	32	0.20	0.61	N	
2020	24-Aug	A5	EF	-	24	NSSB	34	0.27	0.69	N	
2020	24-Aug	A5	EF	-	25	NSSB	20	0.06	0.75	N	
2020	24-Aug	A5	EF	-	26	NSSB	20	0.06	0.75	N	
2020	24-Aug	A5	EF	-	27	NSSB	27	0.14	0.71	N	
2020	24-Aug	A5	EF	-	28	NSSB	24	0.09	0.65	N	
2020	24-Aug	A5	EF	-	29	NSSB	23	0.09	0.74	N	
2020	24-Aug	A5	EF	-	30	NSSB	28	0.16	0.73	N	
2020	24-Aug	A5	EF	-	31	NSSB	25	0.13	0.83	N	
2020	24-Aug	A5	EF	-	32	NSSB	23	0.10	0.82	N	
2020	24-Aug	A5	EF	-	33	NSSB	25	0.14	0.90	N	
2020	25-Aug	A1	EF	-	1	NSSB	27	0.13	0.66	N	
2020	25-Aug	A1	EF	-	2	NSSB	20	0.06	0.75	N	
2020	25-Aug	A1	EF	-	3	NSSB	50	0.94	0.75	N	
2020	25-Aug	A1	EF	-	4	NSSB	46	0.67	0.69	N	
2020	25-Aug	A1	EF	-	5	NSSB	49	0.81	0.69	N	
2020	25-Aug	A1	EF	-	6	NSSB	48	0.72	0.65	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	25-Aug	A1	EF	-	7	NSSB	49	0.73	0.62	N	
2020	25-Aug	A1	EF	-	8	NSSB	44	0.47	0.55	N	
2020	25-Aug	A1	EF	-	9	NSSB	30	0.25	0.93	N	
2020	25-Aug	A1	EF	-	10	NSSB	18	0.03	0.51	N	
2020	25-Aug	A1	EF	-	11	NSSB	35	-	-	N	scale error wind
2020	25-Aug	A1	EF	-	12	NSSB	28	0.19	0.87	N	
2020	25-Aug	A1	EF	-	13	NSSB	32	0.22	0.67	N	
2020	25-Aug	A1	EF	-	14	NSSB	22	0.15	1.41	N	
2020	25-Aug	A1	EF	-	15	NSSB	34	0.23	0.59	N	
2020	25-Aug	A1	EF	-	16	NSSB	30	0.19	0.70	N	
2020	25-Aug	A1	EF	-	17	NSSB	27	0.13	0.66	N	
2020	25-Aug	A1	EF	-	18	NSSB	30	0.22	0.81	N	
2020	25-Aug	A1	EF	-	19	NSSB	29	0.17	0.70	N	
2020	25-Aug	A1	EF	-	20	NSSB	27	0.17	0.86	N	
2020	25-Aug	A1	EF	-	21	NSSB	22	0.11	1.03	N	
2020	25-Aug	A1	EF	-	22	NSSB	19	0.06	0.87	N	
2020	25-Aug	A1	EF	-	23	NSSB	19	0.06	0.87	N	
2020	25-Aug	A1	EF	-	24	NSSB	30	0.16	0.59	N	
2020	25-Aug	A1	EF	-	25	NSSB	24	0.14	1.01	N	
2020	25-Aug	A1	EF	-	26	NSSB	19	0.05	0.73	N	
2020	25-Aug	A1	EF	-	27	NSSB	21	0.09	0.97	N	
2020	25-Aug	A1	EF	-	28	NSSB	19	0.06	0.87	N	
2020	25-Aug	A1	EF	-	29	NSSB	18	0.05	0.86	N	
2020	25-Aug	A1	EF	-	30	NSSB	20	0.07	0.88	N	
2020	25-Aug	A1	EF	-	31	NSSB	20	0.07	0.88	N	
2020	25-Aug	A1	EF	-	32	NSSB	19	0.05	0.73	N	
2020	25-Aug	A1	EF	-	33	NSSB	20	0.03	0.38	N	
2020	25-Aug	A1	EF	-	34	NSSB	54	0.91	0.58	Y	Unknown cause of death
2020	25-Aug	A1	EF	-	35	NSSB	22	0.04	0.38	N	
2020	25-Aug	A2	EF	-	1	NSSB	31	0.19	0.64	N	
2020	25-Aug	A2	EF	-	2	NSSB	32	0.13	0.40	N	
2020	25-Aug	A2	EF	-	3	NSSB	55	1.12	0.67	N	
2020	25-Aug	A2	EF	-	4	NSSB	33	0.24	0.67	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	25-Aug	A2	EF	-	5	NSSB	40	0.48	0.75	N	
2020	25-Aug	A2	EF	-	6	NSSB	20	0.05	0.63	N	
2020	25-Aug	A2	EF	-	7	NSSB	35	0.24	0.56	N	
2020	25-Aug	A2	EF	-	8	NSSB	35	0.26	0.61	N	
2020	25-Aug	A2	EF	-	9	NSSB	30	0.16	0.59	N	
2020	25-Aug	A2	EF	-	10	NSSB	34	0.22	0.56	N	
2020	25-Aug	A2	EF	-	11	NSSB	25	0.12	0.77	N	
2020	25-Aug	A2	EF	-	12	NSSB	20	0.05	0.63	N	
2020	25-Aug	A2	EF	-	13	NSSB	38	-	-	N	scale error wind
2020	25-Aug	A2	EF	-	14	NSSB	25	0.08	0.51	N	
2020	25-Aug	A2	EF	-	15	NSSB	29	0.12	0.49	N	
2020	25-Aug	A2	EF	-	16	NSSB	21	0.06	0.65	N	
2020	25-Aug	A2	EF	-	17	NSSB	23	0.08	0.66	N	
2020	25-Aug	A2	EF	-	18	NSSB	25	0.11	0.70	N	
2020	25-Aug	A2	EF	-	19	NSSB	22	0.09	0.85	N	
2020	25-Aug	A2	EF	-	20	NSSB	26	0.11	0.63	N	
2020	25-Aug	A2	EF	-	21	NSSB	16	0.02	0.49	N	
2020	25-Aug	A2	EF	-	22	NSSB	27	0.12	0.61	N	
2020	25-Aug	A2	EF	-	23	NSSB	43	0.42	0.53	N	
2020	25-Aug	A2	EF	-	24	NSSB	19	0.06	0.87	N	
2020	25-Aug	A2	EF	-	25	NSSB	23	0.07	0.58	N	
2020	25-Aug	A2	EF	-	26	NSSB	27	0.11	0.56	N	
2020	25-Aug	A2	EF	-	27	NSSB	29	0.15	0.62	N	
2020	25-Aug	A2	EF	-	28	NSSB	23	0.08	0.66	N	
2020	25-Aug	A2	EF	-	29	NSSB	23	0.10	0.82	N	
2020	25-Aug	A2	EF	-	30	NSSB	19	0.04	0.58	N	
2020	25-Aug	A2	EF	-	31	NSSB	24	0.08	0.58	N	
2020	25-Aug	A2	EF	-	32	NSSB	29	0.15	0.62	N	
2020	25-Aug	A2	EF	-	33	NSSB	25	0.10	0.64	N	
2020	25-Aug	A2	EF	-	34	NSSB	24	0.10	0.72	N	
2020	25-Aug	A2	EF	-	35	NSSB	23	0.09	0.74	N	
2020	25-Aug	A2	EF	-	36	NSSB	26	-	-	N	scale error wind
2020	25-Aug	A2	EF	-	37	NSSB	24	0.09	0.65	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	25-Aug	A2	EF	-	38	NSSB	22	0.06	0.56	N	
2020	25-Aug	A2	EF	-	39	NSSB	20	0.05	0.63	N	
2020	25-Aug	A2	EF	-	40	NSSB	25	0.08	0.51	N	9 NSSB counted not measured
2020	25-Aug	A2	EF	-	41	TSSB	66	2.71	0.94	N	
2020	25-Aug	A2	EF	-	42	NSSB	59	1.22	0.59	N	
2020	25-Aug	A2	EF	-	43	NSSB	36	0.25	0.54	N	
2020	25-Aug	A2	EF	-	44	NSSB	58	1.01	0.52	N	
2020	25-Aug	A2	EF	-	45	NSSB	55	1.03	0.62	N	
2020	25-Aug	A2	EF	-	46	NSSB	55	1.02	0.61	N	
2020	25-Aug	A2	EF	-	47	NSSB	49	0.70	0.59	N	
2020	25-Aug	A2	EF	-	48	NSSB	25	-	-	N	scale error wind
2020	25-Aug	A2	EF	-	49	NSSB	27	0.17	0.86	N	
2020	25-Aug	A2	EF	-	50	NSSB	27	0.10	0.51	N	
2020	25-Aug	A2	EF	-	51	NSSB	27	0.13	0.66	N	
2020	25-Aug	A2	EF	-	52	NSSB	27	0.14	0.71	N	
2020	25-Aug	A2	EF	-	53	NSSB	29	0.13	0.53	N	
2020	25-Aug	A2	EF	-	54	NSSB	33	0.20	0.56	N	
2020	25-Aug	A2	EF	-	55	NSSB	23	0.07	0.58	N	
2020	25-Aug	A2	EF	-	56	NSSB	25	0.13	0.83	N	
2020	25-Aug	A2	EF	-	57	NSSB	32	0.18	0.55	N	
2020	25-Aug	A2	EF	-	58	NSSB	23	0.09	0.74	N	
2020	25-Aug	A2	EF	-	59	NSSB	28	0.15	0.68	N	
2020	25-Aug	A2	EF	-	60	NSSB	25	0.10	0.64	N	
2020	25-Aug	A2	EF	-	61	NSSB	28	0.13	0.59	N	
2020	25-Aug	A2	EF	-	62	NSSB	21	0.08	0.86	N	
2020	25-Aug	A2	EF	-	63	NSSB	21	0.08	0.86	N	
2020	25-Aug	A2	EF	-	64	NSSB	25	0.10	0.64	N	
2020	25-Aug	A2	EF	-	65	NSSB	29	0.13	0.53	N	12 NSSB counted not measured
2020	25-Aug	A2	EF	-	66	NSSB	58	1.54	0.79	N	
2020	25-Aug	A2	EF	-	67	NSSB	63	1.81	0.72	N	
2020	25-Aug	A2	EF	-	68	NSSB	56	1.57	0.89	N	
2020	25-Aug	A2	EF	-	69	NSSB	70	2.01	0.59	N	
2020	25-Aug	A2	EF	-	70	NSSB	70	1.84	0.54	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	25-Aug	A2	EF	-	71	NSSB	60	1.51	0.70	N	
2020	25-Aug	A2	EF	-	72	NSSB	59	1.59	0.77	N	
2020	25-Aug	A2	EF	-	73	NSSB	53	0.88	0.59	N	
2020	25-Aug	A2	EF	-	74	NSSB	63	1.55	0.62	N	
2020	25-Aug	A2	EF	-	75	NSSB	62	1.47	0.62	N	
2020	25-Aug	A2	EF	-	76	NSSB	55	1.02	0.61	N	
2020	25-Aug	A2	EF	-	77	NSSB	59	1.16	0.56	N	
2020	25-Aug	A2	EF	-	78	NSSB	49	0.63	0.54	N	
2020	25-Aug	A2	EF	-	79	NSSB	64	1.56	0.60	N	
2020	25-Aug	A2	EF	-	80	NSSB	36	0.30	0.64	N	
2020	25-Aug	A2	EF	-	81	NSSB	30	0.15	0.56	N	
2020	25-Aug	A2	EF	-	82	NSSB	27	0.12	0.61	N	
2020	25-Aug	A2	EF	-	83	NSSB	29	0.18	0.74	N	
2020	25-Aug	A2	EF	-	84	NSSB	33	0.20	0.56	N	
2020	25-Aug	A2	EF	-	85	NSSB	19	0.05	0.73	N	
2020	25-Aug	A2	EF	-	86	NSSB	24	0.15	1.09	N	
2020	25-Aug	A2	EF	-	87	NSSB	28	0.08	0.36	N	
2020	25-Aug	A2	EF	-	88	NSSB	29	0.17	0.70	N	
2020	25-Aug	A2	EF	-	89	NSSB	38	0.36	0.66	N	
2020	25-Aug	A2	EF	-	90	NSSB	28	0.16	0.73	N	
2020	25-Aug	A2	EF	-	91	NSSB	32	0.20	0.61	N	
2020	25-Aug	A2	EF	-	92	NSSB	34	0.31	0.79	N	
2020	25-Aug	A2	EF	-	93	NSSB	30	-	-	N	windy
2020	25-Aug	A2	EF	-	94	NSSB	24	0.16	1.16	N	
2020	25-Aug	A2	EF	-	95	NSSB	30	0.19	0.70	N	wind; 26 NSSB counted not measured
2020	25-Aug	A3	EF	-	1	NSSB	63	1.86	0.74	N	
2020	25-Aug	A3	EF	-	2	NSSB	58	1.20	0.62	N	
2020	25-Aug	A3	EF	-	3	NSSB	63	1.81	0.72	N	
2020	25-Aug	A3	EF	-	4	NSSB	27	0.10	0.51	N	
2020	25-Aug	A3	EF	-	5	NSSB	48	0.80	0.72	N	
2020	25-Aug	A3	EF	-	6	NSSB	56	1.15	0.65	N	
2020	25-Aug	A3	EF	-	7	NSSB	21	-	-	N	windy
2020	25-Aug	A3	EF	-	8	NSSB	65	1.60	0.58	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	25-Aug	A3	EF	-	9	NSSB	34	0.32	0.81	N	
2020	25-Aug	A3	EF	-	10	NSSB	59	1.43	0.70	N	
2020	25-Aug	A3	EF	-	11	NSSB	23	0.20	1.64	N	
2020	25-Aug	A3	EF	-	12	NSSB	56	1.56	0.89	N	
2020	25-Aug	A3	EF	-	13	NSSB	57	1.04	0.56	N	
2020	25-Aug	A3	EF	-	14	NSSB	27	0.11	0.56	N	
2020	25-Aug	A3	EF	-	15	NSSB	61	1.38	0.61	N	
2020	25-Aug	A3	EF	-	16	NSSB	57	1.38	0.75	N	
2020	25-Aug	A3	EF	-	17	NSSB	33	0.27	0.75	N	
2020	25-Aug	A3	EF	-	18	NSSB	53	0.90	0.60	N	
2020	25-Aug	A3	EF	-	19	NSSB	38	0.32	0.58	N	
2020	25-Aug	A3	EF	-	20	NSSB	40	0.45	0.70	N	
2020	25-Aug	A3	EF	-	21	NSSB	32	0.25	0.76	N	
2020	25-Aug	A3	EF	-	22	NSSB	38	0.33	0.60	N	
2020	25-Aug	A3	EF	-	23	NSSB	31	0.19	0.64	N	
2020	25-Aug	A3	EF	-	24	NSSB	28	0.14	0.64	N	
2020	25-Aug	A3	EF	-	25	NSSB	28	0.17	0.77	N	20 NSSB counted not measured
2020	25-Aug	A4	EF	-	1	NSSB	60	1.24	0.57	N	
2020	25-Aug	A4	EF	-	2	NSSB	57	1.27	0.69	N	
2020	25-Aug	A4	EF	-	3	NSSB	22	0.10	0.94	N	
2020	25-Aug	A4	EF	-	4	NSSB	16	-	-	N	
2020	25-Aug	A4	EF	-	5	NSSB	30	0.22	0.81	N	
2020	27-Aug	A52	EF	-	1	NSSB	35	0.23	0.54	N	
2020	27-Aug	A52	EF	-	2	NSSB	33	0.25	0.70	N	
2020	27-Aug	A52	EF	-	3	NSSB	37	0.30	0.59	N	
2020	27-Aug	A52	EF	-	4	NSSB	36	0.30	0.64	N	
2020	27-Aug	A52	EF	-	5	NSSB	31	-	-	N	windy
2020	27-Aug	A52	EF	-	6	NSSB	31	-	-	N	windy
2020	27-Aug	A52	EF	-	7	NSSB	36	0.30	0.64	N	
2020	27-Aug	A52	EF	-	8	NSSB	25	-	-	N	windy
2020	27-Aug	A52	EF	-	9	NSSB	30	-	-	N	windy
2020	27-Aug	A52	EF	-	10	NSSB	33	0.26	0.72	N	
2020	27-Aug	A52	EF	-	11	NSSB	28	0.10	0.46	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	27-Aug	A52	EF	-	12	NSSB	30	0.25	0.93	N	
2020	27-Aug	A52	EF	-	13	NSSB	39	0.32	0.54	N	
2020	27-Aug	A52	EF	-	14	NSSB	30	0.18	0.67	N	
2020	27-Aug	A52	EF	-	15	NSSB	33	0.24	0.67	N	
2020	27-Aug	A52	EF	-	16	NSSB	29	0.13	0.53	N	
2020	27-Aug	A52	EF	-	17	NSSB	29	0.13	0.53	N	
2020	27-Aug	A52	EF	-	18	NSSB	34	0.21	0.53	N	
2020	27-Aug	A52	EF	-	19	NSSB	28	0.13	0.59	N	
2020	27-Aug	A52	EF	-	20	NSSB	30	0.16	0.59	N	
2020	27-Aug	A52	EF	-	21	NSSB	25	0.12	0.77	N	
2020	27-Aug	A52	EF	-	22	NSSB	32	0.21	0.64	N	
2020	27-Aug	A52	EF	-	23	NSSB	34	0.27	0.69	N	
2020	27-Aug	A52	EF	-	24	NSSB	32	0.20	0.61	N	
2020	27-Aug	A52	EF	-	25	NSSB	27	0.11	0.56	N	8 NSSB counted not measured
2020	29-Aug	A50	EF	-	1	NSSB	63	1.49	0.60	N	
2020	29-Aug	A50	EF	-	2	NSSB	58	1.23	0.63	N	
2020	29-Aug	A50	EF	-	3	NSSB	24	0.11	0.80	N	
2020	29-Aug	A50	EF	-	4	NSSB	57	1.20	0.65	N	
2020	29-Aug	A50	EF	-	5	NSSB	27	0.11	0.56	N	
2020	29-Aug	A50	EF	-	6	NSSB	27	0.14	0.71	N	
2020	29-Aug	A50	EF	-	7	NSSB	30	0.19	0.70	N	
2020	29-Aug	A50	EF	-	8	NSSB	30	0.16	0.59	N	
2020	29-Aug	A50	EF	-	9	NSSB	25	0.10	0.64	N	
2020	29-Aug	A50	EF	-	10	NSSB	25	0.10	0.64	N	
2020	29-Aug	A50	EF	-	11	NSSB	25	0.10	0.64	N	
2020	29-Aug	A50	EF	-	12	NSSB	23	0.11	0.90	N	
2020	29-Aug	A50	EF	-	13	NSSB	33	0.29	0.81	N	
2020	29-Aug	A50	EF	-	14	NSSB	27	0.13	0.66	N	
2020	29-Aug	A50	EF	-	15	NSSB	21	0.07	0.76	N	
2020	29-Aug	A50	EF	-	16	NSSB	23	0.08	0.66	N	
2020	29-Aug	A50	EF	-	17	NSSB	27	0.14	0.71	N	
2020	29-Aug	A50	EF	-	18	NSSB	25	0.10	0.64	N	
2020	29-Aug	A50	EF	-	19	NSSB	24	0.06	0.43	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	29-Aug	A50	EF	-	20	NSSB	31	0.20	0.67	N	
2020	29-Aug	A50	EF	-	21	NSSB	25	0.12	0.77	N	
2020	29-Aug	A50	EF	-	22	NSSB	24	0.10	0.72	N	
2020	29-Aug	A51	EF	-	1	NSSB	65	1.87	0.68	N	
2020	29-Aug	A51	EF	-	2	NSSB	35	0.25	0.58	N	
2020	29-Aug	A51	EF	-	3	NSSB	26	0.11	0.63	N	
2020	29-Aug	A51	EF	-	4	NSSB	63	1.66	0.66	N	
2020	29-Aug	A51	EF	-	5	NSSB	40	0.40	0.63	N	
2020	29-Aug	A51	EF	-	6	NSSB	29	0.14	0.57	N	
2020	29-Aug	A51	EF	-	7	NSSB	40	0.40	0.63	N	
2020	29-Aug	A51	EF	-	8	NSSB	32	0.20	0.61	N	
2020	29-Aug	A51	EF	-	9	NSSB	33	0.26	0.72	N	
2020	29-Aug	A51	EF	-	10	NSSB	40	0.32	0.50	N	
2020	29-Aug	A51	EF	-	11	NSSB	43	0.44	0.55	N	
2020	29-Aug	A51	EF	-	12	NSSB	23	0.06	0.49	N	
2020	29-Aug	A51	EF	-	13	NSSB	41	0.44	0.64	N	
2020	29-Aug	A51	EF	-	14	NSSB	33	0.23	0.64	N	
2020	29-Aug	A51	EF	-	15	NSSB	34	0.22	0.56	N	
2020	29-Aug	A51	EF	-	16	NSSB	30	0.20	0.74	N	
2020	29-Aug	A51	EF	-	17	NSSB	27	0.12	0.61	N	
2020	29-Aug	A51	EF	-	18	NSSB	40	0.40	0.63	N	
2020	29-Aug	A51	EF	-	19	NSSB	25	0.13	0.83	N	
2020	29-Aug	A51	EF	-	20	NSSB	26	0.12	0.68	N	
2020	29-Aug	A51	EF	-	21	NSSB	21	0.07	0.76	N	
2020	29-Aug	A51	EF	-	22	NSSB	20	0.07	0.88	N	
2020	29-Aug	A51	EF	-	23	NSSB	22	0.17	1.60	N	
2020	29-Aug	A51	EF	-	24	NSSB	26	0.10	0.57	N	
2020	29-Aug	A51	EF	-	25	NSSB	36	0.31	0.66	N	
2020	29-Aug	A51	EF	-	26	NSSB	35	0.10	0.23	N	
2020	29-Aug	A51	EF	-	27	NSSB	30	0.17	0.63	N	
2020	6-Sep	B31-B5	DN	910	1	NSSB	65	-	-	N	Windy
2020	8-Sep	A50 - A5	DN	912	1	NSSB	24	0.06	0.43	N	
2020	8-Sep	A50 - A5	DN	912	2	NSSB	27	0.09	0.46	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	8-Sep	A50 - A5	DN	912	3	NSSB	32	0.16	0.49	N	
2020	8-Sep	A50 - A5	DN	912	4	NSSB	35	0.23	0.54	N	
2020	8-Sep	A50 - A5	DN	912	5	NSSB	21	0.10	1.08	N	
2020	8-Sep	A50 - A5	DN	912	6	NSSB	34	0.24	0.61	N	
2020	8-Sep	A50 - A5	DN	912	7	NSSB	21	0.09	0.97	N	
2020	8-Sep	A50 - A5	DN	912	8	NSSB	29	0.13	0.53	N	
2020	8-Sep	A50 - A5	DN	912	9	NSSB	24	0.13	0.94	N	
2020	8-Sep	A50 - A5	DN	912	10	NSSB	29	0.15	0.62	N	
2020	8-Sep	A50 - A5	DN	912	11	NSSB	30	0.10	0.37	N	
2020	8-Sep	A50 - A5	DN	912	12	NSSB	35	0.25	0.58	N	
2020	8-Sep	A50 - A5	DN	912	13	NSSB	30	0.14	0.52	N	
2020	8-Sep	A50 - A5	DN	912	14	NSSB	28	0.14	0.64	N	
2020	8-Sep	A50 - A5	DN	912	15	NSSB	37	0.29	0.57	N	
2020	8-Sep	A50 - A5	DN	912	16	NSSB	26	0.08	0.46	N	
2020	8-Sep	A50 - A5	DN	912	17	NSSB	29	0.17	0.70	N	
2020	8-Sep	A50 - A5	DN	912	18	NSSB	23	0.07	0.58	N	
2020	8-Sep	A50 - A5	DN	912	19	NSSB	25	0.04	0.26	N	
2020	8-Sep	A50 - A5	DN	912	20	NSSB	33	0.14	0.39	N	
2020	8-Sep	A50 - A5	DN	912	21	NSSB	27	0.07	0.36	N	
2020	8-Sep	A50 - A5	DN	912	22	NSSB	27	0.21	1.07	N	
2020	8-Sep	A50 - A5	DN	912	23	NSSB	29	0.08	0.33	N	
2020	8-Sep	A50 - A5	DN	912	24	NSSB	25	0.09	0.58	N	
2020	8-Sep	A50 - A5	DN	912	25	NSSB	28	0.15	0.68	N	
2020	8-Sep	A50 - A5	DN	912	26	NSSB	29	0.14	0.57	N	
2020	8-Sep	A50 - A5	DN	912	27	NSSB	25	0.12	0.77	N	
2020	8-Sep	A50 - A5	DN	912	28	NSSB	29	0.08	0.33	N	
2020	8-Sep	A50 - A5	DN	912	29	NSSB	24	0.06	0.43	N	
2020	8-Sep	A50 - A5	DN	912	30	NSSB	32	0.22	0.67	N	
2020	8-Sep	A50 - A5	DN	912	31	NSSB	30	0.10	0.37	N	
2020	8-Sep	A50 - A5	DN	912	32	NSSB	25	0.07	0.45	N	
2020	8-Sep	A50 - A5	DN	912	33	NSSB	23	0.05	0.41	N	
2020	8-Sep	A50 - A5	DN	912	34	NSSB	33	0.30	0.83	N	
2020	8-Sep	A50 - A5	DN	912	35	NSSB	25	0.12	0.77	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	8-Sep	A50 - A5	DN	912	36	NSSB	25	0.08	0.51	N	
2020	8-Sep	A50 - A5	DN	912	37	NSSB	20	0.07	0.88	N	
2020	8-Sep	A50 - A5	DN	912	38	NSSB	27	0.12	0.61	N	
2020	8-Sep	A50 - A5	DN	912	39	NSSB	29	0.12	0.49	N	
2020	8-Sep	A50 - A5	DN	912	40	NSSB	26	0.04	0.23	N	
2020	8-Sep	A50 - A5	DN	912	41	NSSB	34	0.23	0.59	N	
2020	8-Sep	A50 - A5	DN	912	42	NSSB	27	0.08	0.41	N	
2020	8-Sep	A50 - A5	DN	912	43	NSSB	30	0.06	0.22	N	
2020	8-Sep	A50 - A5	DN	912	44	NSSB	28	0.04	0.18	N	
2020	8-Sep	A50 - A5	DN	912	45	NSSB	37	0.26	0.51	N	
2020	8-Sep	A50 - A5	DN	912	46	NSSB	27	0.10	0.51	N	
2020	8-Sep	A50 - A5	DN	912	47	TSSB	55	1.36	0.82	N	
2020	8-Sep	A50 - A5	DN	912	48	TSSB	70	2.92	0.85	N	
2020	8-Sep	A50 - A5	DN	912	49	TSSB	21	0.05	0.54	N	
2020	8-Sep	A50 - A5	DN	912	50	NSSB	32	0.14	0.43	N	
2020	8-Sep	A50 - A5	DN	912	51	NSSB	30	0.13	0.48	N	
2020	8-Sep	A50 - A5	DN	912	52	NSSB	27	0.13	0.66	N	
2020	8-Sep	A50 - A5	DN	912	53	NSSB	27	0.13	0.66	N	
2020	8-Sep	A50 - A5	DN	912	54	TSSB	65	2.60	0.95	N	
2020	8-Sep	A50 - A5	DN	912	55	TSSB	59	1.88	0.92	N	
2020	8-Sep	A50 - A5	DN	912	56	TSSB	63	1.86	0.74	N	
2020	8-Sep	A50 - A5	DN	912	57	NSSB	71	2.10	0.59	N	
2020	8-Sep	A50 - A5	DN	912	58	NSSB	-	-	-	Y	lost on tundra
2020	8-Sep	A50 - A5	DN	913	59	ARGR	133	24.09	1.02	N	
2020	8-Sep	A1 - MEL	DN	915	1	ARGR	75	4.06	0.96	N	
2020	8-Sep	A1 - MEL	DN	915	2	ARGR	72	3.45	0.92	N	
2020	8-Sep	A1 - MEL	DN	915	3	ARGR	60	2.76	1.28	N	
2020	9-Sep	B4 - B2	DN	917	1	ARGR	310	-	-	N	
2020	9-Sep	B4 - B2	DN	917	2	NSSB	33	0.32	0.89	N	
2020	9-Sep	B4 - B2	DN	917	3	NSSB	25	0.10	0.64	N	
2020	9-Sep	B4 - B2	DN	917	4	NSSB	40	0.38	0.59	N	
2020	9-Sep	B4 - B2	DN	917	5	NSSB	28	0.20	0.91	N	
2020	9-Sep	B4 - B2	DN	917	6	NSSB	30	0.17	0.63	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	9-Sep	B4 - B2	DN	917	7	NSSB	26	0.10	0.57	N	
2020	9-Sep	B4 - B2	DN	917	8	NSSB	28	0.14	0.64	Y	
2020	9-Sep	B4 - B2	DN	917	9	NSSB	30	0.20	0.74	N	
2020	9-Sep	B4 - B2	DN	917	10	NSSB	43	0.43	0.54	N	
2020	9-Sep	B4 - B2	DN	917	11	NSSB	28	0.15	0.68	N	
2020	9-Sep	B4 - B2	DN	917	12	NSSB	27	0.11	0.56	N	
2020	9-Sep	B4 - B2	DN	917	13	NSSB	30	0.17	0.63	N	
2020	9-Sep	B4 - B2	DN	917	14	NSSB	25	0.10	0.64	N	
2020	9-Sep	B4 - B2	DN	917	15	NSSB	27	0.12	0.61	N	
2020	9-Sep	B4 - B2	DN	917	16	NSSB	33	0.19	0.53	N	
2020	9-Sep	B4 - B2	DN	917	17	TSSB	23	0.09	0.74	N	
2020	9-Sep	B4 - B2	DN	917	18	NSSB	43	0.49	0.62	N	
2020	9-Sep	B4 - B2	DN	917	19	NSSB	39	0.40	0.67	N	
2020	9-Sep	B4 - B2	DN	917	20	NSSB	25	0.11	0.70	N	
2020	9-Sep	B4 - B2	DN	917	21	NSSB	29	0.13	0.53	N	
2020	9-Sep	B4 - B2	DN	917	22	NSSB	28	0.12	0.55	N	
2020	9-Sep	B4 - B2	DN	917	23	NSSB	31	0.16	0.54	N	
2020	9-Sep	B4 - B2	DN	917	24	NSSB	29	0.15	0.62	N	
2020	9-Sep	B4 - B2	DN	917	25	NSSB	24	0.12	0.87	N	
2020	9-Sep	B4 - B2	DN	917	26	NSSB	25	0.10	0.64	N	
2020	9-Sep	B4 - B2	DN	917	27	NSSB	30	0.10	0.37	N	
2020	9-Sep	B4 - B2	DN	917	28	NSSB	28	0.14	0.64	N	
2020	9-Sep	B4 - B2	DN	917	29	NSSB	26	0.14	0.80	N	
2020	9-Sep	B4 - B2	DN	917	30	NSSB	26	0.14	0.80	N	
2020	9-Sep	B4 - B2	DN	917	31	NSSB	24	0.11	0.80	N	
2020	9-Sep	B4 - B2	DN	917	32	NSSB	30	0.20	0.74	N	
2020	9-Sep	B4 - B2	DN	917	33	NSSB	28	0.16	0.73	N	
2020	9-Sep	B4 - B2	DN	917	34	NSSB	40	0.38	0.59	N	
2020	9-Sep	B4 - B2	DN	917	35	NSSB	26	0.16	0.91	N	
2020	9-Sep	B4 - B2	DN	917	36	NSSB	29	0.16	0.66	N	
2020	9-Sep	B4 - B2	DN	917	37	NSSB	39	0.31	0.52	N	
2020	9-Sep	B4 - B2	DN	917	38	NSSB	28	0.16	0.73	N	
2020	9-Sep	B4 - B2	DN	917	39	NSSB	27	0.11	0.56	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2020	9-Sep	B4 - B2	DN	917	40	NSSB	38	0.34	0.62	N	
2020	9-Sep	B4 - B2	DN	917	41	NSSB	21	0.06	0.65	N	
2020	9-Sep	B4 - B2	DN	917	42	NSSB	27	0.15	0.76	N	
2020	9-Sep	B4 - B2	DN	917	43	NSSB	30	0.18	0.67	N	
2020	9-Sep	B4 - B2	DN	917	44	NSSB	44	0.61	0.72	N	
2020	9-Sep	B4 - B2	DN	917	45	NSSB	31	0.15	0.50	N	
2020	9-Sep	B4 - B2	DN	917	46	NSSB	32	0.20	0.61	N	
2020	9-Sep	B4 - B2	DN	917	47	NSSB	35	0.26	0.61	N	
2020	9-Sep	B4 - B2	DN	917	48	NSSB	27	0.12	0.61	N	
2020	9-Sep	B4 - B2	DN	917	49	NSSB	30	0.18	0.67	N	
2020	9-Sep	B4 - B2	DN	917	50	NSSB	29	0.13	0.53	N	
2020	9-Sep	B4 - B2	DN	917	51	NSSB	29	0.15	0.62	N	
2021	29-Aug	D31	MT	17	1	NSSB	60	1.70	0.79	N	
2021	29-Aug	A9	MT	3	1	NSSB	57	1.20	0.65	N	
2021	29-Aug	A9	MT	2	2	NSSB	58	1.10	0.56	N	
2021	30-Aug	W1	MT	5	1	NSSB	62	2.00	0.84	N	
2021	30-Aug	W1	MT	5	2	NSSB	60	1.90	0.88	N	
2021	30-Aug	W1	MT	5	3	NSSB	57	1.70	0.92	N	
2021	30-Aug	W1	MT	5	4	NSSB	47	0.70	0.67	N	
2021	30-Aug	W1	MT	5	5	NSSB	46	0.70	0.72	N	
2021	30-Aug	W1	MT	8	6	NSSB	47	0.70	0.67	N	
2021	30-Aug	W1	MT	8	7	BURB	148	19.70	0.61	N	
2021	30-Aug	W1	MT	11	8	NSSB	62	1.90	0.80	N	
2021	30-Aug	W1	MT	11	9	NSSB	59	1.60	0.78	N	
2021	30-Aug	W1	MT	11	10	NSSB	66	2.80	0.97	N	Windy - scale erratic
2021	30-Aug	W1	MT	11	11	NSSB	66	2.30	0.80	N	
2021	30-Aug	W1	MT	11	12	NSSB	58	1.70	0.87	N	
2021	30-Aug	W1	MT	11	13	NSSB	47	0.70	0.67	N	
2021	30-Aug	W1	MT	11	14	NSSB	56	1.60	0.91	N	
2021	30-Aug	W1	MT	11	15	NSSB	46	0.60	0.62	N	
2021	30-Aug	W1	MT	11	16	NSSB	52	0.70	0.50	N	
2021	30-Aug	W1	MT	11	17	NSSB	74	2.80	0.69	N	
2021	30-Aug	W1	MT	11	18	NSSB	67	2.20	0.73	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2021	30-Aug	W1	MT	11	19	NSSB	73	2.60	0.67	N	
2021	30-Aug	W1	MT	11	20	NSSB	61	2.40	1.06	N	
2021	30-Aug	W1	MT	11	21	NSSB	59	1.60	0.78	N	
2021	30-Aug	W1	MT	11	22	NSSB	71	2.20	0.61	N	
2021	30-Aug	W1	MT	11	23	NSSB	51	1.30	0.98	N	
2021	30-Aug	W1	MT	11	24	NSSB	58	1.60	0.82	N	
2021	30-Aug	W1	MT	11	25	NSSB	68	2.20	0.70	N	
2021	30-Aug	W1	MT	11	26	NSSB	68	2.10	0.67	N	
2021	30-Aug	W1	MT	11	27	NSSB	58	1.80	0.92	N	
2021	30-Aug	W1	MT	11	28	NSSB	58	1.60	0.82	N	
2021	30-Aug	W1	MT	11	29	NSSB	58	1.60	0.82	N	
2021	30-Aug	W1	MT	11	30	NSSB	62	1.60	0.67	N	
2021	30-Aug	W1	MT	11	31	NSSB	58	1.50	0.77	N	
2021	30-Aug	W1	MT	11	32	NSSB	48	0.80	0.72	N	
2021	30-Aug	W1	MT	12	33	NSSB	66	2.30	0.80	N	
2021	30-Aug	W1	MT	12	34	NSSB	66	2.00	0.70	N	
2021	30-Aug	W1	MT	12	35	NSSB	64	1.90	0.72	N	
2021	30-Aug	W1	MT	13	36	NSSB	66	2.10	0.73	N	
2021	30-Aug	W1	MT	16	37	NSSB	48	0.90	0.81	N	
2021	30-Aug	W1	MT	16	38	NSSB	64	1.80	0.69	N	
2021	30-Aug	W1	MT	17	39	NSSB	28	0.10	0.46	N	
2021	30-Aug	W1	MT	19	40	NSSB	55	1.60	0.96	N	
2021	30-Aug	W1	MT	19	41	NSSB	67	1.90	0.63	N	
2021	30-Aug	W1	MT	19	42	NSSB	51	0.80	0.60	N	
2021	30-Aug	W1	MT	19	43	NSSB	57	1.50	0.81	N	
2021	30-Aug	W1	MT	20	44	NSSB	60	1.70	0.79	N	
2021	30-Aug	W1	MT	20	45	NSSB	48	0.60	0.54	N	
2021	30-Aug	W1	MT	20	46	NSSB	46	0.60	0.62	N	
2021	27-Aug	D33	EF	-	1	NSSB	32	0.40	1.22	N	
2021	27-Aug	D33	EF	-	2	NSSB	34	0.30	0.76	N	
2021	28-Aug	A9	EF	-	1	NSSB	23	-	-	N	Scale erratic due to wind
2021	28-Aug	A9	EF	-	2	NSSB	24	-	-	N	Scale erratic due to wind
2021	29-Aug	W1	EF	-	1	NSSB	69	2.50	0.76	N	

Table B-9: Biological Characteristics of Fish Sampled in Minnow Trapping, Electrofishing, and Drift Netting Surveys, 2020-2021

Year	Date	Waterbody Name	Method	Gear ID	Fish Number	Species	Length (mm)	Weight (g)	Condition (K)	Mort (Y/N)	Comments
2021	29-Aug	W1	EF	-	2	NSSB	63	1.90	0.76	N	
2021	29-Aug	W1	EF	-	3	NSSB	34	0.30	0.76	N	
2021	29-Aug	W1	EF	-	4	NSSB	30	0.20	0.74	N	
2021	29-Aug	W1	EF	-	5	NSSB	24	-	-	N	
2021	29-Aug	W1	EF	-	6	NSSB	28	0.10	0.46	N	
2021	29-Aug	W1	EF	-	7	NSSB	31	0.10	0.34	N	
2021	29-Aug	W1	EF	-	8	NSSB	29	0.10	0.41	N	
2021	29-Aug	W1	EF	-	9	NSSB	27	0.10	0.51	N	
2021	29-Aug	W1	EF	-	10	NSSB	25	-	-	N	
2021	29-Aug	W1	EF	-	11	NSSB	28	0.10	0.46	N	
2021	29-Aug	W1	EF	-	12	NSSB	39	0.30	0.51	N	
2021	29-Aug	W1	EF	-	13	NSSB	32	0.20	0.61	N	
2021	29-Aug	W1	EF	-	14	NSSB	30	0.20	0.74	N	
2021	29-Aug	W1	EF	-	15	NSSB	30	0.10	0.37	N	

Notes:
Mort: Y= Yes, N= No
ARGR= Arctic Grayling; BURB = Burbot; NSSB= Ninespine Stickleback; TSSB= Threespine Stickleback; SLSC= Slimy Sculpin
Method: EF= Electrofishing; MT= Minnow Trapping; DN= Drift Netting
Dashes indicate data not collected

APPENDIX C NIPISSAR LAKE PHOTOS

Appendix C: Nipissar Lake Photos

Photo C-1: Northeast shoreline of Nipissar Lake, facing southeast, August 28, 2021.

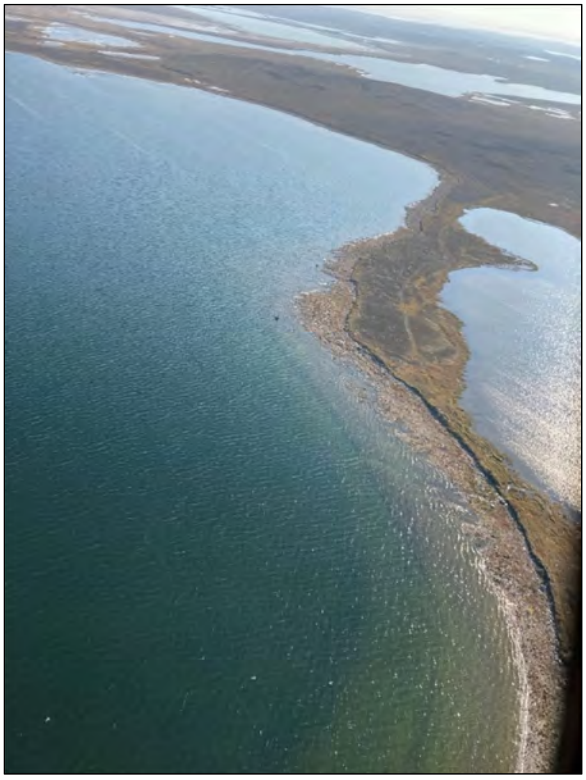


Photo C-2: Northwest shoreline of Nipissar Lake, facing southwest, August 28, 2021.

Photo C-3: Northwest shoreline of Nipissar Lake, facing southwest, August 28, 2021.

Photo C-4: East-side shoreline of Nipissar Lake, facing southeast, August 28, 2021.

Photo C-5: Southwest shoreline of Nipissar Lake, facing southeast, August 28, 2021.

Photo C-6: Southwest shoreline of Nipissar Lake, facing southeast, August 28, 2021.

Photo C-7: Southeast shoreline of Nipissar Lake, facing northeast, August 28, 2021.

Photo C-8: Southeast shoreline of Nipissar Lake, facing north, August 28, 2021.

Photo C-9: Southeast shoreline of Nipissar Lake, facing northwest, August 28, 2021.

APPENDIX D HYDROLOGICAL DATA

Table D-1: Pressure Transducer Deployments, 2021

Site	Date	Rental/ Purchase	Logger Type	Serial #	Status	Time In/Out	Location			Depth of Water at Logger (m)	Depth of Logger (m)
							Zone	Easting	Northing		
KM10 Station 2	25-Sep-21	Purchase	Levelogger	002-2139785	Demobed	11:10	15V	544878	6973413	0.535	0.39
KM10 Station 1	25-Sep-21	Purchase	Levelogger	002-2139396	Demobed	15:14	15V	546501	6973217	0.59	0.47
KM10 Station 1	25-Sep-21	Purchase	Barologger	002-2139634	Demobed	15:14	15V	546509	6973226	NA	NA
Sulup Station 2	26-Sep-21	Purchase	Levelogger	002-2139401	Demobed	15:27	15V	542446	6938172	0.36	0.26
Sulup Station 1	26-Sep-21	Purchase	Levelogger	002-2139399	Demobed	16:27	15V	542458	6938545	0.405	0.265
Sulup Station 1	26-Sep-21	Purchase	Barologger	002-2139616	Demobed	16:27	15V	542449	6938544	NA	NA
KM10 Station 1	22-Jun-21	Purchase	Levelogger	002-2139396	Installed	11:30	15V	546501	6973217	0.51	0.33
KM10 Station 1	22-Jun-21	Purchase	Barologger	002-2139634	Installed	11:40	15V	546509	6973226	NA	NA
Sulup Station 2	22-Jun-21	Purchase	Levelogger	002-2139401	Installed	14:15	15V	542446	6938172	0.51	0.28
Sulup Station 1	22-Jun-21	Purchase	Levelogger	002-2139399	Installed	16:00	15V	542458	6938545	0.47	0.28
Sulup Station 1	22-Jun-21	Purchase	Barologger	002-2139616	Installed	16:00	15V	542449	6938544	NA	NA
KM10 Station 2	23-Jun-21	Purchase	Levelogger	002-2139785	Installed	12:50	15V	544878	6973413	0.49	0.37
KM10 Station 1	20-Jun-21	Rental	Levelogger	0022022634, 23862	Installed	13:40	15V	546501	6973217	0.55	0.38
KM10 Station 1	20-Jun-21	Rental	Barologger	0012079830, 41245	Installed	13:40	15V	546509	6973226	NA	NA
KM10 Station 1	22-Jun-21	Rental	Levelogger	0022022634, 23862	Demobed	10:55	15V	546501	6973217	-	-
KM10 Station 1	22-Jun-21	Rental	Barologger	0012079830, 41245	Demobed	10:55	15V	546509	6973226	NA	NA
KM10 Station 2	18-Jun-21	Rental	Levelogger	0022011317, 903678	Installed	15:50	15V	544871	6973414	0.82	0.63
KM10 Station 2	23-Jun-21	Rental	Levelogger	0022011317, 903678	Demobed	12:15	15V	544871	6973414	-	-
Sulup Station 1	19-Jun-21	Rental	Levelogger	0022011311, 903670	Installed	11:15	15V	542460	6938549	0.93	0.52
Sulup Station 1	19-Jun-21	Rental	Barologger	0012097759, 41293	Installed	11:15	-			NA	NA
Sulup Station 1	22-Jun-21	Rental	Levelogger	0022011311, 903670	Demobed	15:31	15V	542460	6938549	-	-
Sulup Station 1	22-Jun-21	Rental	Barologger	0012097759, 41293	Demobed	15:31	-			♂	NA
Sulup Station 2	19-Jun-21	Rental	Levelogger	00220154422, 27422	Installed	14:10	15V	542446	6938171	0.63	0.23
Sulup Station 2	22-Jun-21	Rental	Levelogger	00220154422, 27422	Demobed	13:40	15V	542446	6938171	-	-

Table D-2: Water Level and Discharge Measurement Data, KM 10 Station 1, June 23, 2021

Site Information				
Project Name	Meliadine			
Station Identification	KM10 Station 1			
Stream Name	KM10 Station 1			
Date Monitored	23-Jun-21			
Time at Site (24 hr)	**Start Time:**	14:30	**End Time:**	17:00
Personnel	Nicci Zargarpour, Kierian Keele			
Station Cordinates	**Easting**	**Northing**	**Elevation**	
	546504	6973219		
Weather Conditions	Overcast, windy			

Transducer Information			
DL Model	Solinst Levelogger 5	**PT Serial #**	002-2139396
Gain		**Offset**	
Status	active	**Battery**	
# of Records		**Memory Free**	
DL Service Performed		**Crest Gauges**	

Hydrometric Leveling Survey					
Stn	**BS**	**HI**	**FS**	**Elevation**	**Notes**
1	1.315	101.315		**100.000**	
2			1.350	99.965	
3			1.373	99.942	
WL			1.868	99.447	
WL			1.870	99.445	
TBM			1.587	99.728	
TBM	1.622	101.350		99.728	
1			1.350	100.000	
2			1.385	99.965	
3			1.407	99.943	
WL			1.898	99.452	
WL			1.921	99.429	

BM#	**Established Elevation (m)**	**Mean Elevation (this date) (m)**	**Difference (m)**	**Notes**
1		100.000	100.000	
2		99.965	99.965	
3		99.943	99.943	

Summary			
Staff Gauge Reading (m)	n/a		
Stage from WL Survey (m)	99.443	Range	0.023
Pressure Transducer Reading (m)			
Pressure Transducer Elevation (m)			
Discharge (m^3/s)	**0.190**		
Cross Sectional Area	1.346		
Uncertainty (u(Q), 95% confidence level)			

Discharge Measurement - Mid-Section Method								
Measurement Time	**Start**	14:30	**End**	15:15	**Location**	~ 200 m SE from station. Under the bridge at KM10		
Method	Velocity-area (Mid-section)				**Instrument Model**	Swoffer (propeller)		
Flow Meter Type					**Instrument Serial #**			
Real Time Reading (m)	**Start**	**Reading**			**Time**		**Staff Gauge (m)**	n/a
	End	**Reading**			**Time**		**Time of SG Reading**	n/a

		Station	**Depth**	**Distance**	**Area**		**Velocity (m/s)**		**Q**	**% of Total Q**
No.	**Notes**	**(m)**	**(m)**	**(m)**	**(m^2)**	**60%**	**20%**	**80%**	**(m^3/s)**	**%**
1	RB	1.00	0.00	0.0	0.00	0			0.000	0.0
2	rock US	1.20	0.11	0.2	0.02	0.02			0.000	0.2
3	rock US	1.40	0.07	0.2	0.01	0.02			0.000	0.1
4	rock US	1.60	0.12	0.2	0.02	0.01			0.000	0.1
5	rock US	1.80	0.18	0.2	0.04	0			0.000	0.0
6		2.00	0.25	0.2	0.05	0.03			0.002	0.8
7		2.20	0.30	0.2	0.06	0.18			0.011	5.7
8		2.40	0.29	0.2	0.06	0.38			0.022	11.6
9		2.60	0.31	0.2	0.06	0.66			0.041	21.6
10	boulder US	2.80	0.31	0.2	0.06	0.51			0.032	16.7
11	boulder US	3.00	0.25	0.2	0.05	0.27			0.014	7.1
12	boulder US	3.20	0.27	0.2	0.05	0.12			0.006	3.4
13	veg US	3.40	0.27	0.2	0.05	0.38			0.021	10.8
14	veg US	3.60	0.19	0.2	0.04	0.23			0.009	4.6
15	boulder US	3.80	0.14	0.2	0.03	0			0.000	0.0
16	boulder US	4.00	0.22	0.2	0.04	0.17			0.007	3.9
17	boulder US	4.20	0.18	0.2	0.04	0.13			0.005	2.5
18	boulder US	4.40	0.14	0.2	0.03	0.13			0.004	1.9
19	boulder US	4.60	0.27	0.2	0.05	0.05			0.003	1.4
20	boulder US	4.80	0.15	0.2	0.03	0.11			0.003	1.7
21	boulder US	5.00	0.21	0.2	0.04	0.13			0.005	2.8
22	boulder US	5.20	0.15	0.2	0.03	0.09			0.003	1.4
23	boulder US	5.40	0.15	0.2	0.03	0.07			0.002	1.1
24	boulder US	5.60	0.15	0.2	0.02	0.03			0.001	0.3
25	LB	5.70	0.15	0.1	0.42	0			0.000	0.0
26				5.7	0.00				0.000	0.0
27				0.0	0.00				0.000	0.0
28				0.0	0.00				0.000	0.0
29				0.0	0.00				0.000	0.0
30				0.0	0.00				0.000	0.0
31				0.0	0.00				0.000	0.0
32				0.0	0.00				0.000	0.0
33				0.0	0.00				0.000	0.0
34				0.0	0.00				0.000	0.0
35				0.0	0.00				0.000	0.0
36				0.0	0.00				0.000	0.0
37				0.0	0.00				0.000	0.0
Total Q									**0.190**	**100.0**

General Notes

Table D-3: Water Level and Discharge Measurement Data, KM 10 Station 2, June 23, 2021

Site Information				
Project Name	Meliadine			
Station Identification	KM10 Station 2			
Stream Name	KM10 Station 2			
Date Monitored	23-Jun-21			
Time at Site (24 hr)	**Start Time:**	12:14	**End Time:**	15:02
Personnel	Nicci Zargarpour, Kierian Keele			
Station Cordinates	**Easting**	**Northing**	**Elevation**	
	544877.90	6973412.84		
Weather Conditions	Overcast, windy			

Transducer Information			
DL Model	Solinst Levelogger 5	**PT Serial #**	002-2139785
Gain		**Offset**	
Status	active	**Battery**	
# of Records		**Memory Free**	
DL Service Performed		**Crest Gauges**	

Hydrometric Leveling Survey					
Stn	**BS**	**HI**	**FS**	**Elevation**	**Notes**
4	0.910	100.910		**100.000**	
5			0.960	99.950	
6			0.786	100.124	
WL			1.769	99.141	
WL			1.775	99.135	
TBM			1.283	99.627	
TBM	1.338	100.965		99.627	
4			0.965	100.000	
5			1.015	99.950	
6			0.840	100.125	
WL			1.828	99.137	
WL			1.831	99.134	

BM#	**Established Elevation (m)**	**Mean Elevation (this date) (m)**	**Difference (m)**	**Notes**
4		100.000	100.000	
5		99.950	99.950	
6		100.125	100.125	

Summary			
Staff Gauge Reading (m)	n/a		
Stage from WL Survey (m)	99.137	Range	0.007
Pressure Transducer Reading (m)			
Pressure Transducer Elevation (m)			
Discharge (m^3/s)	**0.058**		
Cross Sectional Area	0.660		
Uncertainty (u(Q), 95% confidence level)			

Discharge Measurement - Mid-Section Method											
Measurement Time	**Start**	12:20	**End**	13:00	**Location**	~ 50 m north of station					
Method	Velocity-area (Mid-section)				**Instrument Model**	Swoffer (propeller)					
Flow Meter Type					**Instrument Serial #**						
Real Time Reading (m)	**Start**	**Reading**			**Time**		**Staff Gauge (m)**		n/a		
	End	**Reading**			**Time**		**Time of SG Reading**		n/a		

		Station	**Depth**	**Distance**	**Area**		**Velocity (m/s)**		**Q**	**% of Total Q**
No.	**Notes**	**(m)**	**(m)**	**(m)**	**(m^2)**	**60%**	**20%**	**80%**	**(m^3/s)**	**%**
1	RB	1.00	0.00	0.00	0.00	0			0.000	0.0
2	veg and boulder US	1.15	0.12	0.15	0.02	0.02			0.000	0.6
3	on rock	1.3	0.02	0.15	0.00	0			0.000	0.0
4	veg and boulder US	1.45	0.14	0.15	0.02	0			0.000	0.0
5	veg and boulder US	1.6	0.13	0.15	0.02	0			0.000	0.0
6	veg and boulder US	1.75	0.10	0.15	0.02	0.06			0.001	1.5
7		1.9	0.11	0.15	0.02	0.13			0.002	3.5
8		2.05	0.15	0.15	0.02	0.27			0.006	10.1
9		2.2	0.14	0.15	0.02	0.29			0.006	10.5
10	boulder US	2.35	0.13	0.15	0.02	0.16			0.003	5.4
11		2.5	0.15	0.15	0.02	0.29			0.007	11.2
12		2.65	0.17	0.15	0.03	0.28			0.007	12.3
13		2.8	0.21	0.15	0.03	0.32			0.010	16.9
14	boulder US	2.95	0.18	0.15	0.03	0.14			0.004	6.5
15	boulder US and veg	3.1	0.07	0.15	0.01	0.05			0.001	0.9
16	boulder US	3.25	0.08	0.15	0.01	0.16			0.002	3.3
17	boulder US	3.4	0.17	0.15	0.02	0.06			0.001	2.6
18	large boulder directly US	3.55	0.11	0.15	0.02	0.04			0.001	1.1
19	large boulder directly US	3.7	0.18	0.15	0.03	0.1			0.003	4.6
20	large boulder directly US	3.85	0.12	0.15	0.02	0.13			0.002	4.0
21		4.00	0.12	0.15	0.02	0.09			0.002	2.8
22	veg US	4.15	0.10	0.15	0.02	0.03			0.000	0.8
23		4.30	0.11	0.15	0.02	0.05			0.001	1.4
24	boulder US and bank US	4.45	0.09	0.15	0.01	0			0.000	0.0
25	LB	4.60	0.00	0.15	0.00	0			0.000	0.0
26			0.10	4.60	0.23				0.000	0.0
27			0.09	0.00	0.00				0.000	0.0
28				0.00	0.00				0.000	0.0
29				0.00	0.00				0.000	0.0
30				0.00	0.00				0.000	0.0
31				0.00	0.00				0.000	0.0
32				0.00	0.00				0.000	0.0
33				0.00	0.00				0.000	0.0
Total Q									**0.058**	**100.0**

General Notes

Table D-4: Water Level and Discharge Measurement Data, KM 10 Station 1, June 26, 2021

Site Information					
Project Name	Meliadine				
Station Identification	KM10 Station 1				
Stream Name	KM10 Station 1				
Date Monitored	26-Jun-21				
Time at Site (24 hr)	**Start Time:**	11:20	**End Time:**	13:00	
Personnel	Nicci Zargarpour, Nina Morrell				
Station Cordinates	**Easting**	**Northing**	**Elevation**		
	546504	6973219			
Weather Conditions	Overcast, light breeze				

Transducer Information			
DL Model	Solinst Levelogger 5	**PT Serial #**	002-2139396
Gain		**Offset**	
Status	active	**Battery**	
# of Records		**Memory Free**	
DL Service Performed		**Crest Gauges**	

Hydrometric Leveling Survey					
Stn	**BS**	**HI**	**FS**	**Elevation**	**Notes**
1	1.252	101.252		**100.000**	
2			1.287	99.965	
3			1.309	99.943	
WL			1.805	99.447	
WL			1.809	99.443	
TBM			1.349	99.903	
TBM	1.428	101.331		99.903	
1			1.330	100.001	
2			1.365	99.966	
3			1.388	99.943	
WL			1.887	99.444	
WL			1.897	99.434	

BM#	**Established Elevation (m)**	**Mean Elevation (this date) (m)**	**Difference (m)**	**Notes**
1		100.001	100.001	
2		99.966	99.966	
3		99.943	99.943	

Summary			
Staff Gauge Reading (m)	n/a		
Stage from WL Survey (m)	99.442	Range	0.013
Pressure Transducer Reading (m)			
Pressure Transducer Elevation (m)			
Discharge (m^3/s)	**0.130**		
Cross Sectional Area	0.792		
Uncertainty (u(Q), 95% confidence level)			

Discharge Measurement - Mid-Section Method											
Measurement Time	**Start**	11:20	**End**	14:20	**Location**	~ 200 m SE from station. Under the bridge at KM10					
Method	Velocity-area (Mid-section)				**Instrument Model**	OTT Mf Pro					
Flow Meter Type	Electromagnetic				**Instrument Serial #**						
Real Time Reading (m)	**Start**	**Reading**			**Time**		**Staff Gauge (m)**		n/a		
	End	**Reading**			**Time**		**Time of SG Reading**		n/a		

		Station	**Depth**	**Distance**	**Area**		**Velocity (m/s)**		**Q**	**% of Total Q**
No.	**Notes**	**(m)**	**(m)**	**(m)**	**(m^2)**	**60%**	**20%**	**80%**	**(m^3/s)**	**%**
1	RB	1.00	0.00	0.0	0.00	0			0.000	0.0
2		1.50	0.10	0.5	0.04	0.078			0.003	2.1
3		1.70	0.10	0.2	0.02	0.078			0.002	1.2
4		1.90	0.17	0.2	0.03	0.022			0.001	0.6
5		2.10	0.21	0.2	0.04	0.093			0.004	3.0
6		2.30	0.23	0.2	0.03	0.281			0.010	7.5
7		2.40	0.22	0.1	0.02	0.431			0.009	7.3
8		2.50	0.20	0.1	0.02	0.61			0.012	9.4
9		2.60	0.24	0.1	0.02	0.579			0.014	10.7
10		2.70	0.24	0.1	0.02	0.453			0.011	8.4
11		2.80	0.22	0.1	0.02	0.286			0.006	4.8
12		2.90	0.22	0.1	0.02	0.162			0.004	2.7
13		3.00	0.20	0.1	0.03	0.037			0.001	0.9
14		3.20	0.24	0.2	0.05	0.055			0.003	2.0
15		3.40	0.22	0.2	0.04	0.135			0.006	4.6
16	boulder DS and US	3.60	0.24	0.2	0.05	0.239			0.011	8.8
17	boulder DS and US	3.80	0.20	0.2	0.04	0.326			0.013	10.0
18	boulder DS	4.00	0.17	0.2	0.03	0.158			0.005	4.1
19	behind rock	4.20	0.14	0.2	0.03	0.111			0.003	2.4
20		4.40	0.16	0.2	0.03	0.05			0.002	1.2
21		4.60	0.18	0.2	0.04	0.04			0.001	1.1
22		4.80	0.18	0.2	0.04	0.054			0.002	1.5
23		5.00	0.16	0.2	0.03	0.079			0.003	1.9
24		5.20	0.12	0.2	0.02	0.05			0.001	0.9
25		5.40	0.15	0.2	0.03	0.076			0.002	1.8
26		5.60	0.10	0.2	0.03	0.042			0.001	1.0
27	LB	6.00	0.00	0.4	0.00	0			0.000	0.0
28				6.0	0.00				0.000	0.0
29				0.0	0.00				0.000	0.0
30				0.0	0.00				0.000	0.0
31				0.0	0.00				0.000	0.0
32				0.0	0.00				0.000	0.0
33				0.0	0.00				0.000	0.0
34				0.0	0.00				0.000	0.0
35				0.0	0.00				0.000	0.0
36				0.0	0.00				0.000	0.0
37				0.0	0.00				0.000	0.0
Total Q									**0.130**	**100.0**

General Notes

Table D-5: Water Level and Discharge Measurement Data, KM 10 Station 2, June 26, 2021

Site Information				
Project Name	Meliadine			
Station Identification	KM10 Station 2			
Stream Name	KM10 Station 2			
Date Monitored	26-Jun-21			
Time at Site (24 hr)	**Start Time:**	9:00	**End Time:**	11:00
Personnel	Nicci Zargarpour, Nina Morrell			
Station Cordinates	**Easting**	**Northing**	**Elevation**	
	544877.90	6973412.84		
Weather Conditions	Sunny, light breeze			

Transducer Information			
DL Model	Solinst Levelogger 5	**PT Serial #**	002-2139785
Gain		**Offset**	
Status	active	**Battery**	
# of Records		**Memory Free**	
DL Service Performed		**Crest Gauges**	

Hydrometric Leveling Survey					
Stn	**BS**	**HI**	**FS**	**Elevation**	**Notes**
4	1.030	101.030		**100.000**	
5			1.078	99.952	
6			0.905	100.125	
WL			1.911	99.119	
WL			1.907	99.123	
TBM			1.407	99.623	
TBM	1.364	100.987		99.623	
4			0.995	99.992	
5			1.035	99.952	
6			0.862	100.125	
WL			1.857	99.130	
WL			1.879	99.108	

BM#	Established Elevation (m)	Mean Elevation (this date) (m)	Difference (m)	Notes
4		99.996	99.996	
5		99.952	99.952	
6		100.125	100.125	

Summary			
Staff Gauge Reading (m)	n/a		
Stage from WL Survey (m)	99.120	Range	0.022
Pressure Transducer Reading (m)			
Pressure Transducer Elevation (m)			
Discharge (m^3/s)	**0.043**		
Cross Sectional Area	0.430		
Uncertainty (u(Q), 95% confidence level)			

Discharge Measurement - Mid-Section Method

Measurement Time	**Start**	9:20	**End**	10:00	**Location**	~ 50 m north of station	
Method	Velocity-area (Mid-section)			**Instrument Model**		Hach FH950	
Flow Meter Type	Electromagnetic			**Instrument Serial #**			
Real Time Reading (m)	**Start**	**Reading**		**Time**		**Staff Gauge (m)**	n/a
	End	**Reading**		**Time**		**Time of SG Reading**	n/a

		Station	Depth	Distance	Area	Velocity (m/s)			Q	% of Total Q
No.	**Notes**	**(m)**	**(m)**	**(m)**	**(m^2)**	**60%**	**20%**	**80%**	**(m^3/s)**	**%**
1	RB	1.00	0.00	0.00	0.00	0			0.000	0.0
2		1.3	0.10	0.30	0.02	0.029			0.001	1.5
3	behind boulder (US)	1.45	0.12	0.15	0.02	0.015			0.000	0.6
4	vegetation US	1.6	0.10	0.15	0.02	0.018			0.000	0.6
5	vegetation US	1.75	0.10	0.15	0.02	0.032			0.000	1.1
6		1.9	0.10	0.15	0.02	0.098			0.001	3.4
7		2.05	0.10	0.15	0.02	0.219			0.003	7.7
8		2.2	0.10	0.15	0.02	0.297			0.004	10.4
9		2.35	0.12	0.15	0.01	0.303			0.004	9.8
10		2.43	0.12	0.08	0.01	0.144			0.001	3.0
11		2.5	0.15	0.07	0.02	0.164			0.003	6.3
12		2.65	0.12	0.15	0.01	0.275			0.003	7.7
13		2.7	0.12	0.05	0.01	0.337			0.003	7.1
14		2.8	0.14	0.10	0.02	0.25			0.004	10.2
15		2.95	0.13	0.15	0.02	0.162			0.003	7.4
16		3.1	0.16	0.15	0.02	0.268			0.006	15.1
17	boulder US and DS; in eddy	3.25	0.10	0.15	0.02	0			0.000	0.0
18	boulder US and DS	3.5	0.07	0.25	0.01	0.047			0.001	1.3
19	boulder US and DS	3.6	0.15	0.10	0.02	0			0.000	0.0
20	boulder US and DS	3.70	0.16	0.10	0.02	0			0.000	0.0
21	boulder US and DS	3.85	0.14	0.15	0.02	0.029			0.001	1.4
22		4.00	0.16	0.15	0.02	0.011			0.000	0.6
23	in vegetation	4.15	0.12	0.15	0.02	0.015			0.000	0.6
24	in vegetation	4.30	0.10	0.15	0.02	0.012			0.000	0.4
25		4.45	0.10	0.15	0.02	0.067			0.001	2.4
26		4.60	0.10	0.15	0.02	0.019			0.000	0.7
27		4.75	0.09	0.15	0.02	0.008			0.000	0.3
28	LB	5.00	0.00	0.25	0.00	0			0.000	0.0
29				5.00	0.00				0.000	0.0
30				0.00	0.00				0.000	0.0
31				0.00	0.00				0.000	0.0
32				0.00	0.00				0.000	0.0
33				0.00	0.00				0.000	0.0
Total Q									**0.043**	**100.0**

General Notes

Table D-6: Water Level and Discharge Measurement Data, KM 10 Station 1, September 25, 2021

Site Information				
Project Name	Meliadine			
Station Identification	KM10 Station 1			
Stream Name	KM10 Station 1			
Date Monitored	25-Sep-21			
Time at Site (24 hr)	**Start Time:**	13:30	**End Time:**	15:30
Personnel	Nicci Zargarpour, Heather Murphy			
Station Cordinates	**Easting**	**Northing**	**Elevation**	
	546504	6973219		
Weather Conditions	Cloudy, 20 km/h winds			

Transducer Information			
DL Model	Solinst Levelogger 5	**PT Serial #**	002-2139396
Gain		**Offset**	
Status	active	**Battery**	
# of Records		**Memory Free**	
DL Service Performed	Demobed	**Crest Gauges**	

Hydrometric Leveling Survey					
Stn	**BS**	**HI**	**FS**	**Elevation**	**Notes**
1	1.411	101.411		**100.000**	
2			1.432	99.979	
3			1.458	99.953	
WL			1.834	99.577	
WL			1.846	99.565	
TBM			1.596	99.815	
TBM	1.578	101.393		99.815	
1			1.395	99.998	
2			1.416	99.977	
3			1.443	99.950	
WL			1.827	99.566	
WL			1.832	99.561	

BM#	**Established Elevation (m)**	**Mean Elevation (this date) (m)**	**Difference (m)**	**Notes**
1		99.999	99.999	
2		99.978	99.978	
3		99.952	99.952	

Summary			
Staff Gauge Reading (m)	n/a		
Stage from WL Survey (m)	99.567	Range	0.016
Pressure Transducer Reading (m)			
Pressure Transducer Elevation (m)			
Discharge (m^3/s)	**0.308**		
Cross Sectional Area	1.485		
Uncertainty (u(Q), 95% confidence level)			

Discharge Measurement - Mid-Section Method

Measurement Time	**Start**	13:30	**End**	14:20	**Location**	~ 200 m SE from station. Under the bridge at KM10		
Method	Velocity-area (Mid-section)				**Instrument Model**	OTT Mf Pro		
Flow Meter Type	Electromagnetic				**Instrument Serial #**			
Real Time Reading (m)	**Start**	**Reading**			**Time**		**Staff Gauge (m)**	n/a
	End	**Reading**			**Time**		**Time of SG Reading**	n/a

		Station	**Depth**	**Distance**	**Area**		**Velocity (m/s)**		**Q**	**% of Total Q**
No.	**Notes**	**(m)**	**(m)**	**(m)**	**(m^2)**	**60%**	**20%**	**80%**	**(m^3/s)**	**%**
1	RB	1.00	0.00	0.0	0.00	0			0.000	0.0
2	within vegetation	1.10	0.05	0.1	0.01	0.155			0.001	0.4
3	within vegetation	1.30	0.09	0.2	0.02	0.169			0.004	1.2
4	within vegetation	1.60	0.07	0.3	0.02	0.004			0.000	0.0
5	within vegetation	2.00	0.06	0.4	0.03	0.023			0.001	0.2
6	within vegetation	2.50	0.05	0.5	0.03	0.028			0.001	0.3
7	within vegetation	3.10	0.06	0.6	0.03	0.066			0.002	0.6
8	within vegetation	3.50	0.09	0.4	0.03	0.112			0.004	1.1
9	within vegetation	3.80	0.12	0.3	0.04	0.273			0.010	3.2
10		4.10	0.11	0.3	0.03	0.026			0.001	0.3
11		4.40	0.17	0.3	0.04	0.291			0.012	4.0
12		4.60	0.16	0.2	0.03	0.342			0.011	3.6
13		4.80	0.20	0.2	0.04	0.34			0.014	4.4
14		5.00	0.18	0.2	0.04	0.42			0.015	4.9
15		5.20	0.30	0.2	0.05	0.478			0.022	7.0
16		5.30	0.30	0.1	0.03	0.474			0.014	4.6
17		5.40	0.35	0.1	0.04	0.334			0.012	3.8
18		5.50	0.35	0.1	0.03	0.377			0.013	4.3
19		5.60	0.33	0.1	0.03	0.416			0.014	4.5
20		5.70	0.32	0.1	0.03	0.44			0.014	4.6
21		5.80	0.34	0.1	0.05	0.091			0.005	1.5
22	In eddy behind big rock	6.00	0.35	0.2	0.07	0			0.000	0.0
23		6.20	0.36	0.2	0.07	0.156			0.011	3.6
24		6.40	0.35	0.2	0.07	0.23			0.016	5.2
25		6.60	0.36	0.2	0.05	0.268			0.014	4.7
26		6.70	0.37	0.1	0.04	0.265			0.010	3.2
27		6.80	0.26	0.1	0.04	0.237			0.009	3.0
28		7.00	0.27	0.2	0.07	0.163			0.011	3.6
29		7.30	0.25	0.3	0.08	0.273			0.020	6.7
30		7.60	0.22	0.3	0.07	0.249			0.016	5.3
31		7.90	0.25	0.3	0.08	0.239			0.018	5.8
32		8.20	0.23	0.3	0.07	0.121			0.008	2.7
33		8.50	0.19	0.3	0.09	0.048			0.004	1.3
34		9.10	0.08	0.6	0.04	0.014			0.001	0.2
35		9.40	0.07	0.3	0.02	0.02			0.000	0.1
36	LB	9.60	0.00	0.2	0.00	0			0.000	0.0
37				9.6	0.00				0.000	0.0
Total Q									**0.308**	**100.0**

General Notes

Table D-7: Water Level and Discharge Measurement Data, KM 10 Station 2, September 25, 2021

Site Information				
Project Name	Meliadine			
Station Identification	KM10 Station 2			
Stream Name	KM10 Station 2			
Date Monitored	25-Sep-21			
Time at Site (24 hr)	**Start Time:**	9:00	**End Time:**	11:30
Personnel	Nicci Zargarpour, Heather Murphy			
Station Cordinates	**Easting**	**Northing**	**Elevation**	
	544877.90	6973412.84		
Weather Conditions	Cloudy, 20 km/h wind			

Transducer Information			
DL Model	Solinst Levelogger 5	**PT Serial #**	002-2139785
Gain		**Offset**	
Status	active	**Battery**	
# of Records		**Memory Free**	
DL Service Performed	Demobed	**Crest Gauges**	

Hydrometric Leveling Survey					
Stn	**BS**	**HI**	**FS**	**Elevation**	**Notes**
4	0.880	100.880		**100.000**	
5			0.930	99.950	
6			0.755	100.125	
WL			1.765	99.115	
WL			1.767	99.113	
TBM			1.424	99.456	
TBM	1.488	100.944		99.456	
4			0.945	99.999	
5			0.995	99.949	
6			0.820	100.124	
WL			1.830	99.114	
WL			1.837	99.107	

BM#	**Established Elevation (m)**	**Mean Elevation (this date) (m)**	**Difference (m)**	**Notes**
4		100.000	100.000	
5		99.950	99.950	
6		100.125	100.125	

Summary			
Staff Gauge Reading (m)	n/a		
Stage from WL Survey (m)	99.112	Range	0.008
Pressure Transducer Reading (m)			
Pressure Transducer Elevation (m)			
Discharge (m^3/s)	**0.037**		
Cross Sectional Area	0.362		
Uncertainty (u(Q), 95% confidence level)			

Discharge Measurement - Mid-Section Method								
Measurement Time	**Start**	9:20	**End**	10:00	**Location**	~ 50 m north of station		
Method	Velocity-area (Mid-section)				**Instrument Model**	OTT Mf Pro		
Flow Meter Type	Electromagnetic				**Instrument Serial #**			
Real Time Reading (m)	**Start**	**Reading**			**Time**		**Staff Gauge (m)**	n/a
	End	**Reading**			**Time**		**Time of SG Reading**	n/a

		Station	**Depth**	**Distance**	**Area**	**Velocity (m/s)**			**Q**	**% of Total Q**
No.	**Notes**	**(m)**	**(m)**	**(m)**	**(m^2)**	**60%**	**20%**	**80%**	**(m^3/s)**	**%**
1	RB	0.90	0.00	0.00	0.00	0			0.000	0.0
2	within vegetation and rocks	1	0.06	0.10	0.01	0			0.000	0.0
3	within vegetation and rocks	1.15	0.06	0.15	0.01	0			0.000	0.0
4	within vegetation and rocks	1.3	0.06	0.15	0.01	0.021			0.000	0.5
5	within vegetation and rocks	1.45	0.07	0.15	0.01	0.017			0.000	0.5
6	within vegetation and rocks	1.6	0.07	0.15	0.01	0			0.000	0.0
7	within vegetation and rocks	1.75	0.08	0.15	0.01	0.013			0.000	0.4
8	on top of rock	1.9	0.06	0.15	0.01	0.106			0.001	2.6
9	on top of rock	2.05	0.06	0.15	0.01	0.298			0.002	6.0
10		2.15	0.12	0.10	0.01	0.152			0.002	4.9
11		2.25	0.12	0.10	0.01	0.206			0.002	5.0
12		2.3	0.11	0.05	0.01	0.137			0.001	2.0
13		2.35	0.08	0.05	0.01	0.191			0.001	3.1
14		2.45	0.10	0.10	0.01	0.188			0.001	3.8
15		2.5	0.11	0.05	0.01	0.195			0.002	4.3
16		2.6	0.12	0.10	0.01	0.349			0.003	8.4
17		2.65	0.12	0.05	0.01	0.34			0.003	8.2
18		2.75	0.10	0.10	0.01	0.194			0.002	6.5
19	behind rock	2.9	0.14	0.15	0.02	0.315			0.007	17.8
20		3.05	0.11	0.15	0.01	0.156			0.002	5.8
21	behind rock	3.15	0.10	0.10	0.01	0			0.000	0.0
22	behind rock	3.30	0.06	0.15	0.01	0			0.000	0.0
23	In vegetation and rocks	3.45	0.15	0.15	0.02	0			0.000	0.0
24	In vegetation and rocks	3.60	0.14	0.15	0.02	0			0.000	0.0
25	In vegetation and rocks	3.75	0.13	0.15	0.02	0.036			0.001	1.9
26	In vegetation and rocks	3.90	0.14	0.15	0.02	0.065			0.001	3.7
27	In vegetation and rocks	4.05	0.10	0.15	0.02	0.114			0.002	4.6
28	In vegetation and rocks	4.20	0.07	0.15	0.01	0.047			0.000	1.3
29	In vegetation and rocks	4.35	0.10	0.15	0.02	0.07			0.001	2.8
30	In vegetation and rocks	4.50	0.10	0.15	0.02	0.146			0.002	5.9
31	behind rock	4.65	0.06	0.15	0.01	0			0.000	0.0
32	LB	4.90	0.00	0.25	0.00	0			0.000	0.0
33				4.90	0.00				0.000	0.0
Total Q									**0.037**	**100.0**

General Notes

Table D-8: Water Level and Discharge Measurement Data, Suluppqugaliit Station 1, September 26, 2021

Site Information					
Project Name	Meliadine				
Station Identification	Sulup Station 1				
Stream Name	Sulup Station 1				
Date Monitored	26-Sep-21				
Time at Site (24 hr)	**Start Time:**	16:00	**End Time:**	17:00	
Personnel	Nicci Zargarpour, Heather Murphy				
Station Cordinates	**Easting**	**Northing**	**Elevation**		
	542458.20	6938544.91			
Weather Conditions	cloudy, light breeze				

Transducer Information			
DL Model	Solinst Levelogger 5	**PT Serial #**	002-2139399
Gain		**Offset**	
Status	active	**Battery**	
# of Records		**Memory Free**	
DL Service Performed	demobed	**Crest Gauges**	

Hydrometric Leveling Survey					
Stn	**BS**	**HI**	**FS**	**Elevation**	**Notes**
7	1.431	101.431		**100.000**	
8			1.386	100.045	
9			1.467	99.964	
WL			1.963	99.468	
WL			1.955	99.476	
TBM			1.398	100.033	
TBM	1.401	101.434		100.033	
7			1.435	99.999	
8			1.388	100.046	
9			1.471	99.963	
WL			1.966	99.468	
WL			1.959	99.475	

BM#	Established Elevation (m)	Mean Elevation (this date) (m)	Difference (m)	Notes
7		100.000	100.000	
8		100.046	100.046	
9		99.964	99.964	

Summary			
Staff Gauge Reading (m)	n/a		
Stage from WL Survey (m)	99.472	Range	0.008
Pressure Transducer Reading (m)			
Pressure Transducer Elevation (m)			
Discharge (m^3/s)	**1.031**		
Cross Sectional Area	5.095		
Uncertainty (u(Q), 95% confidence level)			

Discharge Measurement - Mid-Section Method											
Measurement Time	**Start**	13:30	**End**	14:30	**Location**	~300 m south of Sulup Station 1, at lake outlet (542500.44, 6938224.33)					
Method	Velocity-area (Mid-section)				**Instrument Model**	OTT Mfpro					
Flow Meter Type					**Instrument Serial #**						
Real Time Reading (m)	**Start**	**Reading**			**Time**		**Staff Gauge (m)**		n/a		
	End	**Reading**			**Time**		**Time of SG Reading**		n/a		
		Station	**Depth**	**Distance**	**Area**	**Velocity (m/s)**			**Q**	**% of Total Q**	
No.	**Notes**	**(m)**	**(m)**	**(m)**	**(m^2)**	**60%**	**20%**	**80%**	**(m^3/s)**	**%**	
1	RB	2.20	0.00	0.0	0.00	0			0.000	0.0	
2		2.30	0.24	0.1	0.04	0.059			0.002	0.2	
3		2.50	0.36	0.2	0.13	0.142			0.018	1.7	
4		3.00	0.38	0.5	0.17	0.081			0.014	1.3	
5		3.40	0.30	0.4	0.15	0.049			0.007	0.7	
6	on top of rock	4.00	0.06	0.6	0.03	0.275			0.009	0.9	
7		4.50	0.17	0.5	0.09	0.371			0.032	3.1	
8	behind rocks	5.00	0.19	0.5	0.10	0.098			0.009	0.9	
9		5.50	0.33	0.5	0.12	0.334			0.039	3.7	
10		5.70	0.30	0.2	0.08	0.158			0.012	1.1	
11	on top of rock	6.00	0.27	0.3	0.11	0.401			0.043	4.2	
12		6.50	0.43	0.5	0.22	0.25			0.054	5.2	
13		7.00	0.45	0.5	0.23	0.333			0.075	7.3	
14	behind rock	7.50	0.40	0.5	0.16	0			0.000	0.0	
15		7.80	0.40	0.3	0.16	0.137			0.022	2.1	
16		8.30	0.39	0.5	0.20	0.175			0.034	3.3	
17	behind rock	8.80	0.37	0.5	0.19	0			0.000	0.0	
18		9.30	0.43	0.5	0.19	0.146			0.028	2.7	
19		9.70	0.45	0.4	0.20	0.071			0.014	1.4	
20	on top of rock	10.20	0.30	0.5	0.24	0.041			0.010	1.0	
21		11.30	0.34	1.1	0.27	0.392			0.107	10.3	
22	behind boulder	11.80	0.39	0.5	0.08	0.073			0.006	0.6	
23		11.70	0.30	0.1	0.21	0.422			0.089	8.6	
24		13.20	0.39	1.5	0.39	0.083			0.032	3.1	
25		13.70	0.35	0.5	0.18	0.176			0.031	3.0	
26	on top of rock	14.20	0.18	0.5	0.09	0.318			0.029	2.8	
27		14.70	0.10	0.5	0.05	0.391			0.018	1.7	
28		15.10	0.20	0.4	0.10	0.412			0.041	4.0	
29		15.70	0.18	0.6	0.12	0.313			0.037	3.6	
30	inbetween boulders	16.40	0.39	0.7	0.29	0.28			0.082	7.9	
31		17.20	0.35	0.8	0.19	0.102			0.020	1.9	
32		17.50	0.30	0.3	0.15	0.425			0.064	6.2	
33	inbetween boulders	18.20	0.30	0.7	0.17	0.264			0.044	4.2	
34		18.60	0.05	0.4	0.03	0.315			0.009	0.8	
35	on top of rock and in the willov	19.30	0.03	0.7	0.02	0.169			0.003	0.3	
36	LB	19.90	0.00	0.6	0.00	0			0.000	0.0	
37				19.9	0.00				0.000	0.0	
Total Q									**1.031**	**100.0**	

General Notes

Table D-9: Water Level and Discharge Measurement Data, Suluppqugaliit Station 2, September 26, 2021

Site Information				
Project Name	Meliadine			
Station Identification	Sulup Station 2			
Stream Name	Sulup Station 2			
Date Monitored	26-Sep-21			
Time at Site (24 hr)	**Start Time:**	15:00	**End Time:**	15:50
Personnel	Nicci Zargarpour, Heather Murphy			
Station Cordinates	**Easting**	**Northing**	**Elevation**	
	542445.00	6938171.00		
Weather Conditions	cloudy, light breeze			

Transducer Information			
DL Model	Solinst Levelogger 5	**PT Serial #**	002-2139401
Gain		**Offset**	
Status	active	**Battery**	
# of Records		**Memory Free**	
DL Service Performed	demobed	**Crest Gauges**	

Hydrometric Leveling Survey

Stn	BS	HI	FS	Elevation	Notes
10	1.206	101.206		**100.000**	
11			1.223	99.983	
12			1.324	99.882	
WL			1.551	99.655	
WL			1.520	99.686	
TBM			1.430	99.776	
TBM	1.464	101.240		99.776	
10			1.243	99.997	
11			1.259	99.981	
12			1.358	99.882	
WL			1.697	99.543	
WL			1.557	99.683	

BM#	Established Elevation (m)	Mean Elevation (this date) (m)	Difference (m)	Notes
10		99.999	99.999	
11		99.982	99.982	
12		99.882	99.882	

Summary			
Staff Gauge Reading (m)	n/a		
Stage from WL Survey (m)	99.642	Range	0.143
Pressure Transducer Reading (m)			
Pressure Transducer Elevation (m)			
Discharge (m^3/s)	**0.000**		
Cross Sectional Area	0.000		
Uncertainty (u(Q), 95% confidence level)			

Discharge Measurement - Mid-Section Method

Measurement Time	**Start**		**End**		**Location**	Note: Discharge measured at top of outflow- refer to Sulup Station 1 discharge data		
Method				**Instrument Model**				
Flow Meter Type				**Instrument Serial #**				
Real Time Reading (m)	**Start**	**Reading**		**Time**		**Staff Gauge (m)**	n/a	
	End	**Reading**		**Time**		**Time of SG Reading**	n/a	

		Station	Depth	Distance	Area	Velocity (m/s)			Q	% of Total Q
No.	**Notes**	**(m)**	**(m)**	**(m)**	**(m^2)**	**60%**	**20%**	**80%**	**(m^3/s)**	**%**
1				0.0	0.00				0.000	-
2				0.0	0.00				0.000	-
3				0.0	0.00				0.000	-
4				0.0	0.00				0.000	-
5				0.0	0.00				0.000	-
6				0.0	0.00				0.000	-
7				0.0	0.00				0.000	-
8				0.0	0.00				0.000	-
9				0.0	0.00				0.000	-
10				0.0	0.00				0.000	-
11				0.0	0.00				0.000	-
12				0.0	0.00				0.000	-
13				0.0	0.00				0.000	-
14				0.0	0.00				0.000	-
15				0.0	0.00				0.000	-
16				0.0	0.00				0.000	-
17				0.0	0.00				0.000	-
18				0.0	0.00				0.000	-
19				0.0	0.00				0.000	-
20				0.0	0.00				0.000	-
21				0.0	0.00				0.000	-
22				0.0	0.00				0.000	-
23				0.0	0.00				0.000	-
24				0.0	0.00				0.000	-
25				0.0	0.00				0.000	-
26				0.0	0.00				0.000	-
27				0.0	0.00				0.000	-
28				0.0	0.00				0.000	-
29				0.0	0.00				0.000	-
30				0.0	0.00				0.000	-
31				0.0	0.00				0.000	-
32				0.0	0.00				0.000	-
33				0.0	0.00				0.000	-
34				0.0	0.00				0.000	-
35				0.0	0.00				0.000	-
36				0.0	0.00				0.000	-
37				0.0	0.00				0.000	-
Total Q									**0.000**	**-**

General Notes

ERM has over 160 offices across the following countries and territories worldwide

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Kazakhstan
Kenya
Malaysia
Mexico
Mozambique
Myanmar
The Netherlands
New Zealand
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Panama
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