Larson Lake
Sockeye Salmon
Data Report
2009-2011

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The Larson Lake Project was made possible through an Alaskan Sustainable Salmon Fund grant received from the Alaska Department of Fish & Game and the National Oceanic and Atmospheric Administration and a State of Alaska Designated Legislative Grant.

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DISCLAIMER

The Cook Inlet Aquaculture Association (CIAA) conducts salmon enhancement and restoration projects in Area H, Cook Inlet and associated waters. As an integral part of these projects a variety of monitoring and evaluation studies are conducted. The following data report is a synopsis of the monitoring and evaluation studies conducted for Larson Lake. This Larson Lake Data Report encompasses data collected from the 2009 through the 2011 adult sockeye escapements as it falls under the Alaskan Sustainable Salmon Fund grant.

The purpose of the data report is to provide a vehicle to distribute the information produced by the monitoring and evaluation studies. Data collected each year are presented with a summary of the information previously collected for comparative purposes. These reports are intended to provide a general description of project activity and are not an exhaustive evaluation of any restoration or enhancement project. The information presented in this report has not undergone an extensive review. As reviews are completed, the information may be updated and presented in other reports.

The Larson Lake Data Report was prepared by CIAA under award of the Alaskan Sustainable Salmon Fund 45888 from the National Oceanic and Atmospheric Administration, U.S. Department of Commerce, and administered by the Alaska Department of Fish and Game (ADF&G). The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of the National Oceanic and Atmospheric Administration, the U.S. Department of Commerce, or ADF&G.

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Our equal employment opportunity philosophy applies to all aspects of employment with CIAA including recruiting, hiring, training, transfer, promotion, job benefits, pay, dismissal, and educational assistance.

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ACKNOWLEDGEMENTS

Many individuals and agencies contributed to the success of the Larson Lake project from 2009 through 2011. Appreciation is extended to the Cook Inlet Aquaculture Association interns, seasonal assistants, and full time staff who invested many hours in planning and executing this project over the years. Special thanks go to the Alaska Department of Fish and Game, Alaska Department of Natural Resources, and Matanuska-Susitna Borough for the support they provided during this project.

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ABSTRACT

As part of the continued evaluation of lakes in the Susitna River watershed to determine the sockeye salmon (*Oncorhynchus nerka*) abundance in key salmon producing lakes with and without northern pike (*Esox lucius*), Cook Inlet Aquaculture Association (CIAA) and the Alaska Department of Fish and Game (ADF&G) agreed to monitor adult sockeye salmon returns to Larson Lake. Larson Lake adult salmon escapement monitoring has been conducted periodically since 1984 and was not known to have a population of northern pike.

The 2009 Larson Lake adult salmon escapement was enumerated from 27 June and continued daily until 2 September. During this time 40,930 adult sockeye (*O. nerka*) salmon passed through the weir in Larson Creek. During the adult enumeration staff collected 1,772 scale samples of which 630 samples were analyzed for age composition. The age composition of the sockeye salmon escapement was largely comprised of age group 1.3 at 66.35%, followed by age group 1.2 at 18.10%, age group 2.3 at 10.79%, and age group 2.2 at 4.77%. Male sockeye salmon comprised 46.83% of the escapement with an average length of 568 mm (± 2 SE). Female sockeye salmon comprised 53.18% of the escapement with an average length of 537 mm (± 1 SE).

The 2010 Larson Lake adult salmon escapement was enumerated from 3 July and continued daily until 2 September. During this time an estimated 20,324 adult sockeye (*O. nerka*) salmon passed through the weir in Larson Creek. During the adult escapement staff collected 1,636 scale samples of which 553 samples were analyzed for age composition. The age composition of the sockeye salmon escapement was largely comprised of age group 1.2 at 42.86%, followed by age group 1.3 at 27.67%, age group 2.2 at 18.44%, age group 2.3 at 10.67%, and age group 3.2 at 0.36%. Male sockeye salmon comprised 45.93% of the escapement with an average length of 540 mm (± 2 SE). Female sockeye salmon comprised 54.07% of the escapement with an average length of 508 mm (± 1 SE).

The 2011 Larson Lake adult salmon escapement was enumerated from 17 July and continued daily until 2 September. During this time 12,225 adult sockeye (*O. nerka*) salmon passed

through the weir in Larson Creek. During the adult escapement staff collected 629 scale samples of which 478 samples were analyzed for age composition. The age composition of the sockeye salmon escapement was largely comprised of age group 1.3 at 51.05%, followed by age group 1.2 at 21.75%, age group 2.3 at 19.24%, age group 2.2 at 7.11%, age group 0.3 at 0.42%, age group 1.4 at 0.21%, and age group 1.1 at 0.21%. Male sockeye salmon comprised 44.77% of the escapement with an average length of 553 mm (± 2 SE). Female sockeye salmon comprised 55.24% of the escapement with an average length of 520 mm (± 1 SE).

INTRODUCTION AND PURPOSE

To better understand the recent low adult sockeye salmon (*Oncorhynchus nerka*) returns to the Susitna River drainage system, the Cook Inlet Aquaculture Association (CIAA), in cooperation with the Alaska Department of Fish and Game (ADF&G), is assessing sockeye salmon populations at several key salmon producing lakes with and without northern pike (*Esox lucius*) in the Susitna River drainage. The overall objective of this effort is to enumerate the smolt and adult returns and to assess the characteristics of these populations in terms of age composition, sex and size. Additionally, for some lake systems, environmental conditions and water quality measurements are being collected as well as genetic samples, mark-recapture studies and hydroacoustic surveys. The goal is to collect sound biological data to provide the foundation on which decisions for management and rehabilitation strategies can be made. Understanding the adult to juvenile relationship will allow management biologists to analyze and evaluate the production and rearing condition of each lake.

The enumeration of adult salmon returns to Larson Lake was performed in all three years of the 3-year effort to enumerate sockeye salmon returns to the Susitna River drainage. Larson Lake was chosen for enumeration to provide comparative data of historical adult salmon returns and to compare adult salmon returns for lakes with and without an invasive northern pike population.

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PROJECT AREA

Larson Lake, approximately 7.8 miles east of Talkeetna, is located in the Lower Talkeetna River watershed under legal description S026N003W18. Larson Lake is classified under the Catalog of waters important for spawning, rearing, or migration of anadromous fishes – Southcentral Region as water body number, 247-41-10200-2370-3080-0010 (Johnson, et al 2010). The lake has a maximum depth of 42.6 m, a mean depth of 16.4 m, and is located at an elevation 186 m above sea level (Spafard, et al 2000). The lake discharges north via Larson Creek to the Talkeetna River. Monitoring activities took place near the outlet of the lake in Larson Creek (AWC 247-41-10200-2370-3080) in all three years of the study.

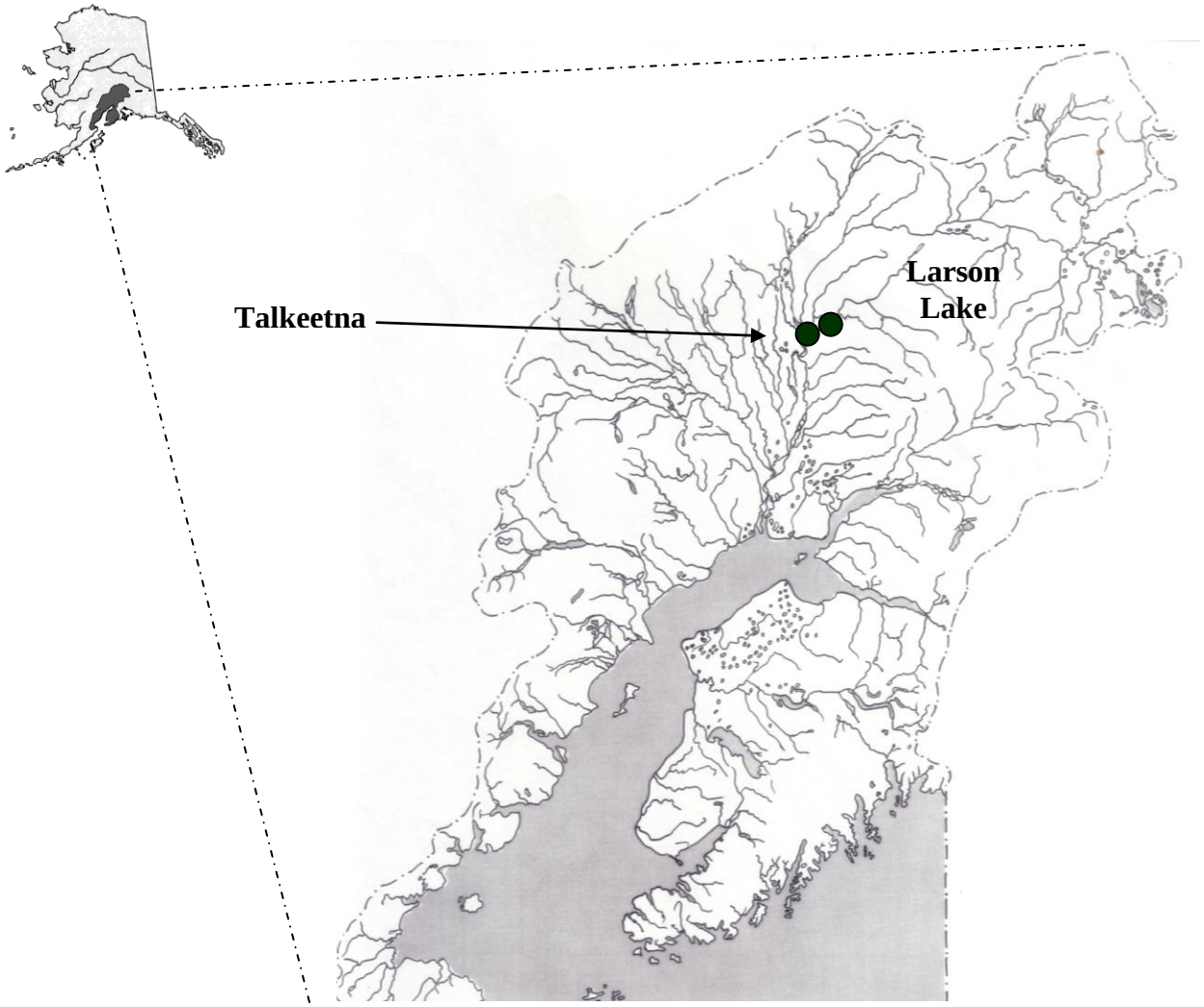

Figure 1 Larson Lake in Relation to Cook Inlet and Alaska

Larson Lake

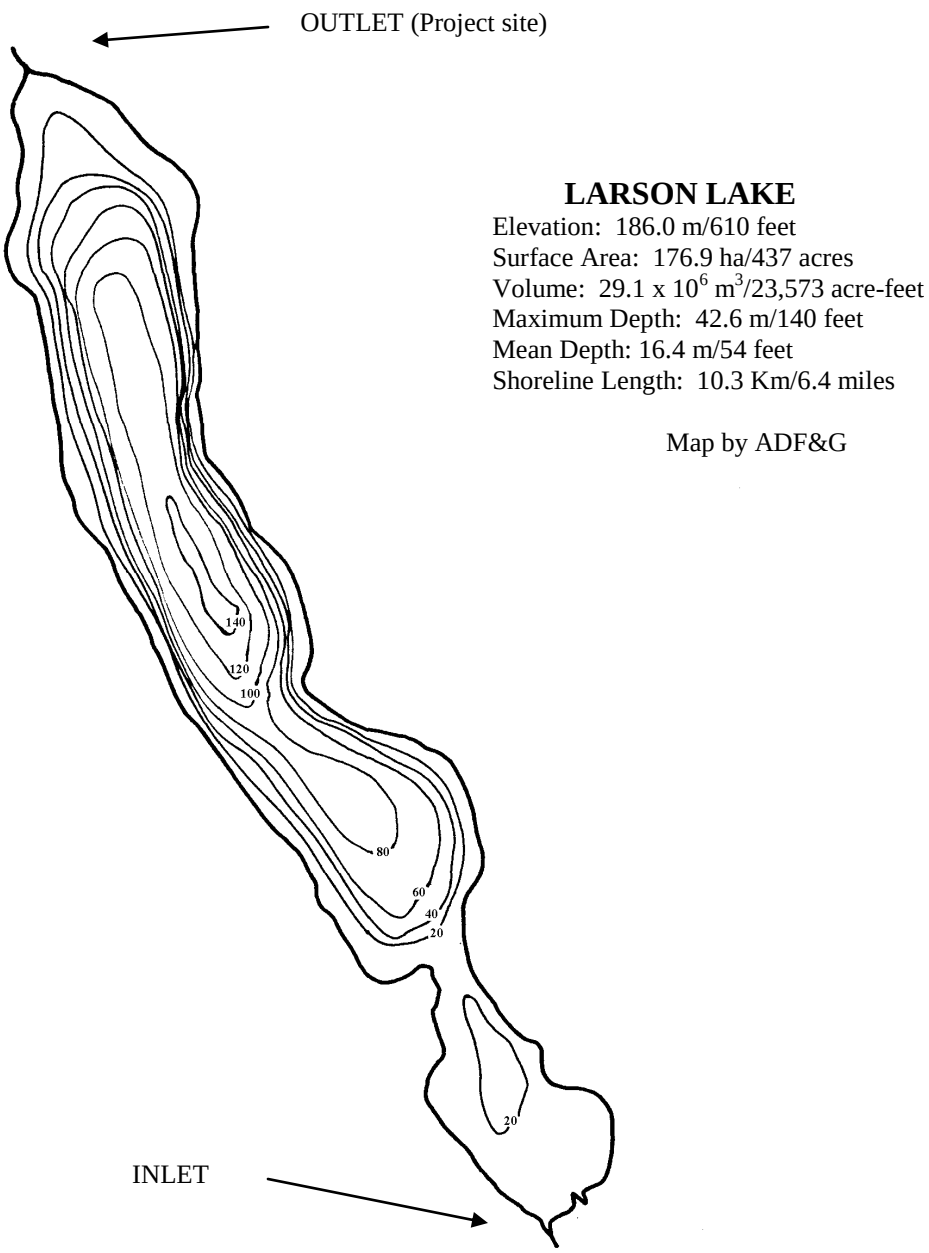

Figure 2 Bathymetric Map of Larson Lake

METHODS

Standard Cook Inlet Aquaculture Association (CIAA) procedures were followed for collecting data for environmental conditions and adult enumerations and were consistent from 2009 through 2011 (Cook Inlet Aquaculture Association Staff, 2009).

Environmental Conditions

To assess the environmental conditions during the adult sockeye salmon migration to Larson Lake, percent cloud cover was visually estimated, water level was measured to the nearest tenth of a foot, precipitation measured to the nearest millimeter, and water and air temperatures measured to the nearest degree centigrade. All measurements were recorded at 5:00 P.M. each day. Stream stage measurements were not comparable from year to year.

Adult Enumeration

To enumerate and collect adult salmon returning to Larson Creek, a counting weir was temporarily installed in Larson Creek each year from 2009 to 2011. The weir was constructed of 1.9 cm galvanized pipe and 7.6 cm aluminum channel. The galvanized pipe was picketed through 1.9 cm holes in the aluminum channel spaced 2.54 cm apart.

Field personnel visually identified to species and counted the adult fish as they ascended Larson Creek. By removing one or two pickets, fish were permitted to pass through the weir. Initially counts were made at least twice a day. As the number of adult fish passing through the weir increased, counts were made more frequently. Field personnel also visually checked each fish as it passed through the weir for a numbered tag inserted by ADF&G as part of a mark-recapture study. The data was submitted to ADF&G at the end of each year for analysis.

In addition to the enumeration of the adult salmon escapement, the sex, age and mid-eye fork length of the returning population of sockeye salmon was also assessed by collecting a sample of sockeye salmon as they passed through the weir. The sex of each adult sockeye salmon collected was visually determined and the mid-eye fork length measured to the nearest millimeter. For age

evaluation, field personnel removed a scale from the primary growth area[1]. All scales were submitted to ADF&G for age determination. All captured fish were unharmed and released upstream.

During the adult salmon escapements, up to 40 adult sockeye salmon were randomly collected for measurements each day. A total of 1,772 sockeye salmon scales were collected in 2009 of which 569 were analyzed. A total of 1,636 adult sockeye salmon scales were collected in 2010 of which 553 were analyzed. A total of 629 adult sockeye salmon scales were collected in 2011 of which 478 were analyzed. The large discrepancy between the number of scale samples CIAA staff collected compared with the number of scale samples ADF&G staff analyzed is a result of several factors including but not limited to a loss of data during transference and travel, unreadable scales due to poor scale quality, and/or limited ADF&G staff time to read all scale samples collected.

[1] *The primary growth area is located above the lateral line on a diagonal from the posterior insertion of the dorsal fin to the anterior insertion of the anal fin.*

RESULTS AND DISCUSSION

Environmental Conditions

During the 2009 adult sockeye salmon migration, environmental conditions were monitored from 27 June through 8 September. Water levels fluctuated 0.40 feet during that period. Stream temperatures averaged 19°C and ranged from 14 to 27°C. Air temperatures averaged 18°C and ranged from 12 to 28°C. Eleven percent of the days were clear, 58% were partly cloudy, and 31% were completely overcast. Measurable rain was recorded on 33 days during the adult migration. A total of 178 mm of rain fell during that period.

During the 2010 adult sockeye migration, environmental conditions were monitored from 15 July through 1 September. Water levels fluctuated 0.72 feet during that time. Stream temperatures averaged 17°C and ranged from 15 to 20°C. Air temperatures averaged 17°C and ranged from 12 to 24°C. Zero percent of the days were clear, 47% were partly cloudy, and 53% were completely overcast. Measurable rain was recorded on 37 days during the adult migration. A total of 228 mm of rain fell during that period.

During the 2011 adult sockeye migration, environmental conditions were monitored from 17 July through 1 September. Water levels fluctuated 0.97 feet during that period. Stream temperatures averaged 16°C and ranged from 14 to 22°C. Air temperatures averaged 16°C and ranged from 10 to 24°C. Eleven percent of the days were clear, 45% were partly cloudy, and 45% were completely overcast. Measurable rain was recorded on 30 days during the adult migration. A total of 299 mm of rain fell during that period.

Adult Enumeration

The 2009 Larson Lake adult salmon escapement was enumerated from 27 June and continued daily until 2 September. During this time 40,930 adult sockeye (*O. nerka*) salmon passed through the weir in Larson Creek. Other fish counted were 167 adult coho (*O. kisutch*) salmon, 4 adult chinook (*O. tshawytscha*) salmon, 34 adult pink (*O. gorbuscha*) salmon, 6 adult chum (*O. keta*), 7 adult rainbow trout, (*O. mykiss*) and 3 adult dolly varden (*Salvelinus malma malma*). The age composition of the sockeye salmon escapement was largely comprised of age group 1.3 at 66.35%, followed by age group 1.2 at 18.10%, age group 2.3 at 10.79%, and age group 2.2 at 4.77%. Male sockeye salmon comprised 46.83% of the escapement with an average length of 568 mm (± 2 SE). Female sockeye salmon comprised 53.18% of the escapement with an average length of 537 mm (± 1 SE).

The 2010 Larson Lake adult salmon escapement was enumerated from 3 July and continued daily until 2 September. During this time an estimated 20,324 adult sockeye (*O. nerka*) salmon passed through the weir in Larson Creek. Other fish counted were 33 adult coho (*O. kisutch*) salmon, 9 adult pink (*O. gorbuscha*) salmon, 18 adult chum (*O. keta*) salmon, and 10 adult rainbow (*O. mykiss*) trout. The age composition of the sockeye salmon escapement was largely comprised of age group 1.2 at 42.86%, followed by age group 1.3 at 27.67%, age group 2.2 at 18.44%, age group 2.3 at 10.67%, and age group 3.2 at 0.36%. Male sockeye salmon comprised 45.93% of the escapement with an average length of 540 mm (± 2 SE). Female sockeye salmon comprised 54.07% of the escapement with an average length of 508 mm (± 1 SE).

The 2011 Larson Lake adult salmon escapement was enumerated from 17 July and continued daily until 2 September. During this time 12,225 adult sockeye (*O. nerka*) salmon passed through the weir in Larson Creek. Other fish counted were 11 adult coho (*O. kisutch*) salmon, 1 adult chinook (*O. tshawytscha*) salmon, 15 adult pink (O. gorbuscha) salmon, 6 adult chum (*O. ket*a) salmon, and 1 adult rainbow (*O. mykiss*) trout. The age composition of the sockeye salmon escapement was largely comprised of age group 1.3 at 51.05%, followed by age group 1.2 at 21.75%, age group 2.3 at 19.24%, age group 2.2 at 7.11%, age group 0.3 at 0.42%. age group 1.4 at 0.21%, and age group 1.1 at 0.21%. Male sockeye salmon comprised 44.77% of the

escapement with an average length of 553 mm (± 2 SE). Female sockeye salmon comprised 55.24% of the escapement with an average length of 520 mm (± 1 SE).

Table 1 Summary of Larson Lake Adult Sockeye Salmon Characteristics

	Escapement	Age Classes													
		1.1		0.3		1.2		1.3		2.2		1.4		2.3		3.2	
Year	Number	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)
2009	40,930	0.00%	-	0.00%	-	18.10%	512	66.35%	565	4.76%	505	0.00%	-	10.79%	557	0.00%	-
2010	20,324	0.00%	-	0.00%	-	42.86%	500	27.67%	555	18.44%	508	0.00%	-	10.67%	556	0.36%	523
2011	12,225	0.21%	361	0.42%	593	21.76%	486	51.05%	552	7.11%	492	0.21%	575	19.25%	557	0.00%	-
Mean	24,493	0.07%	361	0.14%	593	27.57%	499	48.36%	557	10.10%	502	0.07%	575	13.57%	557	0.12%	523
Min	12,225	0.00%	361	0.00%	593	18.10%	486	27.67%	552	4.76%	492	0.00%	575	10.67%	556	0.00%	523
Max	40,930	0.21%	361	0.42%	593	42.86%	512	66.35%	565	18.44%	508	0.21%	575	19.25%	557	0.36%	523

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RECOMMENDATIONS

The Larson Lake sockeye salmon escapement should continue to be monitored in the future in order to provide comparisons between similar systems with northern pike that are showing diminishing salmon returns.

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APPENDICES

Appendix 1 Larson Lake 2009 – Environmental Conditions

Adult Migration

Date	Sky	Precip. (mm)	Stage (ft)	Water Temp. (°C)	Air Temp. (°C)
27-Jun	3	0.0	4.82	14	13
28-Jun	2	0.0	4.80	14	15
29-Jun	1	0.0	4.79	15	16
30-Jun	1	0.0	4.78	17	18
1-Jul	2	6.0	4.71	20	22
2-Jul	2	0.5	4.71	21	23
3-Jul	2	0.0	4.69	23	24
4-Jul	3	0.0	4.67	23	23
5-Jul	3	0.0	4.65	25	26
6-Jul	3	0.0	4.63	25	27
7-Jul	2	0.0	4.61	26	28
8-Jul	2	0.0	4.59	27	27
9-Jul	3	0.0	4.57	26	25
10-Jul	2	0.0	4.57	26	24
11-Jul	1	0.0	4.54	25	24
12-Jul	2	0.0	4.52	25	26
13-Jul	2	0.0	4.50	25	24
14-Jul	2	0.0	4.50	26	22
15-Jul	2	0.0	4.48	23	21
16-Jul	4	0.0	4.42	24	21
17-Jul	4	6.3	4.46	22	17
18-Jul	3	0.3	4.47	22	21
19-Jul	5	0.5	4.47	21	19
20-Jul	5	6.8	4.47	21	16
21-Jul	5	4.5	4.49	19	16
22-Jul	3	4.0	4.52	19	17
23-Jul	4	1.0	4.50	19	16
24-Jul	3	0.0	4.51	20	17
25-Jul	5	0.3	4.49	18	15
26-Jul	5	6.0	4.50	18	17
27-Jul	3	0.4	4.49	19	19
28-Jul	5	9.1	4.52	19	18
29-Jul	4	1.2	4.50	19	19
30-Jul	2	0.7	4.51	21	22
31-Jul	5	2.6	4.49	18	15
1-Aug	2	0.2	4.47	20	17
2-Aug	2	0.0	4.47	20	18
3-Aug	1	0.0	4.46	21	24
4-Aug	3	0.0	4.45	20	22
5-Aug	5	12.2	4.46	18	16
6-Aug	4	6.5	4.50	16	13
7-Aug	2	0.3	4.51	20	19
8-Aug	2	0.0	4.48	21	20
9-Aug	1	0.0	4.47	19	18
10-Aug	3	0.0	4.46	20	19
11-Aug	2	0.0	4.44	18	18
12-Aug	4	0.0	4.42	17	15
13-Aug	5	13.1	4.44	16	14
14-Aug	4	23.1	4.55	16	14
15-Aug	5	21.0	4.62	16	13
16-Aug	3	0.0	4.64	17	16
17-Aug	3	4.0	4.68	19	18
18-Aug	4	1.1	4.65	17	16
19-Aug	3	5.5	4.65	18	17
20-Aug	1	0.0	4.65	18	16
21-Aug	1	0.0	4.64	20	19
22-Aug	2	0.0	4.63	18	19
23-Aug	5	12.3	4.65	18	18
24-Aug	3	0.0	4.66	16	14
25-Aug	2	0.0	4.65	17	15
26-Aug	3	7.0	4.62	15	12
27-Aug	2	0.0	4.63	16	14
28-Aug	5	5.2	4.64	15	14
29-Aug	1	5.2	4.65	16	17
30-Aug	4	0.0	4.64	15	16
31-Aug	3	0.0	4.63	15	14
1-Sep	4	4.0	4.64	14	12
2-Sep	5	6.3	4.66	14	13
3-Sep	2	0.0	4.67	16	14
4-Sep	2	0.0	4.65	19	16
5-Sep	2	0.0	4.63	18	16
6-Sep	3	0.5	4.62	19	16
7-Sep	3	0.0	4.63	19	18
8-Sep	3	0.0	4.64	18	16
Total		178			
Avg.		2.4	-	19	18
Min.		0.0	4.42	14	12
Max.		23.1	4.82	27	28

Summary of Cloud Cover - Percent of Days

	No. Days	Meas. Rain	Overcast	Partly Cloudy	Clear
Adults	74	45%	31%	58%	11%

* This data reflects water level fluctuations only.

1.0 = Clear
2.0 = Cloud Cover <50%
3.0 = Cloud Cover>50%
4.0 = Overcast
5.0 = Rain

ND = No Data

Appendix 2 Larson Lake 2009 – Daily Adult Escapement

	Sockeye		Coho	King	Pink	Chum	Rainbow	D.V.
	Daily	Total	Daily	Daily	Daily	Daily	Daily	Daily
Date	Escapement	Return	Escapement	Escapement	Escapement	Escapement	Escapement	Escapement
27-Jun	4	4	0	0	0	0	0	0
28-Jun	0	4	0	0	0	0	0	0
29-Jun	0	4	0	0	0	0	0	0
30-Jun	0	4	0	0	0	0	0	0
1-Jul	0	4	0	0	0	0	0	0
2-Jul	0	4	0	0	0	0	0	0
3-Jul	0	4	0	0	0	0	0	0
4-Jul	0	4	0	0	0	0	0	0
5-Jul	2	6	0	0	0	0	0	0
6-Jul	0	6	0	0	0	0	0	0
7-Jul	0	6	0	0	0	0	0	0
8-Jul	0	6	0	0	0	0	0	0
9-Jul	13	19	0	0	0	0	0	0
10-Jul	6	25	0	0	0	0	0	0
11-Jul	0	25	0	0	0	0	0	0
12-Jul	0	25	0	0	0	0	0	0
13-Jul	0	25	0	0	0	0	0	0
14-Jul	17	42	0	0	0	0	0	0
15-Jul	244	286	0	0	0	0	0	0
16-Jul	1	287	0	0	0	0	0	0
17-Jul	0	287	0	0	0	0	0	0
18-Jul	87	374	0	0	0	0	0	0
19-Jul	772	1,146	0	0	0	0	0	0
20-Jul	1,917	3,063	0	0	0	0	0	0
21-Jul	1,879	4,942	0	0	0	0	0	0
22-Jul	3,123	8,065	0	0	0	0	0	0
23-Jul	2,157	10,222	0	0	0	0	0	0
24-Jul	3,679	13,901	0	0	0	0	0	0
25-Jul	2,754	16,655	0	0	0	0	0	0
26-Jul	2,913	19,568	0	0	0	0	0	0
27-Jul	2,686	22,254	0	0	0	0	0	0
28-Jul	1,591	23,845	0	0	0	0	0	0
29-Jul	1,626	25,471	0	0	0	0	0	0
30-Jul	892	26,363	0	0	0	0	0	0
31-Jul	618	26,981	0	0	0	0	0	0
1-Aug	636	27,617	0	0	0	0	0	0
2-Aug	128	27,745	0	0	0	0	0	0
3-Aug	74	27,819	0	0	0	0	0	0
4-Aug	1,421	29,240	0	0	0	0	0	0
5-Aug	829	30,069	0	0	0	0	0	0
6-Aug	604	30,673	0	0	0	0	0	0
7-Aug	880	31,553	0	0	0	0	0	0
8-Aug	1,739	33,292	0	0	0	0	0	0
9-Aug	1,776	35,068	0	0	0	0	0	0
10-Aug	562	35,630	0	0	1	0	0	0
11-Aug	507	36,137	0	0	0	0	0	0
12-Aug	1,627	37,764	0	0	2	0	0	0
13-Aug	44	37,808	0	0	1	0	0	0
14-Aug	1,304	39,112	6	0	11	0	0	0
15-Aug	52	39,164	0	0	0	0	0	0
16-Aug	40	39,204	0	0	0	0	0	0
17-Aug	22	39,226	0	0	0	0	0	0
18-Aug	620	39,846	0	0	11	0	0	0
19-Aug	296	40,142	0	0	3	0	0	0
20-Aug	64	40,206	1	0	2	0	0	0
21-Aug	75	40,281	28	1	1	0	0	0
22-Aug	127	40,408	36	3	0	0	0	0
23-Aug	23	40,431	27	0	0	0	0	1
24-Aug	112	40,543	15	0	0	0	0	0
25-Aug	49	40,592	3	0	0	0	0	0
26-Aug	27	40,619	3	0	2	0	0	0
27-Aug	77	40,696	3	0	0	0	0	0
28-Aug	26	40,722	0	0	0	1	1	0
29-Aug	51	40,773	0	0	0	0	0	0
30-Aug	47	40,820	7	0	0	3	0	0
31-Aug	37	40,857	4	0	0	0	2	1
1-Sep	4	40,861	0	0	0	0	2	0
2-Sep	7	40,868	0	0	0	0	0	1
3-Sep	20	40,888	1	0	0	0	1	0
4-Sep	7	40,895	0	0	0	0	0	0
5-Sep	3	40,898	0	0	0	0	0	0
6-Sep	17	40,915	1	0	0	2	1	0
7-Sep	4	40,919	1	0	0	0	0	0
8-Sep	11	40,930	31	0	0	0	0	0
Total	40,930		167	4	34	6	7	3

Appendix 3 Larson Lake 2009 - Age, Sex and Length Composition of Sockeye Salmon Escapement

Sampling Period:	Age Group				
27 June - 7 September	1.2	1.3	2.2	2.3	Total
Males	3,119	13,319	716	2,014	19,168
Percent	7.62%	32.54%	1.75%	4.92%	46.83%
Sample Size	48	205	11	31	295
Mean Lth (mm)	527	581	502	575	568
Std. Error	4	2	18	5	2
Females	4,289	13,838	1,236	2,403	21,767
Percent	10.48%	33.81%	3.02%	5.87%	53.18%
Sample Size	66	213	19	37	335
Mean Lth (mm)	501	550	507	542	537
Std. Error	3	1	6	3	1
Both Sexes	7,408	27,157	1,952	4,416	40,930
Percent	18.10%	66.35%	4.77%	10.79%	100.01%
Sample Size	114	418	30	68	630
Mean Lth (mm)	512	565	505	557	552
Std. Error	3	1	8	3	1

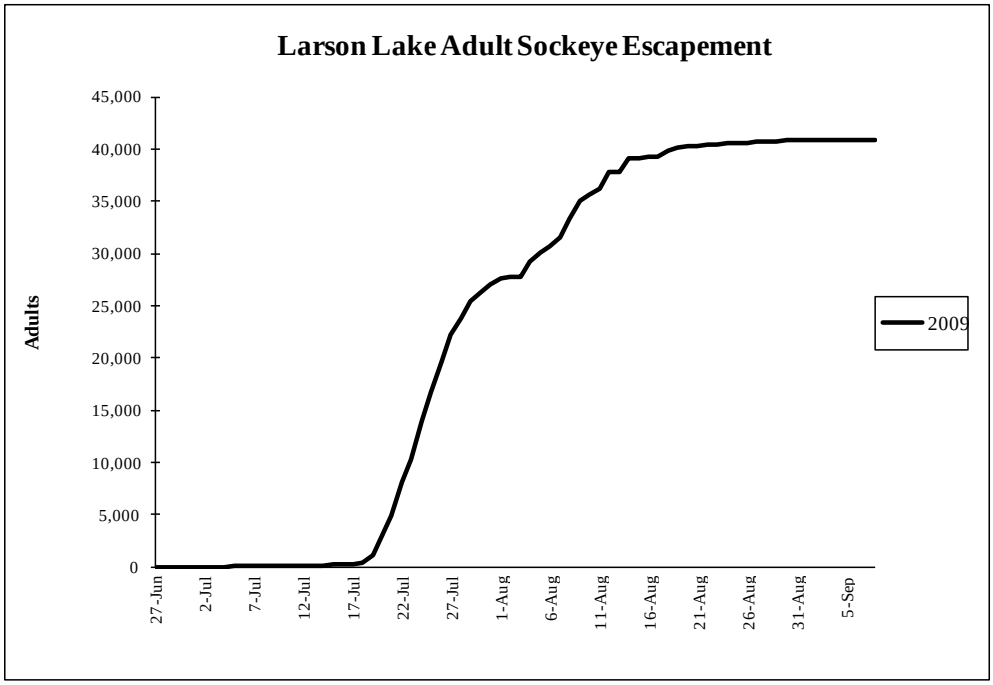
Appendix 4 Larson Lake 2009 – Hourly Adult Sockeye Escapement

	Hour																								
	AM							PM												AM					
Date	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	No.
27-Jun																						4			4
5-Jul																		2							2
9-Jul							7	5	1																13
10-Jul								4		2															6
14-Jul								1										7	9						17
15-Jul	15	7	17	143	56								1						5						244
16-Jul																		1							1
18-Jul					6	1	6			3	13	3	8	1	2	18	26								87
19-Jul						1						13	26	142			117	155	122		60	42	94		772
20-Jul	96						11	19	13	342	154	277	250	164	142		106	256		87					1,917
21-Jul							24	16	494					1,005			311			29					1,879
22-Jul					17	23	1,269		551		449		491	181			129		13						3,123
23-Jul				545	4	8	22	286	283		397	263				186	116		47						2,157
24-Jul					934	21	366	395	1,034	273		420		173		63									3,679
25-Jul				7	27	1,090			1,086			161			383										2,754
26-Jul							412	4	549	722		911	124					191							2,913
27-Jul					559	8	26	640	666			787													2,686
28-Jul							24	3	11	401		859					138	155							1,591
29-Jul						4	18		16	109	10	654					815								1,626
30-Jul				251				12	6	22	601														892
31-Jul						18	23								60		310	207							618
1-Aug							24		16					503				93							636
2-Aug							6	14		9			11				88								128
3-Aug							12	11	17	34															74
4-Aug							228		7			14	19	564		589									1,421
5-Aug											31	9		416	373										829
6-Aug					1				25	14		378	48				138								604
7-Aug									16	24		256					584								880
8-Aug					438				28	12	1,126					135									1,739
9-Aug							404	25		1,142							205								1,776
10-Aug											40			410			112								562
11-Aug								6	17	2	15					467									507
12-Aug		842							11	29	425				320										1,627
13-Aug													37	7											44
14-Aug										21	19	1,019		245											1,304
15-Aug												17	35												52
16-Aug							40																		40
17-Aug										6									16						22
18-Aug						9	11		8		12	226	216	138											620
19-Aug							22		18						208		48								296
20-Aug						0								16		24	24								64
21-Aug						11					5			24		35									75
22-Aug						10	14				6		10		87										127
23-Aug								14		9															23
24-Aug				30										10	42		30								112
25-Aug						0								26	13			10							49
26-Aug					0		0			5		11			6			5							27
27-Aug						14			8		14				13		28								77
28-Aug					0		3			0	17		3		1		2								26
29-Aug					17						24			10											51
30-Aug					0			21	19		7					0									47
31-Aug					0				21				8		6		2								37
1-Sep				0	0	0		0	0			0		0			4								4
2-Sep					0		3			2		0			2		0								7
3-Sep					0			0					16			2	2								20
4-Sep					0					4					3										7
5-Sep				2											0			1							3
6-Sep						2		1			2							12							17
7-Sep					0			1			2					1									4
8-Sep					3						5	3			0										11
																									40,930

Appendix 5 Larson Lake 2009 – Update

Adult Migration

Dates:	27-Jun to 8-Sep	
	No.	%
Sockeyes:	40,930	
Mortalities:	0	
Age 1.2:	7,408	18.10%
Age 1.3:	27,157	66.35%
Age 2.2:	1,952	4.77%
Age 2.3:	4,416	10.79%
Coho:	167	
King:	4	
Pink:	34	
Chum:	6	
Rainbow:	7	
Dolly Varden	3	



Appendix 6 Larson Lake 2010 – Environmental Conditions

Adult Migration

Date	Sky	Precip. (mm)	Stage (ft)	Water Temp. (^{o}C)	Air Temp. (^{o}C)
15-Jul	3	6.0	4.32	15	17
16-Jul	3	1.5	4.32	19	20
17-Jul	2	0.4	4.30	20	20
18-Jul	5	10.5	4.34	19	15
19-Jul	5	6.5	4.38	17	13
20-Jul	5	10.0	4.46	17	14
21-Jul	4	12.0	4.58	18	16
22-Jul	2	0.5	4.58	19	22
23-Jul	4	0.0	4.56	19	17
24-Jul	5	7.0	4.66	17	12
25-Jul	5	7.4	4.68	17	13
26-Jul	5	14.5	4.72	17	14
27-Jul	3	7.5	4.78	18	17
28-Jul	5	0.3	4.78	16	14
29-Jul	4	7.3	4.78	17	14
30-Jul	4	1.0	4.78	17	19
31-Jul	2	1.0	4.78	18	20
1-Aug	4	0.0	4.78	18	19
2-Aug	3	0.0	4.72	19	19
3-Aug	3	0.0	4.72	20	24
4-Aug	5	8.0	4.70	18	17
5-Aug	2	4.5	4.76	18	17
6-Aug	4	0.5	4.76	17	16
7-Aug	4	0.0	4.72	17	15
8-Aug	3	0.0	4.70	18	17
9-Aug	4	12.0	4.72	17	15
10-Aug	5	9.0	4.74	17	16
11-Aug	4	14.0	4.82	17	14
12-Aug	5	4.0	4.84	16	15
13-Aug	4	0.3	4.84	17	18
14-Aug	3	5.0	4.84	18	19
15-Aug	5	0.5	4.84	17	18
16-Aug	5	10.0	4.86	17	13
17-Aug	5	16.0	4.96	17	13
18-Aug	2	0.5	4.96	18	17
19-Aug	2	0.0	4.94	19	20
20-Aug	2	0.0	4.92	18	19
21-Aug	3	1.0	4.90	19	18
22-Aug	2	0.0	4.90	17	21
23-Aug	2	5.5	4.88	17	24
24-Aug	2	0.0	4.86	18	21
25-Aug	3	0.0	4.82	17	22
26-Aug	3	0.0	4.78	16	18
27-Aug	5	12.0	4.80	16	12
28-Aug	5	18.0	4.92	17	12
29-Aug	3	5.5	5.02	17	15
30-Aug	2	1.0	5.02	17	16
31-Aug	5	6.0	5.00	17	13
1-Sep	3	1.0	5.00	16	16
Total		228			
Avg.		4.6	-	17	17
Min.		0.0	4.30	15	12
Max.		18.0	5.02	20	24

* This data reflects water level fluctuations only.

Summary of Cloud Cover - Percent of Days

	No. Days	Meas. Rain	Overcast	Partly Cloudy	Clear
Adults	49	76%	53%	47%	0%

1.0 = Clear
2.0 = Cloud Cover <50%
3.0 = Cloud Cover>50%
4.0 = Overcast
5.0 = Rain

ND = No Data

Appendix 7 Larson Lake 2010 – Daily Adult Escapement

	Sockeye		Coho	King	Pink	Chum	Rainbow	D.V.
	Daily	Total	Daily	Daily	Daily	Daily	Daily	Daily
Date	Escapement	Return	Escapement	Escapement	Escapement	Escapement	Escapement	Escapement
3-Jul	0	0	0	0	0	0	0	0
4-Jul	0	0	0	0	0	0	0	0
5-Jul	0	0	0	0	0	0	0	0
6-Jul	0	0	0	0	0	0	0	0
7-Jul	0	0	0	0	0	0	0	0
8-Jul	0	0	0	0	0	0	0	0
9-Jul	0	0	0	0	0	0	0	0
10-Jul	0	0	0	0	0	0	0	0
11-Jul	0	0	0	0	0	0	0	0
12-Jul	0	0	0	0	0	0	0	0
13-Jul	0	0	0	0	0	0	0	0
14-Jul	0	0	0	0	0	0	0	0
15-Jul	3	3	0	0	0	0	0	0
16-Jul	11	14	0	0	0	0	0	0
17-Jul	0	14	0	0	0	0	0	0
18-Jul	10	24	0	0	0	0	0	0
19-Jul	0	24	0	0	0	0	0	0
20-Jul	21	45	0	0	0	0	0	0
21-Jul	9	54	0	0	0	0	0	0
22-Jul	25	79	0	0	0	0	0	0
23-Jul	1,073	1,152	0	0	0	0	0	0
24-Jul	318	1,470	0	0	0	0	0	0
25-Jul	1,368	2,838	0	0	0	0	2	0
26-Jul	1,610	4,448	0	0	0	0	0	0
27-Jul	1,218	5,666	0	0	0	0	0	0
28-Jul	723	6,389	0	0	0	0	1	0
29-Jul	1,776	8,165	0	0	0	0	0	0
30-Jul	1,233	9,398	0	0	0	0	0	0
31-Jul	1,348	10,746	0	0	0	0	1	0
1-Aug	909	11,655	0	0	0	0	1	0
2-Aug	992	12,647	0	0	0	0	0	0
3-Aug	742	13,389	0	0	0	0	0	0
4-Aug	492	13,881	0	0	0	0	0	0
5-Aug	522	14,403	0	0	0	0	0	0
6-Aug	153	14,556	0	0	0	0	0	0
7-Aug	37	14,593	0	0	0	0	0	0
8-Aug	707	15,300	0	0	0	0	0	0
9-Aug	647	15,947	0	0	0	0	0	0
10-Aug	509	16,456	0	0	0	0	0	0
11-Aug	530	16,986	4	0	0	1	0	0
12-Aug	287	17,273	0	0	0	0	1	0
13-Aug	455	17,728	2	0	0	0	0	0
14-Aug	481	18,209	4	0	0	0	0	0
15-Aug	246	18,455	0	0	0	1	0	0
16-Aug	208	18,663	7	0	0	2	0	0
17-Aug	262	18,925	2	0	0	2	0	0
18-Aug	99	19,024	0	0	1	0	0	0
19-Aug	9	19,033	0	0	0	1	0	0
20-Aug	164	19,197	0	0	3	1	0	0
21-Aug	104	19,301	3	0	1	0	0	0
22-Aug	151	19,452	0	0	1	0	0	0
23-Aug	153	19,605	5	0	1	1	2	0
24-Aug	135	19,740	0	0	1	1	0	0
25-Aug	68	19,808	0	0	1	0	0	0
26-Aug	177	19,985	2	0	0	2	0	0
27-Aug	31	20,016	0	0	0	0	0	0
28-Aug	43	20,059	1	0	0	4	2	0
29-Aug	96	20,155	1	0	0	0	0	0
30-Aug	85	20,240	0	0	0	1	0	0
31-Aug	36	20,276	1	0	0	0	0	0
1-Sep	39	20,315	1	0	0	1	0	0
2-Sep	9	20,324	0	0	0	0	0	0
Total	20,324		33	0	9	18	10	0

Appendix 8 Larson Lake 2010 - Age, Sex and Length Composition of Sockeye Salmon Escapement

Sample period: 16 July - 2 September	Age Group					
	1.2	1.3	2.2	2.3	3.2	Total
Males	3,309	2,902	2,020	1,067	37	9,298
Percent	16.28%	14.28%	9.94%	5.25%	0.18%	45.93%
Sample Size	90	79	55	29	1	254
Mean Lth (mm)	516	567	522	575	525	540
Std. Error	2	2	4	4	0	2
Females	5,402	2,719	1,728	1,104	37	10,953
Percent	26.58%	13.38%	8.50%	5.43%	0.18%	54.07%
Sample Size	147	74	47	30	1	299
Mean Lth (mm)	490	542	492	538	535	508
Std. Error	2	3	3	4	0	1
Both Sexes	8,711	5,624	3,748	2,169	73	20,324
Percent	42.86%	27.67%	18.44%	10.67%	0.36%	100.00%
Sample Size	237	153	102	59	2	553
Mean Lth (mm)	500	555	508	556	530	523
Std. Error	1	2	3	3	0	1

[a] Mean length in mm. Lengths taken to nearest 5 mm 7/16-8/19, nearest cm 8/20-9/11.

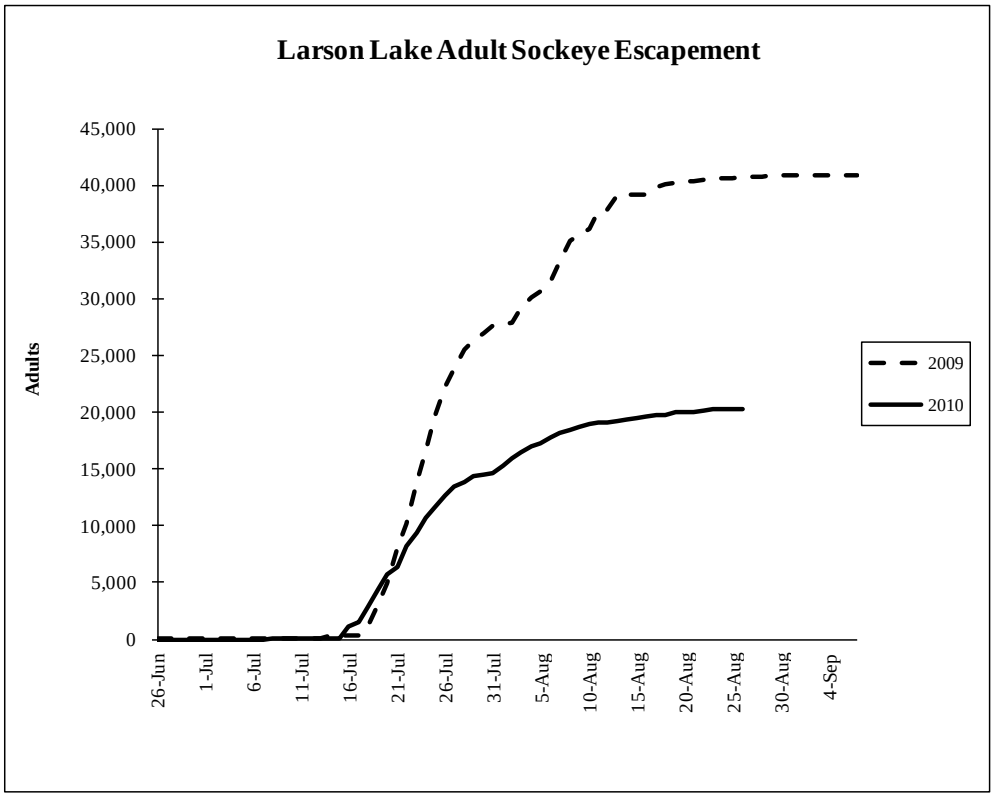
Appendix 9 Larson Lake 2010 – Hourly Adult Sockeye Escapement

	Hour																							
	AM							PM											AM					
Date	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	No.
15-Jul				3		0			0			0		0		0		0							3
16-Jul				6	0	0			0	0	2	0	0	3											11
17-Jul			0		0		0				0	0	0	0	0		0								0
18-Jul					6		0		0	0	0	0	0			4	0								10
19-Jul						0	0		0	0		0	0		0	0									0
20-Jul					10	0	0	0	1		0	0	5		5		0								21
21-Jul				9	0		0		0	0		0	0	0		0									9
22-Jul					0	0	0		0		0	0			0		25								25
23-Jul				8	0	8	7	0	19	0	614	0	14	18		385									1,073
24-Jul							10			16		7	16	0	269	0									318
25-Jul				0	0	0	34		290			836		208			0								1,368
26-Jul					8		117			524		727			234										1,610
27-Jul							101	40	297	339			422			19									1,218
28-Jul				0	0				51	501	171				0	0	0								723
29-Jul	156	16	0						51		343	1,063		0	104	15	28								1,776
30-Jul				0			151					47	604	165	90	78	98								1,233
31-Jul						13		439	6	706	42				107			35							1,348
1-Aug						104			45				185		427	148	0								909
2-Aug							67		163	46		501	57		142	16									992
3-Aug						51			22		186	299	114	38		32									742
4-Aug							49			0			49		79	235	80								492
5-Aug						63					44	287			107		21								522
6-Aug							0	0	0			44	57	28	24										153
7-Aug							0		0	0					37										37
8-Aug						25				48	69	376		50		139									707
9-Aug							0		44	46		339	113		90	8	7								647
10-Aug							0			47	276	62			48	69	7								509
11-Aug						0		0		208	53		168			61	40								530
12-Aug						0	52			0		0		48	124	39		24							287
13-Aug							50	90	116			94				48	38	19							455
14-Aug	97													327	54		3								481
15-Aug							20			27			19		97	14	69								246
16-Aug				68	19					0		67			20	34									208
17-Aug						0			13			61		53	72	62	1								262
18-Aug					27					9		35			10	18									99
19-Aug								4		0		0			5										9
20-Aug				12					7		14	13	71		47										164
21-Aug				19					27			53			5										104
22-Aug				16						12			10	12	101										151
23-Aug				5	3					14		17	9	105											153
24-Aug				28				14			8	38			47										135
25-Aug				35	6			0								27									68
26-Aug				39	6			39		20	5		60	5	3										177
27-Aug					0				12				19			0									31
28-Aug					21			0		0			22			0									43
29-Aug				17						16	9	47	5		2										96
30-Aug						0				3	18		12		26	26									85
31-Aug					10	4				0			22			0									36
1-Sep					19					5	6	0				9									39
2-Sep					9																				9
																									20,324

Appendix 10 Larson Lake 2010 – Update

Adult Migration

Dates:	3-Jul to 2-Sep	
	No.	%
Sockeyes:	20,324	
Mortalities:	0	
Age 1.2:	8,711	42.86%
Age 1.3:	5,624	27.67%
Age 2.2:	3,748	18.44%
Age 2.3:	2,169	10.67%
Age 3.2:	79	0.36%
Coho:	33	
King:	0	
Pink:	9	
Chum:	18	
Rainbow:	10	
Dolly Varden	0	



Appendix 11 Larson Lake 2011 – Environmental Conditions

Adult Migration

Date	Sky	Precip. (mm)	Stage (ft)	Water Temp. (°C)	Air Temp. (°C)
17-Jul	5	0.0	4.02	16	14
18-Jul	4	26.5	4.12	16	14
19-Jul	2	9.5	4.17	19	20
20-Jul	2	0.0	4.17	19	23
21-Jul	2	0.0	4.17	21	22
22-Jul	1	0.0	4.15	22	24
23-Jul	3	0.5	4.14	19	14
24-Jul	4	7.0	4.14	18	16
25-Jul	3	16.0	4.21	17	13
26-Jul	3	0.0	4.20	19	19
27-Jul	2	0.0	4.20	20	23
28-Jul	2	0.0	4.19	21	23
29-Jul	3	0.0	4.18	21	21
30-Jul	4	0.0	4.14	20	20
31-Jul	5	1.0	4.13	18	13
1-Aug	4	12.4	4.16	17	13
2-Aug	5	13.5	4.20	17	14
3-Aug	4	16.0	4.26	17	14
4-Aug	5	4.5	4.28	18	13
5-Aug	4	22.0	4.40	17	15
6-Aug	5	1.3	4.40	16	16
7-Aug	3	38.0	4.68	16	15
8-Aug	5	1.0	4.72	16	14
9-Aug	3	20.5	4.89	16	10
10-Aug	3	0.5	4.91	16	19
11-Aug	5	0.0	4.88	14	18
12-Aug	2	0.0	4.85	15	16
13-Aug	1	0.0	4.82	15	14
14-Aug	4	7.5	4.81	15	13
15-Aug	4	1.5	4.87	16	17
16-Aug	3	0.0	4.71	15	22
17-Aug	2	11.0	4.71	14	12
18-Aug	2	31.0	4.88	14	16
19-Aug	5	6.0	4.92	14	14
20-Aug	5	ND	4.94	14	12
21-Aug	5	2.0	4.92	14	14
22-Aug	3	4.0	4.93	14	11
23-Aug	2	4.0	4.92	15	15
24-Aug	5	18.0	4.96	15	14
25-Aug	5	5.5	4.99	14	13
26-Aug	3	0.0	4.95	14	19
27-Aug	2	0.5	4.92	14	14
28-Aug	1	0.0	4.87	15	21
29-Aug	2	0.0	4.82	16	21
30-Aug	1	1.0	4.82	15	12
31-Aug	1	16.0	4.80	14	10
1-Sep	5	1.0	4.81	15	16
Total		299			
Avg.		6.5	-	16	16
Min.		0.0	4.02	14	10
Max.		38.0	4.99	22	24

* This data reflects water level fluctuations only.

Summary of Cloud Cover - Percent of Days

	No. Days	Meas. Rain	Overcast	Partly Cloudy	Clear
Adults	47	64%	45%	45%	11%

1.0 = Clear
2.0 = Cloud Cover <50%
3.0 = Cloud Cover>50%
4.0 = Overcast
5.0 = Rain

ND = No Data

Appendix 12 Larson Lake 2011 – Adult Escapement

	Sockeye		Coho	King	Pink	Chum	Rainbow	D.V.
	Daily	Total	Daily	Daily	Daily	Daily	Daily	Daily
Date	Escapement	Return	Escapement	Escapement	Escapement	Escapement	Escapement	Escapement
17-Jul	0	0	0	0	0	0	0	0
18-Jul	0	0	0	0	0	0	0	0
19-Jul	40	40	0	0	0	0	0	0
20-Jul	32	72	0	0	0	0	0	0
21-Jul	0	72	0	0	0	0	0	0
22-Jul	76	148	0	0	0	0	0	0
23-Jul	582	730	0	0	0	0	0	0
24-Jul	1,436	2,166	0	0	0	0	0	0
25-Jul	1,631	3,797	0	0	0	0	0	0
26-Jul	435	4,232	0	0	0	0	0	0
27-Jul	971	5,203	0	0	0	0	0	0
28-Jul	1,412	6,615	0	0	0	0	0	0
29-Jul	543	7,158	0	0	0	0	0	0
30-Jul	196	7,354	0	0	0	0	0	0
31-Jul	403	7,757	0	0	0	0	0	0
1-Aug	429	8,186	0	1	0	0	0	0
2-Aug	357	8,543	0	0	0	0	0	0
3-Aug	501	9,044	0	0	0	0	0	0
4-Aug	284	9,328	0	0	0	0	0	0
5-Aug	484	9,812	0	0	0	0	0	0
6-Aug	237	10,049	0	0	0	0	0	0
7-Aug	377	10,426	0	0	0	0	0	0
8-Aug	241	10,667	0	0	0	0	0	0
9-Aug	135	10,802	0	0	0	0	0	0
10-Aug	87	10,889	0	0	0	0	1	0
11-Aug	63	10,952	0	0	0	0	0	0
12-Aug	318	11,270	0	0	1	2	0	0
13-Aug	243	11,513	0	0	2	0	0	0
14-Aug	302	11,815	0	0	1	2	0	0
15-Aug	93	11,908	0	0	2	0	0	0
16-Aug	108	12,016	0	0	0	0	0	0
17-Aug	100	12,116	0	0	0	0	0	0
18-Aug	44	12,160	1	0	0	1	0	0
19-Aug	3	12,163	0	0	0	0	0	0
20-Aug	2	12,165	0	0	0	0	0	0
21-Aug	0	12,165	0	0	0	0	0	0
22-Aug	24	12,189	0	0	3	0	0	0
23-Aug	-8	12,181	0	0	3	0	0	0
24-Aug	15	12,196	4	0	2	0	0	0
25-Aug	0	12,196	0	0	0	0	0	0
26-Aug	0	12,196	0	0	0	0	0	0
27-Aug	3	12,199	0	0	0	0	0	0
28-Aug	-3	12,196	0	0	1	0	0	0
29-Aug	1	12,197	0	0	0	0	0	0
30-Aug	0	12,197	0	0	0	0	0	0
31-Aug	28	12,225	6	0	0	1	0	0
1-Sep	0	12,225	0	0	0	0	0	0
2-Sep	0	12,225	0	0	0	0	0	0
Total	12,225		11	1	15	6	1	0

Appendix 13 Larson Lake 2011 - Age, Sex and Length Composition of Sockeye Salmon Escapement

Sampling Period: 8 July - 1 September	1.1	0.3	1.2	1.3	2.2	1.4	2.3	Total
Males	0	26	716	3,197	230	0	1,304	5,473
Percent	0.00%	0.21%	5.86%	26.15%	1.88%	0.00%	10.67%	44.77%
Sample Size	-	1	28	125	9	-	51	214
Mean Lth (mm)	-	599	490	563	518	-	566	553
Std. Error	-	-	7	3	11	-	3	2
Females	26	26	1,944	3,044	639	26	1,049	6,753
Percent	0.21%	0.21%	15.90%	24.90%	5.23%	0.21%	8.58%	55.24%
Sample Size	1	1	76	119	25	1	41	264
Mean Lth (mm)	361	587	485	540	483	575	546	520
Std. Error	-	-	2	2	5		3	1
Both Sexes	26	51	2,660	6,241	869	26	2,353	12,225
Percent	0.21%	0.42%	21.76%	51.05%	7.11%	0.21%	19.25%	100.01%
Sample Size	1	2	104	244	34	1	92	478
Mean Lth (mm)	361	593	486	552	492	575	557	534
Std. Error	-	-	3	2	4	-	2	1

Appendix 14 Larson Lake 2011 – Hourly Adult Sockeye Escapement

	Hour																								
	AM							PM											AM						
Date	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	No.
17-Jul							0	0	0			0	0	0		0									0
18-Jul					0	0	0	0	0	0		0	0			0	0								0
19-Jul									11	29															40
20-Jul					0	0	0	0	0	0	0	0	0	0	0	0		32							32
21-Jul					0	0	0			0	0	0	0			0									0
22-Jul					76																				76
23-Jul				126										8			448								582
24-Jul						1,081						355													1,436
25-Jul					108					1,523															1,631
26-Jul						72						363													435
27-Jul					856										75			40							971
28-Jul					1,412																				1,412
29-Jul												543													543
30-Jul						0	0	44							152										196
31-Jul					109					260	34														403
1-Aug						40						389													429
2-Aug					0	0	0			317	40														357
3-Aug						466									35										501
4-Aug					166					34	84														284
5-Aug						264								220											484
6-Aug					51					186															237
7-Aug							377																		377
8-Aug					0	0	0				241														241
9-Aug					0	0	0	0	135																135
10-Aug												48			39										87
11-Aug							2					61													63
12-Aug						0			268					50											318
13-Aug									65					178											243
14-Aug										146				156											302
15-Aug									6					87											93
16-Aug									6					102											108
17-Aug										33				67											100
18-Aug									7					37											44
19-Aug						3							0												3
20-Aug										2					0										2
21-Aug										0					0										0
22-Aug					0									24											24
23-Aug									69	-77															-8
24-Aug									30	-11				2	-6										15
25-Aug									0	0	0	0		21	-21										0
26-Aug							0	0	0	0															0
27-Aug													21	-18											3
28-Aug													19	-22											-3
29-Aug											17	-16													1
30-Aug									8	-8															0
31-Aug													28												28
1-Sep												0													0
2-Sep																									0
																									12,225

Appendix 15 Larson Lake 2011 – Update

Adult Migration		
Dates:	17-Jul to 2-Sep	
	No.	%
Sockeyes:	12,225	100
Mortalities:	0	
Major Age Classes		
Age 1.1:	26	0.21%
Age 0.3:	51	0.42%
Age 1.2:	2,660	21.76%
Age 1.3:	6,241	51.05%
Age 2.2:	869	7.11%
Age 1.4:	26	0.21%
Age 2.3:	2,353	19.24%
Coho:	11	
King:	1	
Pink:	15	
Chum:	6	
Rainbow:	1	
Dolly Varden	0