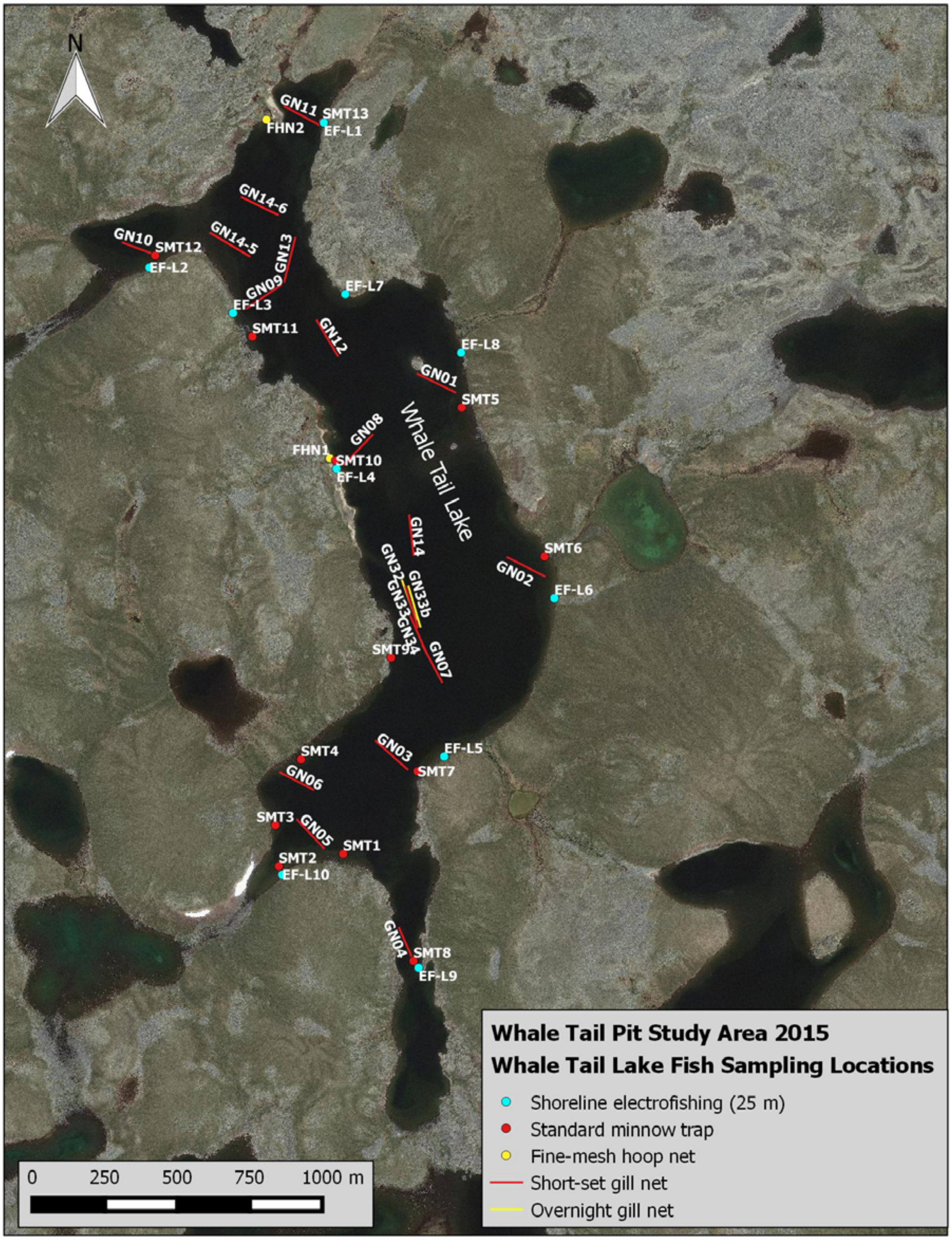

Figure 4-2. Fish sampling locations in Whale Tail Lake in 2014 and 2015.

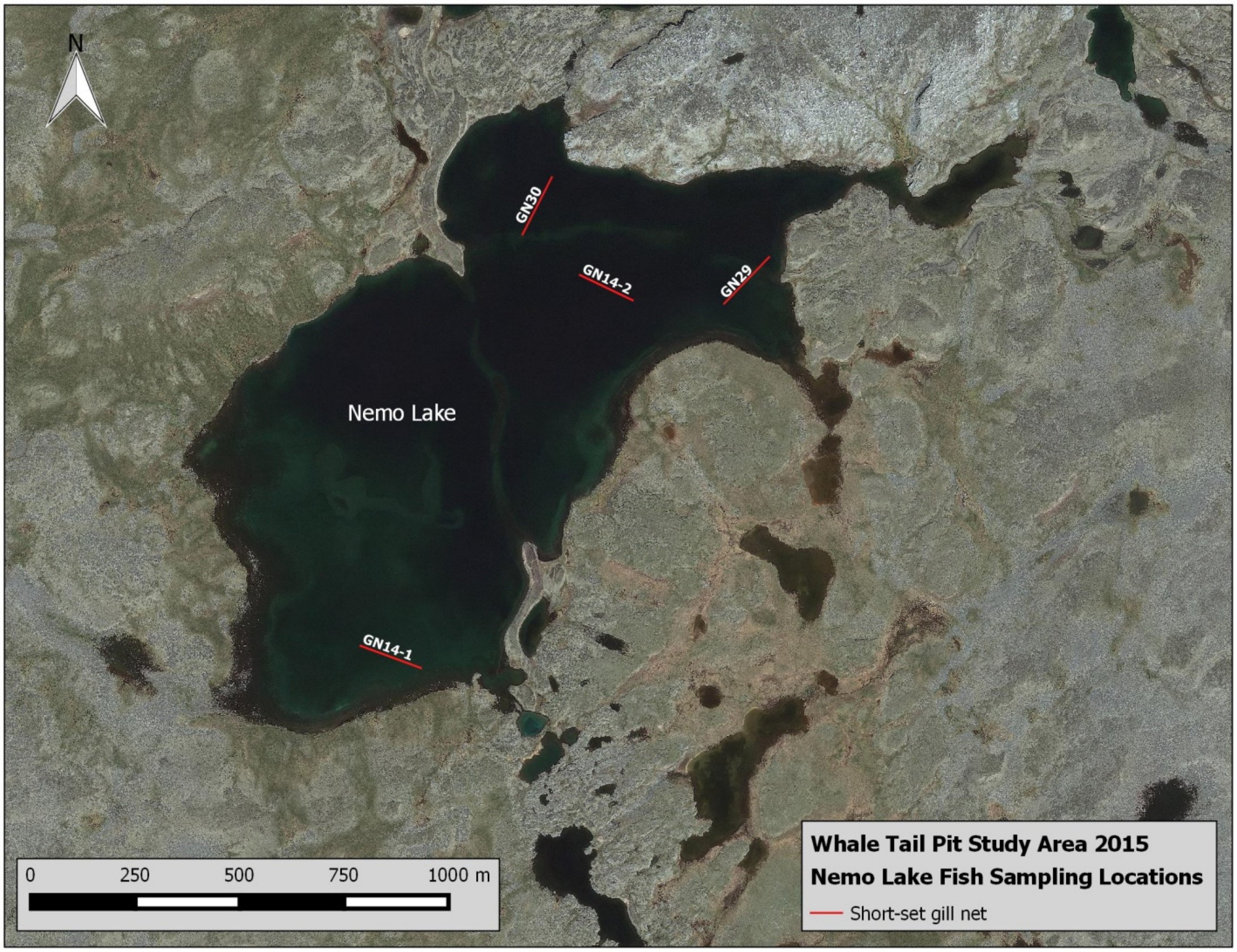

Figure 4-3. Fish sampling locations in Nemo Lake in 2014 and 2015.

4.1 Gill netting

4.1.1 Methods

All gill netting, unless otherwise noted, was conducted using standard AEM index gill nets comprised of six panels of stretched mesh (sizes 126, 102, 76, 51, 38, and 25 mm). Each panel of was 1.8 m (6 feet) deep by 22.7 m (25 yards) long, so that the length of a six-panel gang was 136.4 m (150 yards).

Two daytime gill net sets were conducted in each of Mammoth Lake, Whale Tail Lake, and Nemo Lake on September 4, 5 and 6, 2014, respectively. One gill net was set in a shallow shoal area and the second was set to sample a deeper part of each lake. The date and time of deployment and lifts were recorded as were the coordinates of each end of each net, determined using a Garmin GPSmap 76CSx hand-held receiver, and the depth, determined using a portable sonar unit. The gill nets were lifted after soak times of approximately 6.5

hours (range 6.3 – 6.7 hours). Each fish captured was identified to species and, with the exception of individuals that escaped during handling, its fork length was determined to the nearest mm using a standard fish measuring board and its weight was determined to the nearest gram using a Rapala digital hanging scale. Live fish were released immediately and dead fish were retained for later disposal.

Short-duration gill netting was conducted on Whale Tail Lake on July 24-26, 2015 and on Mammoth Lake on July 28 and 29, 2015. To select the gill net locations, the shoreline of each lake was divided into 12 segments of equal length. A gill net was set in each segment, approximately perpendicular to the depth contours, within the limitations imposed by shallow areas and wind conditions. Two additional sets were located in the deepest areas of each lake for a total of 14 net sets per lake (Figure 4-1, Figure 4-2). The date and time of deployment and lifts were recorded. The coordinates at each end of each net were determined using a Garmin Oregon 650 gps, and the depth at each end was determined using a Humminbird 798ci HD SI Sonar unit. These nets were set for a mean of 2.25 hours (range 1.92 hours – 2.83 hours).

The number of individuals of each species captured in each net was recorded. Each fish was examined for external anomalies and fork length was determined to the nearest mm using a standard fish measuring board. The total weight of each individual weighing more than 500 g was determined to the nearest 10 grams using a Rapala digital hanging scale. The total weight of individuals weighing less than 500 g was determined to the nearest g, or in some cases nearest 0.1 g, using an Ohaus Scout Pro Model 6001 electronic balance. Fish that were alive were tagged with a numbered Floy tag and released.

The body cavity of dead fish was opened and the viscera were examined for any anomalies. The gonads were examined to determine the sex and maturity of the specimen. Females with opaque ovaries containing developing eggs visible with the naked eye were considered to be sexually mature. Females with translucent ovaries that did not contain eggs which were visible to the naked eye were considered to be immature. Males with opaque testes were considered to be mature, and males with small translucent testes were considered to be immature. The liver and gonads were removed and weighed to the nearest 0.1 g using an Ohaus Scout Pro Model SP6001 electronic balance. One or both otoliths and the leading ray from the right pectoral fin were taken from the majority of the dead Lake Trout for subsequent aging.

Lake Trout were aged by Louise Stanley, a fish aging expert who provides consulting services. Otoliths were mounted whole on a glass slide with CrystalBond thermoplastic adhesive, ground to the core on one side, flipped to adhere the core area to the glass, and then ground to a thin section on the other side. The proximal end of each fin ray was ground flat and then cut away from the rest of the ray with wire cutters. The flat proximal end was mounted on a glass slide with CrystalBond thermoplastic adhesive and the remaining fin ray ground away to leave a thin section. Age was estimated based on the number of annuli counted using transmitted light and a Leica GZ6 Stereo Zoom microscope. The number of annuli on fin rays and otoliths were determined independently (i.e. without reference to each other) when both were available for a fish.

One overnight gill net set was conducted on Whale Tail Lake on August 17-18 and another on August 18-19 to determine the CPUE in overnight sets and to obtain Lake Trout tissue samples for mercury and metals analysis. Unlike the short duration gill net sets which were distributed about the lakes, these nets were set in locations thought to be good Lake Trout habitat. Each of these nets was reset for several hours at the same location on the second day in order to obtain a sufficient number of samples for mercury and metals analyses. These are referred to as miscellaneous gill net sets. Two overnight gill net sets were conducted in Mammoth Lake on August 26-26, preceded by daytime (miscellaneous) sets of 5.4 and 5.5 hours duration at the same locations, also in locations considered to be good Lake Trout habitat, to obtain Lake Trout tissue samples for mercury and metals analysis.

The Lake Trout captured were euthanized with a blow to the head followed by cervical severance and processed in the same manner as dead fish from the short gill net sets. Tissue samples for mercury and metals analyses were collected from these fish as described in Section 4.5. Live Round Whitefish (*Prosopium cylindraceum*) from these nets were released without being measured, weighed or tagged.

On August 2, 2015, short duration gill net sets were conducted at two locations in Nemo Lake (**Figure 4-3**). Each net was lifted once and reset at the same location, resulting in a total of four net sets with a mean soak time of 3.5 hours (range 3.33 hours – 3.63 hours). The catches were processed in the same manner as for Whale Tail and Mammoth Lakes.

4.1.2 Results

The gill netting results for Whale Tail, Mammoth and Nemo Lakes are summarized in Table 4-1. The data for individual net sets are provided in Appendix A (Table A 2). Lake Trout was the most abundant species in the gill net catches in all three lakes, followed by Round Whitefish. Arctic Char were only captured in Whale Tail. Only Lake Trout were captured in Nemo Lake. CPUE in the short-duration gill net sets was higher in Mammoth Lake than in Whale Tail Lake for both Lake Trout and Round Whitefish. Lake Trout CPUE was the same in both lakes for the overnight gill net sets. This may reflect the fact that the overnight sets targeted good Lake Trout habitat unlike the short-duration sets, which were distributed more or less evenly around the lakes.

The data for individual fish captured in gill nets are provided in Appendix A (**Table A 3** and **Table A 4**). The length distributions of Lake Trout captured by gill nets in 2015 differed between Whale Tail and Mammoth Lakes (Figure 4-4), with individuals 400 mm or shorter accounting for 81% of the catch in Mammoth Lake and only 36% of the catch in Whale Tail Lake. The Lake Trout age distributions in 2015 catches are consistent with the length distributions, with Lake Trout 15 years of age or younger, based on otolith ages, dominant in the catches from Mammoth Lake, and Lake Trout older than 15 years of age dominant in the Whale Tail Lake catches. As is typically the case, ages determined from fin rays tended to be younger than those determined from otoliths (Figure 4-6). There were too few individuals of other species captured to allow meaningful comparisons of length distributions to be made.

Table 4-1. Summary of gill net catches and catch per unit effort (CPUE; number of fish caught per hour of soak time), by lake, year, set duration and species.

Lake and year	Set duration	Number of sets	Total soak time (hours)	Lake Trout		Arctic Char		Round Whitefish	
				catch	CPUE	catch	CPUE	catch	CPUE
Whale Tail 2014	miscellaneous	2	12.7	5	0.39	1	0.08	0	0.00
Mammoth 2014	miscellaneous	2	13.2	13	0.98	0	0.00	0	0.00
Nemo 2014	miscellaneous	2	13.3	15	1.13	0	0.00	0	0.00
Whale Tail 2015	short-duration	14	30.5	5	0.15	1	0.03	3	0.09
	overnight	2	34.1	23	0.67	0	0.00	2	0.06
	miscellaneous	3	12.2	1	0.08	0	0.00	0	0.00
	all	19	76.8	29	0.38	1	0.01	5	0.07
Mammoth 2015	short-duration	14	32.5	8	0.25	0	0.00	16	0.59
	overnight	2	35.8	24	0.67	0	0.00	4	0.11
	miscellaneous	2	10.9	4	0.37	0	0.00	0	0.00
	all	18	79.2	36	0.45	0	0.00	20	0.25
Nemo 2015	miscellaneous	4	14.06	7	0.50	0	0.00	0	0.00

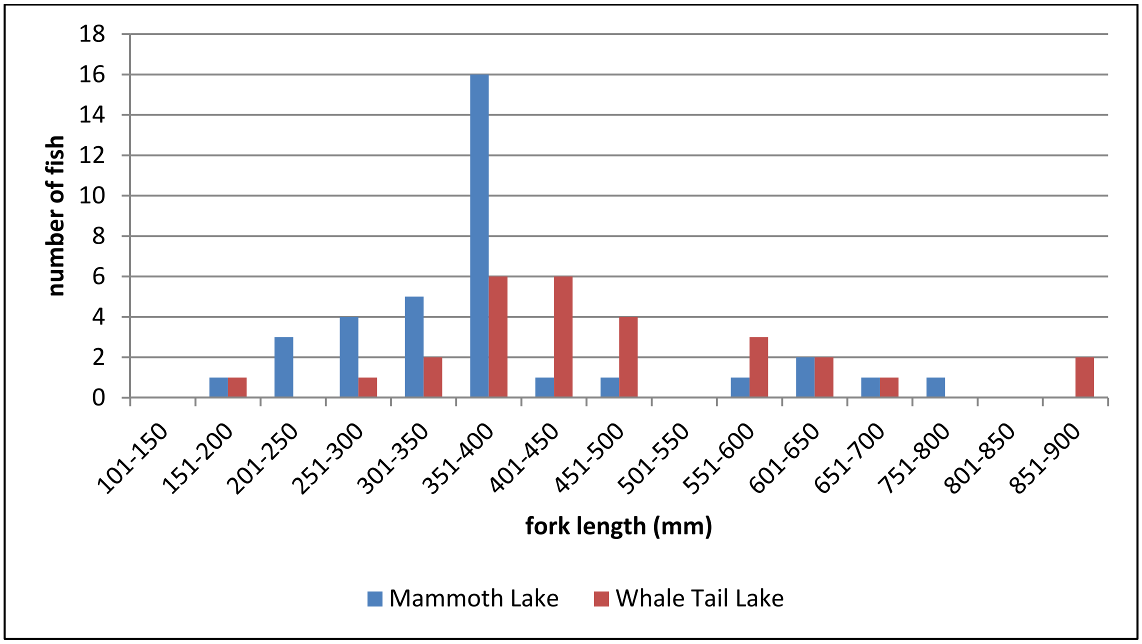

Figure 4-4. Length-frequency distributions of the Lake Trout captured by gill netting in Whale Tail and Mammoth Lakes in 2015.

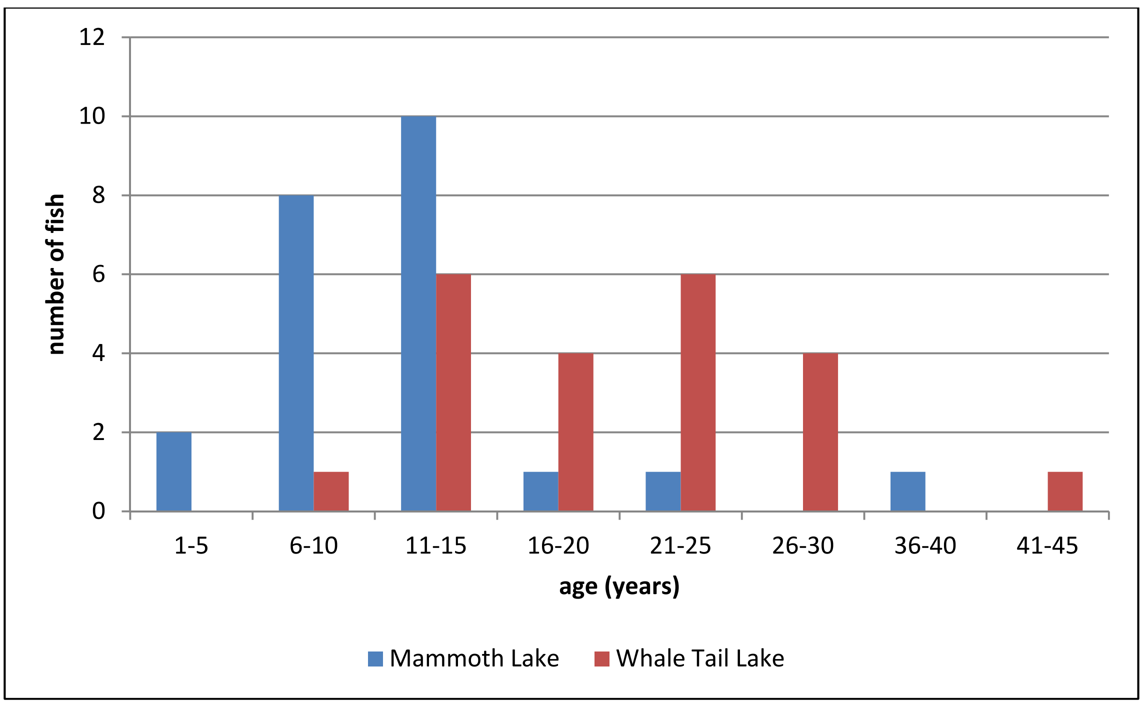

Figure 4-5. Age-frequency distributions, based on otolith ages, of Lake Trout from Mammoth and Whale Tail Lakes.

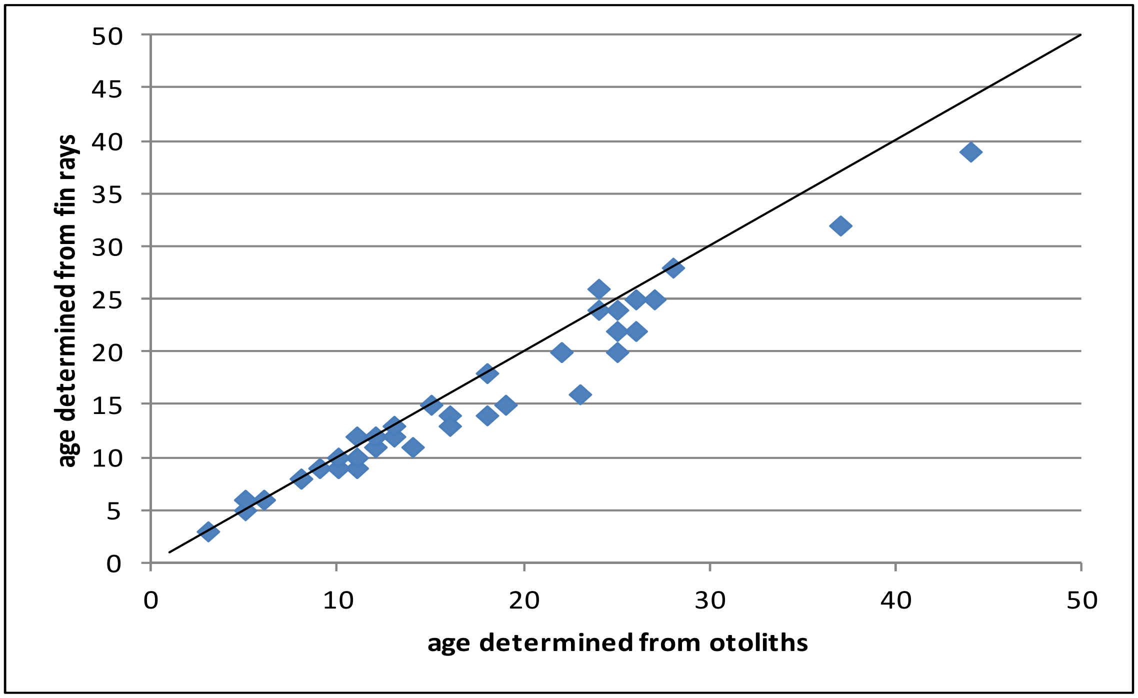

Figure 4-6. Lake Trout ages for individual fish determined from fin rays versus those determined from otoliths. The black line represents identical ages determined from both structures.

4.2 Shoreline Electrofishing

4.2.1 Methods

Shoreline electrofishing was conducted at 10 locations in Whale Tail Lake (Figure 4-1) on July 26-27 and at ten locations in Mammoth Lake on July 29-30 (Figure 4-2). The locations were selected with the objective of distributing them as widely as possible on each lake while taking safety considerations (substrate and slope) into account. At each location, 25 m was measured along the shoreline and a transect extending approximately 4 m out from the shore, was electrofished over the 25 m distance. The coordinates of the start location were determined with a Garmin Model 650 gps. The dominant substrate materials were visually identified and noted and each location was photographed. One member of a two-person crew operated the Halltech Model 200T backpack electrofisher, set at 950 volts and 60 hertz, and the second person netted immobilized fish with a dip net. The number of electroseconds was recorded at each location. The fish captured at each location were identified to species in the field. Ninespine Stickleback (*Pungitius pungitius*) were euthanized and retained for metals analyses (see Section 4.5). The other species captured were counted and released.

4.2.2 Results

The shoreline electrofishing effort and catches are summarized in Table 4-2. The data for individual transects are provided in Appendix A (Table A 5). The numbers of fish captured were similar between the two lakes. Ninespine Stickleback was the most frequently caught species in both lakes, followed by Slimy Sculpin (*Cottus cognatus*). Two juvenile salmonids were captured in Whale Tail Lake and one was captured in Mammoth Lake. All three are thought to have been Arctic Char based on their parr marks, where the width of the dark areas along the lateral line is greater than the width of the light areas (McPhail and Lindsey, 1970), and the sparsity of melanophores on the lower jaw. Catches were highly variable among individual transects, ranging from none to 15 for Ninespine Stickleback and none to six for Slimy Sculpin and did not appear to correlate with substrate.

Table 4-2. Number of individuals captured by electrofishing ten 25-meter long segments (250 m total) of shoreline in Whale Tail Lake and Mammoth Lake on July 26-27 and July 29-30, 2015, respectively.

Lake	Total eseconds	Ninespine Stickleback	Slimy Sculpin	juvenile salmonids
Mammoth	3922	41	13	1
Whale Tail	3403	55	14	2

4.3 Minnow Traps

4.3.1 Methods

Unbaited standard (Gee) minnow traps were deployed at 13 locations in Whale Tail Lake (**Figure 4-2**) on July 25, 2015, lifted and redeployed on July 26, and lifted and removed on July 27. Unbaited standard (Gee) minnow traps were deployed at 12 locations in Mammoth Lake (Figure 4-1) on July 28, 2015, and lifted and removed on July 29. The date and time of deployments and lifts were recorded and the coordinates at each net location were determined using a Garmin Oregon 650 gps. Depth was estimated visually if the depth was 1.5 m or less and determined using a Humminbird 798ci HD SI Sonar unit if the depth was greater than 1.5 m. The dominant substrates at each set location were visually assessed.

4.3.2 Results

The standard minnow trap effort and catch data are summarized in **Table 4-3** and the data for individual sets are provided in Appendix A (Table A 6). Mean soak time per set was 22.7 hours in Mammoth Lake and 22.5 hours in Whale Tail Lake. Total soak time was 273 hours in Mammoth Lake and 586 hours in Whale Tail Lake. The total catches were one Ninespine Stickleback in Mammoth Lake and one Slimy Sculpin in Whale Tail Lake.

Table 4-3. Number of overnight sets, mean and total soak time, and total catch for overnight sets of standard minnow traps set in Mammoth Lake (July 28-29) and Whale Tail Lake (July 25-27).

Lake	Number of overnight sets	Mean soak time (hours)	Total soak time (hours)	catch	
				Slimy Sculpin	Ninespine Stickleback
Whale Tail	26	22.5	586.0	1	0
Mammoth	12	22.7	273.0	0	1

4.4 Fine-mesh hoop nets

4.4.1 Methods

Fine-mesh hoop nets, 2.5 m long, were constructed of 1.27 cm stretch mesh with two 1 m diameter hoops and a third 0.75 m diameter hoop at the rear of the trap. These nets had 4 m long by 1 m high wings and a 10 m long by 1 m high leader of the same 1.27 cm stretch mesh. Two of these nets were deployed for one overnight set each in Whale Tail Lake on August 18-19, 2015. Set locations, shown in **Figure 4-2**, were selected where the substrate was sand and gravel, adjacent to areas of cobble and boulder substrate. The lead was set perpendicular to the shoreline, with the trap located at the offshore end.

4.4.2 Results

The fine-mesh hoop net at FHN1 caught one Round Whitefish (fl=2.7 cm), and one Round Whitefish (fl=12.3 cm) and one Slimy Sculpin were captured at SHN2. The set locations, dates and times, depth, substrate and catches are provided in Appendix A (Table A 7).

4.5 Fish Tissue Samples for Mercury and Metals Analyses

4.5.1 Methods

Samples of skinless, boneless dorsal muscle were collected from 23 lake trout from Whale Tail Lake and 25 lake trout from Mammoth Lake and analyzed for total mercury. A second sample of skinless, boneless dorsal muscle was collected from a subset of ten of the same Lake Trout from each lake and analyzed for a suite of metals. The muscle samples were removed from each fish using a standard filleting knife and individually sealed in Whirl-Pak bags. The sealed Whirl-pak bags were sealed inside larger Ziplock bags and frozen in a -20°C freezer. The frozen samples were subsequently transported to Guelph, Ontario, in coolers with ice packs and held at -20°C prior to shipping to ALS Laboratories in Burnaby, BC, in coolers with dry ice.

Seven and eight composite samples, each composed of 4 to 6 Ninespine Stickleback, were submitted for metals analysis from Whale Tail Lake and Mammoth Lake respectively. The total length in mm was determined for each individual using a standard fish measuring board and the total weight to the nearest 0.1 g was determined for the individuals in all but one of the composite samples using an Ohaus Scout Pro Model 60001 electronic balance. The number of individuals and the total length in mm of the largest and smallest individual in each composite sample are presented in **Table 4-4**. The composite samples were sealed in individual whirl-pak bags and frozen in a -20°C freezer. The samples were transported to Guelph, Ontario, in a cooler with frozen ice packs, and then stored in a -20°C freezer until they were shipped to ALS Laboratories in Burnaby, BC, in a cooler with dry ice. The laboratory methods, provided by ALS Laboratories, are provided in Appendix B.

Table 4-4. Number of and minimum and maximum fork length of Ninespine Stickleback in composite samples analyzed for metals.

Lake	Sample #	Number of individuals	minimum total length (mm)	maximum total length (mm)
Whale Tail	Composite # 1	5	53	68
	Composite # 2	5	45	55
	Composite # 3	5	40	46
	Composite # 4	5	37	41
	Composite # 5	5	36	45
	Composite # 6	5	31	40
	Composite # 7	8	30	47
Mammoth	Composite # 8	6	39	70
	Composite # 9	5	45	59
	Composite # 10	5	43	51
	Composite # 11	5	42	46
	Composite # 12	5	41	45
	Composite # 13	5	37	44
	Composite # 14	5	34	41
	Composite # 15	4	30	35

4.5.2 Results

The metal concentrations were determined by ALS Laboratories. The methods used to determine mercury and metals concentrations in the tissues and the results of those analyses, provided by ALS Laboratories, are presented in Appendix B. Due to a labelling error, two of the Lake Trout samples from Whale Tail Lake that were analyzed for mercury cannot be related to an individual fish. For the remaining Lake Trout samples the sample number corresponds to the fish numbers in Table A 4.

5.0 TRIBUTARY INVESTIGATIONS

Habitat was characterized in the tributaries to Whale Tail and Mammoth Lakes and fish sampling was conducted in the direct tributaries of Whale Tail and Mammoth Lakes that had surface flow and appeared capable of supporting fish during the open-water season. In most cases, these watercourses were walked from Whale Tail and Mammoth Lakes to the next lake upstream, often while electrofishing, to search for spawning grayling or potential grayling spawning habitat during the latter part of June. Most of the watercourses with areas of gravel substrate were electrofished in the latter part of June, in early July, and again in August to search for young-of-the-year (YOY) fishes and to characterize the stream habitat under low flow conditions. Digital photographs were taken of representative habitats. Large minnow traps were deployed in the lower reaches of several of these watercourses during the early part of the field season, in an attempt to capture fishes moving into these watercourses during the spring. Other direct tributaries of Whale Tail and Mammoth Lakes that were smaller and unlikely to provide upstream fish passage, as well as indirect tributaries located farther upstream were examined visually at least once during the 2015 open-water season. All of these additional tributaries were characterized with respect to habitat and photographed, and several were electrofished.

5.1 Habitat Characterization

5.1.1 Methods

Field observations of habitat characteristics including channel form, flow conditions, and substrate were recorded and photographs were taken. A Garmin Oregon 650 hand-held GPS unit was used to record the location of all observations and photographs, and aid in the distance measurements. Stream length was measured from an orthorectified aerial photograph taken on July 21, 2011, using GIS.

Flow was characterized as “surface” when water was present above the substrate and “interstitial” when surface flow was absent but there was water flowing through the interstitial spaces among boulders and cobbles. Typically, there were multiple observations of the state of flow over the open water season.

The dominant watercourse types were characterized as boulder or graminoid, examples of which are shown in Figure 5-1. Boulder habitats occur where the watercourse flows within a boulder deposit and in these watercourses the interstitial spaces are often sufficient to convey all of the flow, at least seasonally. In some of these watercourses there is no surface water visible along some or all of their length, even during the spring freshet. Graminoid habitats are typically found where finer substrates dominate. The banks are defined by graminoid vegetation and surface flow is typically present unless the stream goes dry. Some watercourses are a combination of both habitat types.

Figure 5-1. Examples of the stream habitat types encountered. The top row is boulder. The middle row is a mixture of boulder and graminoid. The bottom row is multiple channel graminoid (left) and single channel graminoid (right).

Channel configuration was characterized as single (one defined flow path), multiple (more than one defined flow path), or poorly defined (no obvious, defined flow path, suggesting that surface flow is ephemeral). Dominant and sub-dominant substrates were characterized based on particle size, following the modified Wentworth scale (Wentworth, 1922), with the additional category “peat”, which is a cohesive mat of vegetation-derived organic material that was the substrate in a number of the smaller watercourses.

5.1.2 Results

The watercourse characteristics are summarized in Table 5-1 and photographs of each are provided in Appendix B. Coarse substrates dominated and gravel substrate which might be suitable for Arctic Grayling spawning was relatively uncommon. Several of the watercourses were observed to have only interstitial flow, which would prevent the passage of large fish, during part or all of the open-water season.

Table 5-1. Habitat characteristics and length of watercourses examined during the 2015 field season. Refer to Figure 2-1 for lake identification codes. Watercourse ID is assigned as "downstream lake code-upstream lake code".

Water-course ID	Flow characteristics	Channel configuration	Dominant habitat	Substrate in order of dominance	Length (m)
A0-A48	Surface flow	Single	Graminoid	Peat with occasional patch of cobble.	357
A113-A47	Surface flow on June 28. Dry on August 1.	Poorly defined	Graminoid	Peat/tundra	198
A16-A15	Surface flow during high lake water levels in spring. Interstitial flow during lower summer and fall water levels.	Single	Boulder	Boulder/ cobble	60
A17-A16	Surface flow during high lake water levels in spring. Interstitial flow during lower summer and fall water levels.	Single	Boulder	Boulder/ cobble	172
A18-A17	Shallow surface flow during spring freshet. Only interstitial flow by August.	Single	Boulder	Boulder/ cobble with 3 small patches of gravel	296
A19-A18	Shallow surface flow during spring freshet. Interstitial sections on July 9.	Single	Boulder/ graminoid	Cobble/ boulder with tundra hummocks	338
A20-A19	Surface flow during spring freshet. Interstitial flow July 9.	Single	Boulder	Cobble/ boulder	78
A21-A20	Surface flow during spring freshet. Interstitial flow during lower summer lake water levels.	Single	Boulder	Boulder/ cobble	40
A22-A21	Interstitial flow	Single	Boulder	Boulder/ cobble	285
A23-A22	Interstitial flow	Not visible	Boulder	Boulder/ cobble	396
A43-A16	Interstitial	Not visible	Boulder	Boulder/ cobble	199
A45-A16	Interstitial	Not visible	Boulder	Boulder/ cobble	446
A46-A17	Surface flow	Multiple	Graminoid	Peat substrate in some sections and cobble/ boulder/gravel/sand in others	206
A47-A46	Surface flow	Multiple	Graminoid	Peat substrate in some sections and cobble/ boulder/gravel/sand in others	43

Water-course ID	Flow characteristics	Channel configuration	Dominant habitat	Substrate in order of dominance	Length (m)
A48-A47	Surface flow	Multiple. Poorly defined	Graminoid	Peat	53
A49-A17	Surface flow only during spring freshet. Interstitial flow.	Single	Boulder	Cobble/ boulder over bedrock	214
A49-A47	Not a watercourse				
A50-A17	Surface flow	Single near downstream lake. Multiple and poorly defined upstream	Graminoid	Lower 100 m section of watercourse with single channel has sand/cobble/gravel substrate. Upstream is primarily peat.	509
A53-A17	Surface flow	Multiple	Graminoid	Mainly peat with cobble/ boulder/gravel patches	577
A54-A53	Interstitial	Not visible	Boulder	Boulder/ cobble.	518
A55-A17	Surface flow in spring and early summer, but some short sections had become interstitial by the end of August	Multiple, with one main channel and a few smaller side channels	Graminoid	Cobble/ boulder. Total of ~5 m^2 of gravel	195
A56-A55	Sections of surface flow. Sections of interstitial flow.	Multiple. Poorly defined.	Boulder/ graminoid	Boulder/ cobble, with tundra in places.	610
A59-A17	Surface flow	Multiple	Graminoid	Peat with embedded boulder/cobble and 5 patches of gravel	205
A60-A59	Surface flow in graminoid sections. Interstitial flow in boulder sections	Multiple	Graminoid/ boulder	Peat/cobble/ boulder/near Lake 59. Then boulder/ cobble.	510
A62-A17	Surface flow during spring freshet and on July 7, but likely dry later in summer based upon vegetation.	Poorly defined	Graminoid	Peat/tundra	86
A63-A18	Surface flow during spring freshet and on July 5.	Multiple	Graminoid	Peat with 2 small areas of cobble/gravel/sand	122
A65-A17	Surface flow at isolated locations, but predominantly interstitial flow.	Single. Poorly defined	Boulder	Boulder/ cobble	176
A-P21-A52	Interstitial flow, except for short section of surface flow	Single	Boulder	Boulder/ cobble/peat	371

Water-course ID	Flow characteristics	Channel configuration	Dominant habitat	Substrate in order of dominance	Length (m)
A-P23-A17	Surface flow in June. Dry by mid-July.	Single	Boulder/ graminoid	Gravel/cobble in upstream section. Cobble/gravel/peat in mid-section, and then cobble/ boulder near Lake A17.	122
A-P38-A47	Surface flow on June 19. Dry on August 1.	Single. Poorly defined	Graminoid	Peat	157
A-P54-A-P23	Surface flow during spring freshet in downstream peat section, but predominantly interstitial flow. Dry by mid-July.	Single. Poorly defined	Boulder/ graminoid	Boulder/ cobble/peat	208

5.2 Visual Searches for Evidence of Arctic Grayling Spawning

5.2.1 Methods

As indicated in the previous section, gravel substrate was uncommon in the tributaries to Whale Tail Lake. Where surface flow and gravel substrate were present in early July, the watercourses were examined for areas of disturbed substrate that could indicate locations where Arctic Graying spawning had occurred. Disturbance was indicated by the presence of particles with little or no periphyton on their upper surface, indicating that they had recently been overturned. Where an area of disturbed gravel substrate was observed kick samples were collected by vigorously disturbing the substrate while holding a fine-meshed dip net immediately downstream in order to collect Arctic Grayling eggs if they were present.

5.2.2 Results

Only two areas of disturbed gravel were observed, both in the watercourse between lakes A63 and A18 on July 5, 2015. One area was 0.5 m wide by 1.5 m long in approximately 0.4 m of water and the other was 0.4 m wide by 0.6 m long in slightly shallower water. Multiple kick samples were collected at both of the areas but no fish eggs were observed in the samples.

5.3 Large Minnow Traps

5.3.1 Methods

Unbaited, large minnow traps were deployed in seven tributaries to Whale Tail Lake (**Figure 5-2**) for periods of seven to sixteen days in late June and early July. These traps, constructed of 0.9 cm (3/8 inch) square steel mesh, were 91.4 cm long and 31.5 cm in diameter, with a 22.0 cm long funnel at one end with a 7.0 cm diameter opening into the trap. Two traps were deployed in watercourse A53-A16 (locations MT2 and MT3) and in watercourse A63-A18 (location MT7). A single trap was deployed at the other locations. The traps were deployed with the funnel facing downstream except at location MT 7 (Tributary A63-A18), where one of the two traps was deployed with the funnel facing upstream. The traps were lifted periodically and captured fish were enumerated and identified to species. With the exception of one voucher specimen, the captured fish were released near their capture location. The trap in watercourse AP23-A17 (location MT1) was not fishing for an unknown period of time between June 26 and July 3 because falling water levels left the funnel opening above the water. At the other locations the traps' funnels openings were submerged throughout their deployments.

5.3.2 Results

The large minnow trap effort and catches are summarized in Table 5-2 sampling locations are shown in Figure 5-2. Detailed set, lift and catch data are provided in Appendix A (Table A 8). A total of nine Slimy Sculpin and one juvenile Round Whitefish (fork length = 8 cm) were captured by 109 nine trap-days of effort. At least one Slimy Sculpin was captured in four of the seven watercourses where traps were deployed, but catch-per-unit-effort (CPUE) was very low at all locations.

Table 5-2. Summary of large minnow trap deployments and catches. Trap locations are shown in Figure 5-2. Data for individual sets and lifts are provided in Appendix A.

Watercourse	Location	Date deployed	Date removed	Soak time (days)	Funnel direction	Slimy Sculpin	juvenile Round Whitefish
A46-A17	MT4	27/06/15	13/07/15	16	downstream	3	0
A50-A17	MT5	28/06/15	13/07/15	15	downstream	1	0
A53-A17	MT3	27/06/15	13/07/15	16	downstream	2	0
A55-A17	MT9	03/07/15	13/07/15	10	downstream	0	0
A59-A17	MT2	27/06/15	13/07/15	16	downstream	1	0
	MT6	28/06/15	13/07/15	15	downstream	2	0
A63-A18	MT7	05/07/15	13/07/15	8	upstream	0	0
	MT8	05/07/15	13/07/15	8	downstream	0	1
AP23-A17	MT1	26/06/15	03/07/15	7	downstream	0	0
Total				110		9	1