

**Judd Lake
Adult Sockeye Salmon
Data Report
2012**

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The Judd Lake Project was made possible through 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 report is a synopsis of the monitoring and evaluation studies conducted for Judd Lake. This Judd Lake Data Report encompasses data collected from the 2012 adult sockeye salmon escapement.

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 later reports.

The Judd Lake Data Report was prepared by CIAA under award of a State of Alaska Designated Legislative Grant (09-DC-020) administered by the Alaska Department of Commerce, Community and Economic Development (DCCED). The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of the DCCED.

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ACKNOWLEDGEMENTS

Many individuals and agencies contributed to the success of the Judd Lake project in 2012. Appreciation is extended to the Cook Inlet Aquaculture Association intern Daniel Orlando, seasonal assistant Adam Grunwald, and full-time staff who invested many hours in planning and executing this project. Special thanks go to the Alaska Department of Fish and Game 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 Judd Lake. Judd Lake was not known to have a population of northern pike.

The 2012 Judd Lake adult escapement was enumerated from 25 July and continued daily until 2 September. During this time 18,715 adult sockeye salmon (*O. nerka*) returned to Talachulitna Creek. During the adult enumeration staff collected 1,098 samples of which 425 adult sockeye salmon scale samples were readable for age composition. The age composition of the sockeye salmon escapement was largely comprised of age group 1.3 at 76.94%, followed by age group 2.3 at 15.06%, age group 1.2 at 6.35%, and age group 2.2 at 1.64%. Male sockeye salmon comprised 39.52% with an average length of 579 mm (± 2 SE). Female sockeye salmon comprised 60.47% with an average length of 542 mm (± 2 SE).

Staff recorded basic environmental conditions from 18 July through 5 September. Accumulated rainfall was measured at 329 mm, water level fluctuated in Talachulitna Creek 1.74 feet, water temperature averaged 12°C, and air temperature averaged 14°C.

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INTRODUCTION AND PURPOSE

To better understand the recent low adult sockeye salmon 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 (*Oncorhynchus nerka*) 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 performance of 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 Judd Lake to assess sockeye salmon returns to the Susitna River drainage has been conducted since 2006. Judd 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.

From 2009 to 2011, Judd Lake was monitored for adult sockeye salmon returns under an Alaska Sustainable Salmon Fund grant. Results from this evaluation indicated that continual monitoring of returns to Judd Lake would provide essential and important data for managers of the Upper Cook Inlet fisheries. Under a State Legislative Grant, CIAA continued with the assessment for another year (2012).

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PROJECT AREA

Judd Lake is located in the Yentna River basin of the larger Susitna River drainage. Judd Lake is classified in the Catalog of Waters as being important for spawning, rearing, or migration of anadromous fishes—Southcentral Region as water body number, 247-41-10200-2053-3205-4053-5066-0010 (Johnson and Blanche, 2010). The lake discharges via Talachulitna Creek where monitoring activities took place near the outlet of the lake (AWC 247-41-10200-2053-3205-4053-5066). Figure 2 displays a bathymetric data of Judd Lake (Glick, 2011).

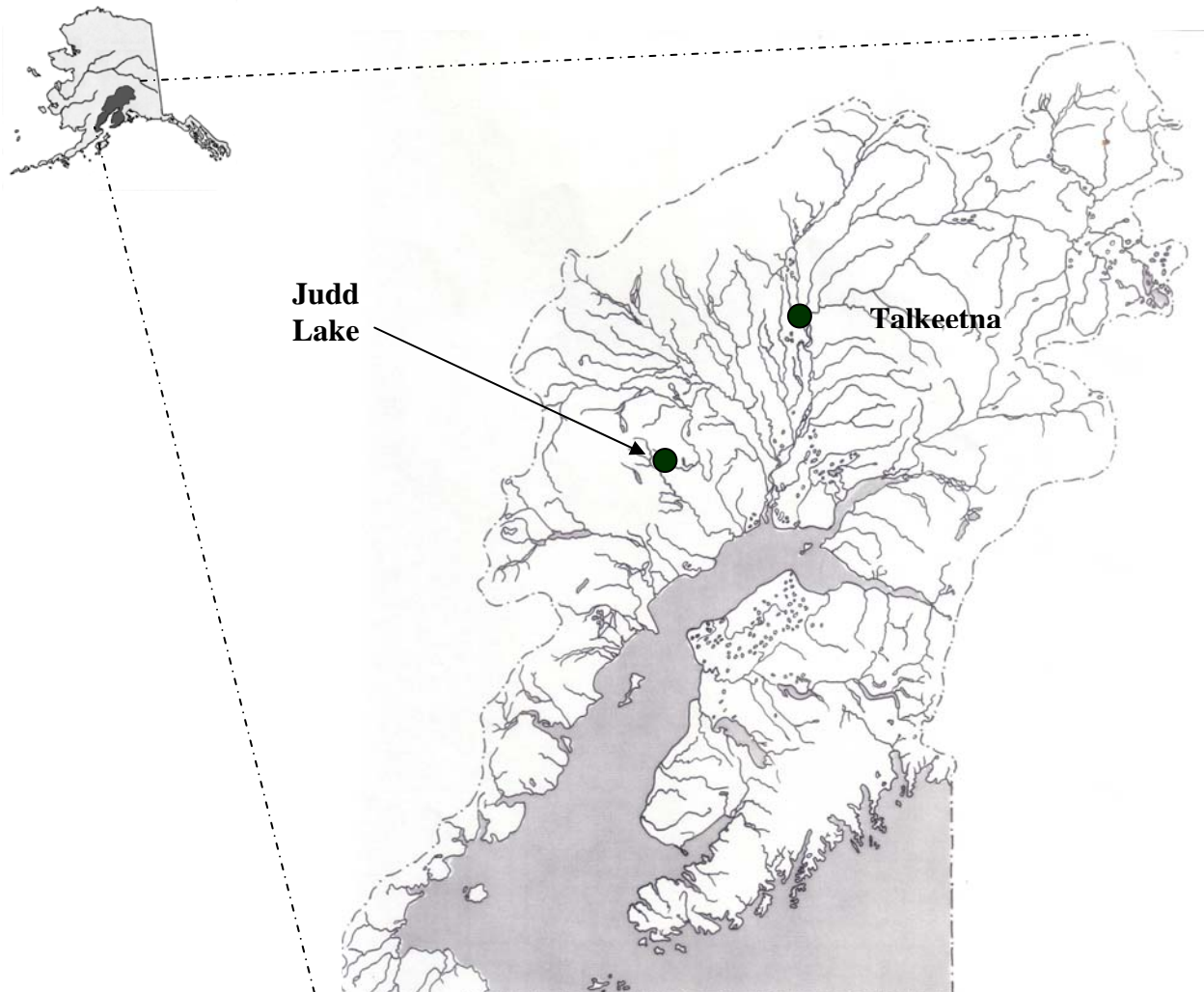


Figure 1. Judd Lake in relation to Cook Inlet and Alaska

JUDD LAKE
Latitude: 61° 34'
Longitude: 151° 33'
Elevation: 299 m
Area: $1.3 \times 10^6 \text{ m}^2$
Contours in meters

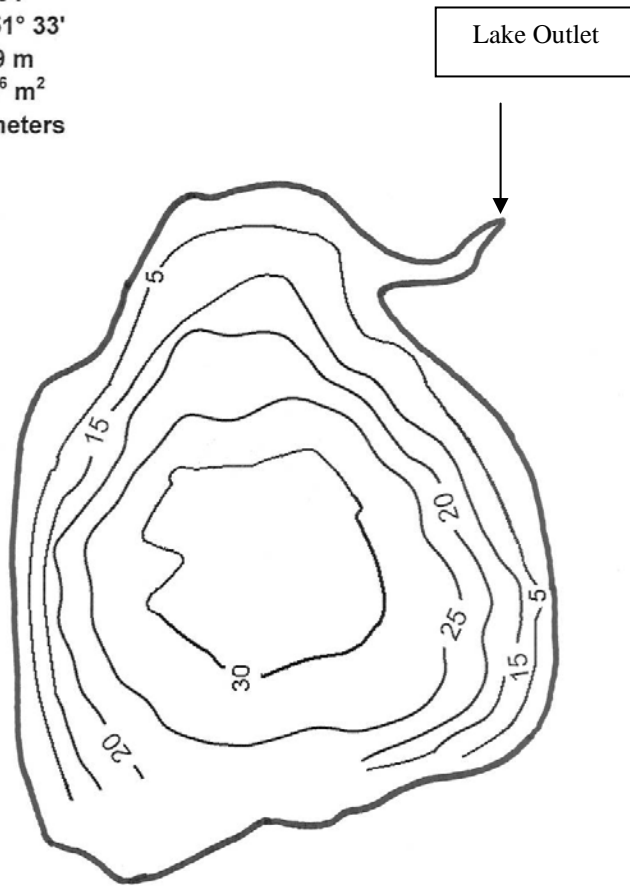


Figure 2. Bathymetric Map of Judd Lake

METHODS

Standard CIAA procedures were followed for collecting data for environmental conditions and adult enumerations (Cook Inlet Aquaculture Association Staff, 2012).

Environmental Conditions

To assess the environmental conditions during the adult sockeye salmon migration to Judd Lake, percent cloud cover was visually estimated, water levels were recorded 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 PM each day. Stream stage was not comparable from year to year.

Adult Enumeration

To enumerate and collect adult salmon returning to Judd Creek, a counting weir was temporarily installed in Judd Creek. 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, spaced 2.54 cm apart, in the aluminum channel.

Field personnel visually identified species and counted the adult fish as they ascended Judd 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 the year for analysis.

In addition to the enumeration of the adult salmon escapement, the sex, age, and lengths from mid eye to tail fork (METF) of the returning population of sockeye salmon were also assessed by collecting a sample of up to 40 sockeye salmon a day as they passed through the weir. The sex of each adult sockeye salmon collected was visually determined and the METF measured to the nearest millimeter. For age evaluation, field personnel collected scale samples from the primary growth area¹ of each individual. All scales were submitted to ADF&G for age determination. All captured fish were unharmed and released upstream.

During the 2012 adult enumeration staff collected 1,098 samples of which 425 adult sockeye scale samples were analyzed for age composition. The large discrepancy between the number of

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.*

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 travel from the field site to the office, unreadable scales due to poor scale quality, and limited ADF&G staff time to read all scale samples collected.

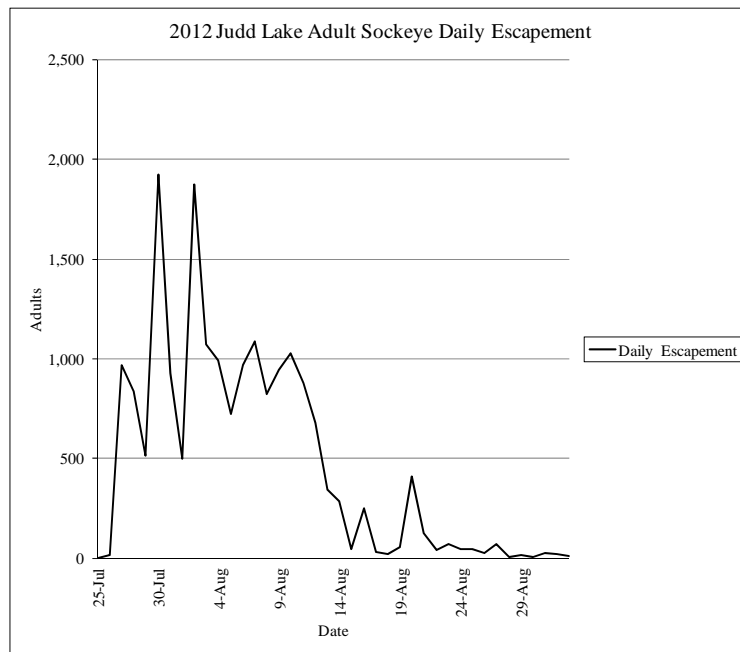
RESULTS AND DISCUSSION

Environmental Conditions

During the 2012 adult sockeye migration environmental conditions were monitored from 18 July to 5 September. Water levels fluctuated 1.74 feet during the monitoring period. Stream temperatures averaged 12°C and ranged from 8 to 14°C. Air temperatures averaged 14°C and ranged from 6 to 22°C. None of the days were clear, 58% were partly cloudy, and 42% were completely overcast. Measurable rain was recorded on 25 days during the adult migration. A total of 329 mm of rain fell during this period.

Adult Enumeration

The 2012 Judd Lake adult escapement was enumerated from 25 July and continued daily until 2 September. During this time 18,715 adult sockeye salmon (*O. nerka*) returned to Talachulitna Creek.



Other fish counted during this time were 176 adult coho salmon (*O. kisutch*), 1 adult Chinook salmon (*O. tshawytscha*), 11 adult pink salmon (*O. gorbuscha*), 45 adult chum salmon (*O. keta*), 2 adult rainbow trout (*O. mykiss*), and 7 adult Dolly Varden (*Salvelinus malma*).

The age composition of the sockeye salmon escapement was largely comprised of age group 1.3 at 76.94%, followed by age group 2.3 at 15.06%, age group 1.2 at 6.35%, and age group 2.2 at 1.64%. Male sockeye salmon comprised 39.52% with an average length of 579 mm (± 2 SE). Female sockeye salmon comprised 60.47% with an average length of 542 mm (± 2 SE).

Table 1. Summary of Judd Lake Adult Sockeye Salmon Characteristics, 2006–2012

Year	Escapement	Age Classes																	
		0.3		1.2		2.1		1.3		2.2		1.4		2.3		3.2		3.3	
		(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)
2006	40,633	0.00%	-	18.67%	491	0.00%	-	66.74%	555	4.72%	514	0.00%	-	9.87%	555	0.00%	-	0.00%	-
2007	57,392	0.00%	-	10.07%	479	0.00%	-	70.65%	563	7.17%	480	0.34%	610	11.77%	553	0.00%	-	0.00%	-
2008	53,681	0.00%	-	1.43%	503	0.18%	336	79.50%	573	2.50%	478	0.36%	581	15.87%	557	0.00%	-	0.18%	593
2009	44,602	0.00%	-	10.27%	497	0.00%	-	48.83%	566	17.26%	512	0.16%	621	23.48%	556	0.00%	-	0.00%	-
2010	18,466	0.00%	-	4.02%	488	0.00%	-	24.68%	562	1.10%	506	0.00%	-	69.84%	559	0.36%	556	0.00%	-
2011	39,909	0.37%	548	2.19%	478	0.00%	-	91.80%	571	1.10%	500	0.00%	-	4.55%	562	0.00%	-	0.00%	-
2012	18,715	0.00%	-	6.35%	481	0.00%	-	76.94%	565	1.64%	497	0.00%	-	15.06%	552	0.00%	-	0.00%	-
Mean	39,057	0.05%	548	7.57%	488	0.03%	336	65.59%	565	5.07%	498	0.12%	604	21.49%	556	0.05%	556	0.03%	593
Min	18,466	0.00%	548	1.43%	478	0.00%	336	24.68%	555	1.10%	478	0.00%	581	4.55%	552	0.00%	556	0.00%	593
Max	57,392	0.37%	548	18.67%	503	0.18%	336	91.80%	573	17.26%	514	0.36%	621	69.84%	562	0.36%	556	0.18%	593

RECOMMENDATIONS

Judd Lake is considered to be one of the major sockeye salmon producing lakes in the Susitna River watershed and future monitoring of the adult salmon escapement should continue.

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LITERATURE CITED

Cook Inlet Aquaculture Association Staff. 2012. Judd Lake Procedures Manual. Cook Inlet Aquaculture Association 40610 Kalifornsky Beach Road Kenai, Alaska 99611.

Glick, William. 2011. Bathymetric Map and Data of Judd Lake. Alaska Department of Fish and Game Commercial Fisheries Division, Soldotna, Alaska 99611.

Johnson, J. and P. Blanche. 2010. Catalog of waters important for spawning, rearing, or migration of anadromous fishes – Southcentral Region, Effective June 1, 2010. Alaska Department of Fish and Game, Special Publication No. 10-06, Anchorage, page 304.

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APPENDICES

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Appendix 1. Judd Lake 2012 – Environmental Conditions

Date	Sky	Precip. (mm)	Stage* (ft)	Flow	Water	Air
					Temp. (°C)	Temp. (°C)
18-Jul	2	0	1.38	ND	14	20
19-Jul	2	0	1.36	ND	13	20
20-Jul	5	0	1.32	ND	12	13
21-Jul	5	9	1.34	ND	12	11
22-Jul	5	19	1.53	ND	12	14
23-Jul	4	1	1.15	ND	11	11
24-Jul	3	0	1.46	ND	12	15
25-Jul	2	0	1.40	ND	13	19
26-Jul	2	0	1.34	ND	13	16
27-Jul	2	0	1.30	ND	13	20
28-Jul	2	0	1.26	ND	14	18
29-Jul	4	0	1.21	ND	13	12
30-Jul	4	26	1.36	ND	13	11
31-Jul	3	1	1.34	ND	13	16
1-Aug	5	13	1.36	ND	12	10
2-Aug	4	26	1.76	ND	11	10
3-Aug	3	0	1.70	ND	12	13
4-Aug	4	7	1.67	ND	11	10
5-Aug	3	1	1.60	ND	12	16
6-Aug	3	0	1.52	ND	12	18
7-Aug	3	0	1.46	ND	12	17
8-Aug	2	0	1.40	ND	12	20
9-Aug	2	0	1.35	ND	13	19
10-Aug	3	0	1.30	ND	14	17
11-Aug	2	0	1.25	ND	14	22
12-Aug	2	0	1.20	ND	14	21
13-Aug	2	0	1.18	ND	14	19
14-Aug	2	0	1.12	ND	14	18
15-Aug	3	0	1.09	ND	14	16
16-Aug	3	1	1.08	ND	13	14
17-Aug	3	0	1.05	ND	14	16
18-Aug	5	2	1.02	ND	12	9
19-Aug	5	7	1.04	ND	12	11
20-Aug	4	37	1.46	ND	12	11
21-Aug	2	10	1.56	ND	12	15
22-Aug	2	0	1.51	ND	12	16
23-Aug	5	20	1.60	ND	12	10
24-Aug	3	1	1.56	ND	11	13
25-Aug	4	0	1.50	ND	12	15
26-Aug	5	1	1.45	ND	11	10
27-Aug	2	2	1.49	ND	11	14
28-Aug	2	0	1.38	ND	11	15
29-Aug	3	0	1.33	ND	11	15
30-Aug	5	13	1.37	ND	11	9
31-Aug	5	23	1.60	ND	10	8
1-Sep	5	23	1.88	ND	10	12
2-Sep	5	6	1.89	ND	10	7
3-Sep	4	37	2.40	ND	9	9
4-Sep	5	6	2.21	ND	9	6
5-Sep	3	40	2.76	ND	8	9
Total		329				
Avg.		7	-	ND	12	14
Min.		0	1.02	ND	8	6
Max.		40	2.76	ND	14	22
* This data reflects fluctuations in water level only.						
Summary of Cloud Cover - Percent of Days						
	No. Days	Meas. Rain	Overcast		Partly Cloudy	Clear
Adults	50	50%	42%		58%	0%
1 = Clear 2 = Cloud Cover <50% 3 = Cloud Cover >50% 4 = Overcast 5 = Rain						
ND = No Data						

Appendix 2. Judd Lake 2012 – Adult Escapement

Date	Sockeye		Coho	Chinook	Pink	Chum	Rainbow	Dolly Varden
	Daily Escapement	Total Return	Daily Escapement	Daily Escapement	Daily Escapement	Daily Escapement	Daily Escapement	Daily Escapement
25-Jul	1	1	0	0	0	0	0	0
26-Jul	18	19	0	0	0	0	1	2
27-Jul	966	985	0	1	0	0	1	0
28-Jul	840	1,825	0	0	0	0	4	2
29-Jul	516	2,341	0	0	0	1	0	2
30-Jul	1926	4,267	0	-2	0	1	2	1
31-Jul	927	5,194	0	1	0	0	0	1
1-Aug	499	5,693	0	0	1	2	0	1
2-Aug	1873	7,566	0	3	4	13	1	2
3-Aug	1070	8,636	0	2	6	12	0	0
4-Aug	993	9,629	0	2	36	15	2	3
5-Aug	721	10,350	0	0	20	6	0	0
6-Aug	968	11,318	0	-1	30	-1	0	0
7-Aug	1089	12,407	0	-1	49	7	0	0
8-Aug	821	13,228	0	-2	23	1	2	0
9-Aug	943	14,171	0	0	57	12	1	0
10-Aug	1026	15,197	0	0	34	2	0	2
11-Aug	879	16,076	0	-1	76	0	2	2
12-Aug	678	16,754	0	0	-22	11	2	-1
13-Aug	343	17,097	0	0	123	7	0	0
14-Aug	286	17,383	0	0	112	11	1	1
15-Aug	48	17,431	1	0	46	5	0	0
16-Aug	251	17,682	3	0	-14	6	2	0
17-Aug	33	17,715	0	0	12	7	0	0
18-Aug	19	17,734	0	0	6	1	0	0
19-Aug	56	17,790	0	0	7	6	1	0
20-Aug	409	18,199	19	0	28	27	0	-1
21-Aug	125	18,324	4	1	10	9	0	0
22-Aug	40	18,364	0	0	0	0	0	0
23-Aug	72	18,436	6	0	4	6	0	0
24-Aug	47	18,483	5	0	-3	-1	0	0
25-Aug	45	18,528	2	0	3	-1	0	0
26-Aug	26	18,554	5	0	-4	1	0	0
27-Aug	72	18,626	30	0	-7	2	0	-3
28-Aug	8	18,634	0	0	-5	2	0	0
29-Aug	15	18,649	1	0	3	0	0	0
30-Aug	7	18,656	0	0	0	0	0	0
31-Aug	24	18,680	31	0	0	-2	0	0
1-Sep	22	18,702	65	0	1	0	0	0
2-Sep	13	18,715	4	0	-1	0	1	0
Total		18,715	176	3	635	168	23	14

*Negative numbers in the daily counts reflect fish that migrated downstream of the weir.

Appendix 3. Judd Lake 2012 – Age, Sex, and Length Composition of Sockeye Salmon Escapement

Sample period: 25 July - 2 September	Age Group				Total
	1.2	1.3	2.2	2.3	
Males	352	6,341	43	661	7,396
Percent	1.88%	33.88%	0.23%	3.53%	39.52%
Sample Size	8	144	1	15	168
Mean Lth (mm)	507	584	537	567	579
Std. Error	10	2	ND	7	2
Females	837	8,059	264	2,158	11,317
Percent	4.47%	43.06%	1.41%	11.53%	60.47%
Sample Size	19	183	6	49	257
Mean Lth (mm)	470	550	490	548	542
Std. Error	8	2	10	4	2
Both Sexes	1,188	14,399	307	2,818	18,715
Percent	6.35%	76.94%	1.64%	15.06%	100.0%
Sample Size	27	327	7	64	425
Mean Lth (mm)	481	565	497	552	557
Std. Error	6	1	10	3	1

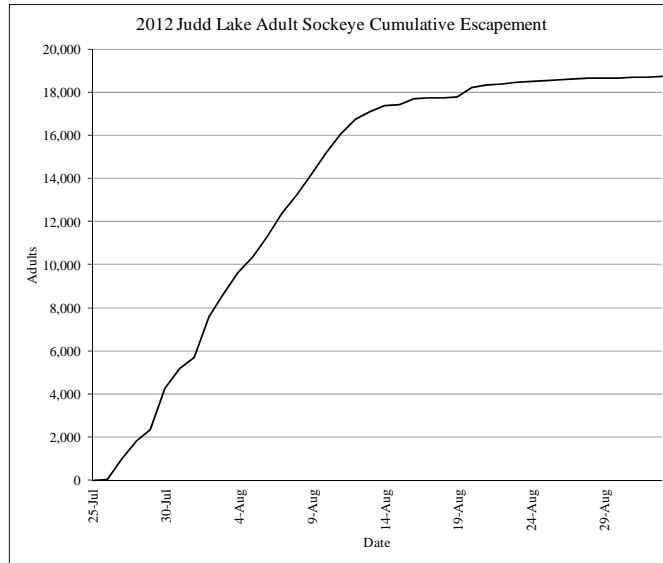
ND = No Data

Appendix 4. Judd Lake 2012 – Adult Sockeye Escapement Hourly Log

Date	AM							PM												No.	
	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12		
25-Jul													1								1
26-Jul																3	6	6	3		18
27-Jul								9	6		13	28	203	391	2	314					966
28-Jul			53	43			11			25	74	59	12	179	368	16					840
29-Jul			8						24	7	114	184	10	107	3	59					516
30-Jul		308	174		108	4			86	78	42	457	362	4	268	35					1,926
31-Jul			177				50			143	60	6	233	180	41	37					927
1-Aug			127					39		6	10	13	284	20							499
2-Aug			410	112	366					8	513	11	263		190						1,873
3-Aug			16						301		6	282			315	150					1,070
4-Aug			109					17	368	7	195				223	74					993
5-Aug			126					10				251		82		252					721
6-Aug			77						10	122		133		444		182					968
7-Aug			180					109			301	189	107	153	50						1,089
8-Aug			82					5		3	150	32	50	228	271						821
9-Aug			250						11	56		52		382	104	88					943
10-Aug			170								14	276		449		117					1,026
11-Aug				117							13	12	6	322	223	186					879
12-Aug			126									42	157	80	178	95					678
13-Aug				27							13			78	121	104					343
14-Aug			64								9	1	8	14	3		152	35			286
15-Aug			17										6		17	5	3				48
16-Aug												13	20	7		211					251
17-Aug												14		7	3	9					33
18-Aug												0		7	9	3					19
19-Aug												10	6	5	16	19					56
20-Aug								10	30	23	184	120			42						409
21-Aug								11	1			21	23			69					125
22-Aug													23	4	8	4	1				40
23-Aug												12	14	4	31	11					72
24-Aug											6	23		11		7					47
25-Aug											18		17	6	4						45
26-Aug										6	13			7							26
27-Aug												49		21	2						72
28-Aug									2			3		3							8
29-Aug												5	10								15
30-Aug												6	5	-4	0						7
31-Aug												6	13	5							24
1-Sep												7	7	0	8						22
2-Sep												9	5	-1							13
																					18,715

Appendix 5. Judd Lake 2012 – Update

Dates:	25-Jul to 2-Sep	
	No.	%
Sockeyes:	18,715	100%
Mortalities:	0	0%
Age 1.2:	1,188	6.35%
Age 1.3:	14,399	76.94%
Age 2.2:	307	1.64%
Age 2.3:	2,818	15.06%
Coho:	176	
King:	3	
Pink:	635	
Chum:	168	
Rainbow:	23	
Dolly Varden	14	



Appendix 6. Judd Lake 2012 – Historical Adult Sockeye Salmon Escapements

Date	1989	2006	2007	2008	2009	2010	2011	2012
11-Jul	ND	ND	0	ND	ND	ND	ND	ND
12-Jul	ND	ND	0	ND	ND	ND	ND	ND
13-Jul	0	0	0	ND	ND	0	ND	ND
14-Jul	0	0	0	ND	ND	0	ND	ND
15-Jul	0	0	0	ND	ND	0	ND	ND
16-Jul	0	0	0	ND	0	0	ND	ND
17-Jul	0	0	0	0	0	0	0	ND
18-Jul	0	0	0	0	0	0	0	ND
19-Jul	0	0	0	0	0	0	0	ND
20-Jul	0	0	0	0	0	0	0	ND
21-Jul	0	0	0	0	0	0	0	ND
22-Jul	0	0	0	0	2	0	0	ND
23-Jul	0	0	0	0	2	0	0	ND
24-Jul	0	0	0	0	19	164	45	ND
25-Jul	2	92	4	0	1,035	174	847	1
26-Jul	49	821	13	0	2,065	174	3,824	19
27-Jul	931	1,863	96	0	4,257	224	6,883	985
28-Jul	1,624	2,801	574	0	8,449	838	9,628	1,825
29-Jul	2,362	4,942	2,237	874	12,645	1,398	12,096	2,341
30-Jul	2,827	5,512	5,813	1,898	14,870	2,969	14,902	4,267
31-Jul	3,559	7,314	7,757	9,421	17,108	3,773	17,618	5,194
01-Aug	4,618	8,406	9,536	13,244	19,243	5,098	21,633	5,693
02-Aug	5,647	12,522	11,587	17,913	22,476	7,445	26,231	7,566
03-Aug	6,532	15,118	15,387	18,692	23,059	8,853	27,637	8,636
04-Aug	7,465	16,987	18,324	19,422	24,485	10,074	28,093	9,629
05-Aug	8,569	19,815	21,848	25,905	25,144	10,556	28,605	10,350
06-Aug	9,361	21,399	24,198	31,012	25,715	11,499	28,721	11,318
07-Aug	10,008	24,657	26,872	31,911	26,615	12,365	29,780	12,407
08-Aug	10,539	28,028	29,984	37,992	28,231	13,171	30,965	13,228
09-Aug	11,091	31,444	33,110	40,061	30,483	13,694	32,026	14,171
10-Aug	11,662	32,170	34,847	41,149	31,684	14,144	33,101	15,197
11-Aug	11,878	34,967	36,940	41,960	33,238	14,801	33,764	16,076
12-Aug	11,926	35,864	38,639	43,556	35,599	15,286	34,605	16,754
13-Aug	12,190	37,161	39,634	45,492	37,868	15,606	35,347	17,097
14-Aug	12,328	38,777	41,886	46,787	39,785	16,111	36,111	17,383
15-Aug	12,376	39,409	43,603	47,226	41,170	16,515	36,776	17,431
16-Aug	12,437	39,580	45,579	48,125	42,021	16,995	37,305	17,682
17-Aug	12,557	39,753	47,589	48,450	42,445	17,186	37,857	17,715
18-Aug	12,580	39,931	49,252	48,965	43,017	17,533	38,255	17,734
19-Aug	12,613	40,421	50,128	49,167	43,622	17,614	38,777	17,790
20-Aug	12,632	40,542	51,316	49,628	43,843	17,627	39,155	18,199
21-Aug	12,648	40,633	52,597	49,899	44,023	17,691	39,253	18,324
22-Aug	12,690	ND	53,728	50,190	44,123	17,700	39,363	18,364
23-Aug	12,729	ND	54,744	50,484	44,174	17,745	39,444	18,436
24-Aug	12,741	ND	55,132	50,762	44,224	17,893	39,519	18,483
25-Aug	12,768	ND	55,498	50,929	44,295	18,010	39,569	18,528
26-Aug	12,789	ND	55,881	51,057	44,347	18,097	39,617	18,554
27-Aug	12,792	ND	56,205	51,269	44,438	18,114	39,649	18,626
28-Aug	ND	ND	56,476	51,432	44,475	18,196	39,680	18,634
29-Aug	ND	ND	56,691	52,031	44,574	18,279	39,702	18,649
30-Aug	ND	ND	56,735	52,277	44,615	18,326	39,725	18,656
31-Aug	ND	ND	56,876	52,461	44,650	18,355	39,811	18,680
01-Sep	ND	ND	56,928	52,560	44,665	18,382	39,848	18,702
02-Sep	ND	ND	56,980	52,742	44,652	18,418	39,865	18,715
03-Sep	ND	ND	57,051	53,349	44,655	18,452	39,896	ND
04-Sep	ND	ND	57,099	53,608	44,633	18,466	39,909	ND
05-Sep	ND	ND	57,169	53,654	44,619	ND	ND	ND
06-Sep	ND	ND	57,219	53,681	44,608	ND	ND	ND
07-Sep	ND	ND	57,251	ND	44,602	ND	ND	ND
08-Sep	ND	ND	57,336	ND	ND	ND	ND	ND
09-Sep	ND	ND	57,345	ND	ND	ND	ND	ND
10-Sep	ND	ND	57,348	ND	ND	ND	ND	ND
11-Sep	ND	ND	57,356	ND	ND	ND	ND	ND
12-Sep	ND	ND	57,392	ND	ND	ND	ND	ND

ND = No Data