

**Fish Lake
Adult Sockeye Salmon
Data Report
2009**

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2012**

The Fish 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 Fish Lake. This Fish Lake Data Report encompasses data collected from the 2009 adult sockeye salmon escapement 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 Fish 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, 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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ACKNOWLEDGEMENTS

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ABSTRACT

As part of the continued evaluation of lakes in the Susitna River watershed to determine the sockeye salmon (*Onchorynchus 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 Fish Lake. Fish Lake was suspected to have a population of northern pike.

During the 2009 adult salmon escapement, environmental conditions were monitored from 22 July and continued daily until 7 September. Water levels fluctuated 0.33 feet during that time period. Stream temperatures averaged $16.0 \pm 1.5^{\circ}\text{C}$, while air temperatures averaged $18.0 \pm 4.4^{\circ}\text{C}$. A total of 174 mm of rain fell during this period.

During this time and estimated 548 adult sockeye salmon (*O. nerka*) returned to Fish Lake. Age, weight and length data was only collected on 17 fish and therefore the data is not statistically valid.

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INTRODUCTION AND PURPOSE

To better understand the recent low adult sockeye salmon (*Oncorhynchus nerka*) returns to Upper Cook Inlet, 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, CIAA and/or ADF&G are recording environmental conditions and water quality measurements 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 Fish Lake was completed in the second year of a three year effort to enumerate sockeye salmon returns to the Susitna River drainage. Fish Lake was chosen for enumeration because invasive northern pike were suspected to be present (Southcentral Alaska Northern Pike Control Committee, No Date).

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PROJECT AREA

Fish Lake is located approximately 6 km south of Talkeetna, Alaska (Figure 1). The lake is a base for floatplane operations located off the Talkeetna Spur Highway. Significant vegetation along the lake is alder (*Alnus spp.*), birch (*Betula spp.*), and scattered white spruce (*Picea glauca*). The lake has a maximum depth of 12 m, a mean depth of 4.07 m, and is located at an elevation 300 m above sea level (Figure 2). Fish Lake has discharge outflow via Birch Creek flowing southwest to the Susitna River.

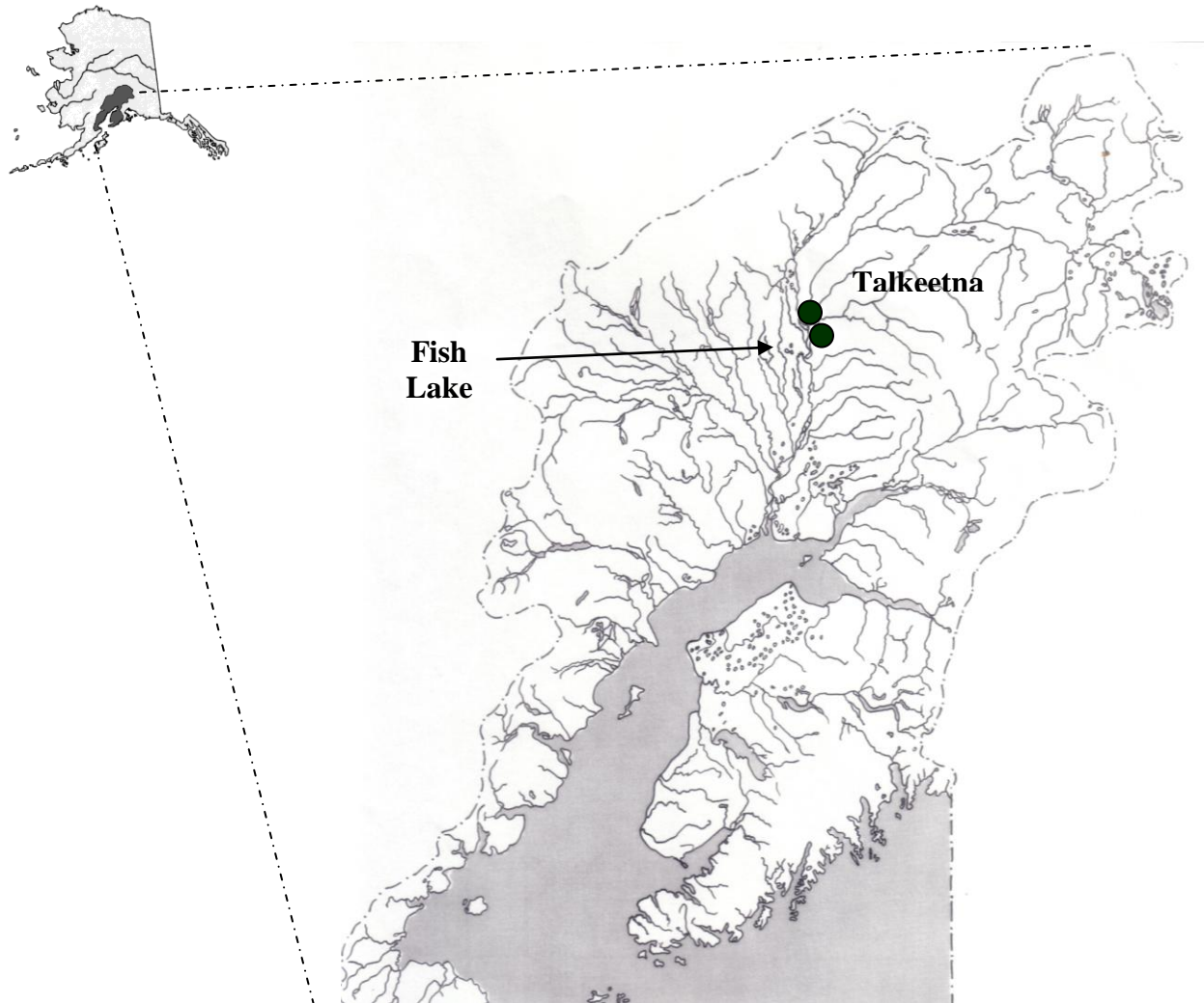
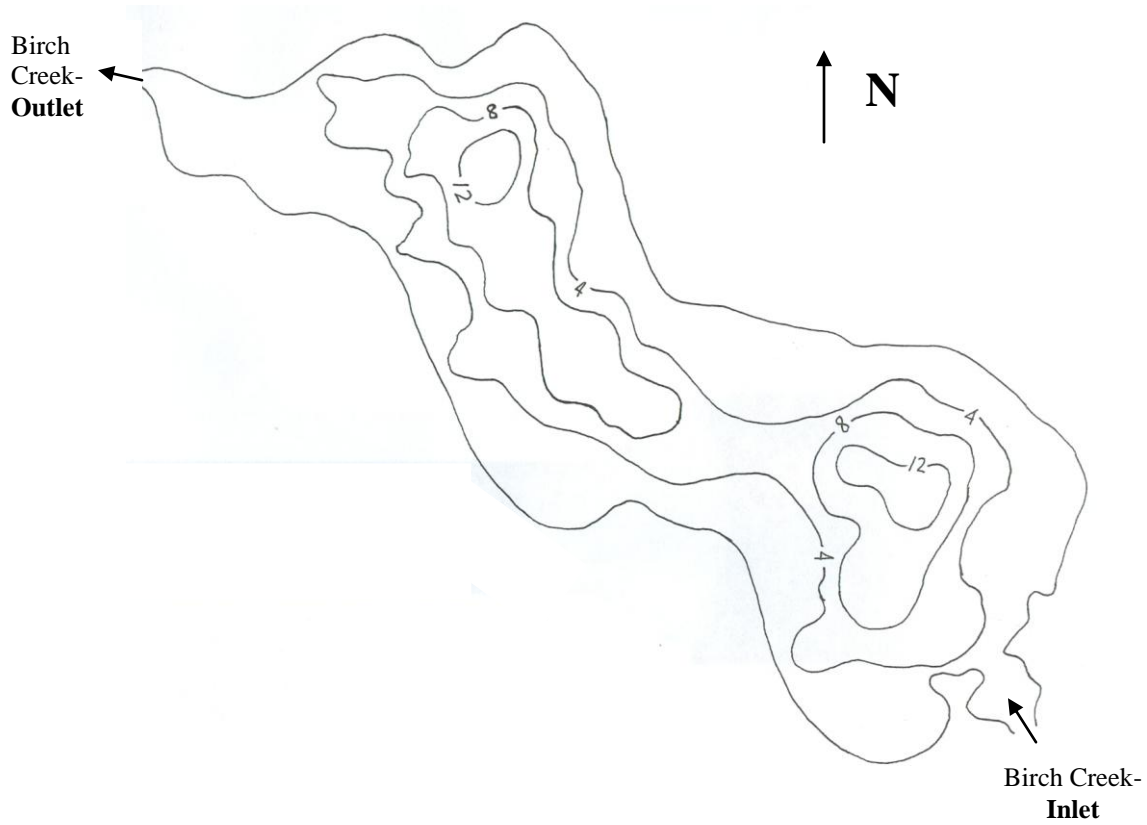


Figure 1 Fish Lake in relation to Cook Inlet and Alaska

Fish Lake



Geographic Location: 62°25' North Latitude
150°06' West Longitude

Elevation: 330 m
Maximum Depth: 12 m
Mean Depth: 4.07 m
(ADF&G)

Figure 2 Hydrographic map of Fish Lake

METHODS

Environmental Conditions

To assess the environmental conditions during the adult sockeye salmon migration to Fish Lake, percent cloud cover was visually estimated, stream stage was measured to the nearest tenth of a foot, precipitation measured to the nearest millimeter and water and air temperatures to the nearest 1°C were recorded at 5:00 PM each day. Standard CIAA procedures were followed for collecting these observations (CIAA, 2009).

Adult Enumeration

To enumerate returning adult salmon and facilitate data collection, a counting weir was temporarily installed in Birch 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 in the aluminum channel spaced 2.54 cm apart.

Field personnel visually checked the weir several times a day and to open the 1-2 pickets on the weir to enumerate and allow fish to move upstream. CIAA adult salmon enumeration normally includes an assessment of the sex, age, and mideye fork length (MEF)¹ of up to 40 randomly selected adult sockeye salmon daily. However, this data collection was abandoned when it became apparent that the fish were being unduly stressed during the procedure.

^{1S} MEF length is defined as the measurement to the nearest millimeter from the middle of the eye to the fork of the tail.

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RESULTS AND DISCUSSION

Environmental Conditions

During the 2009 adult salmon escapement, environmental conditions were monitored from 22 July to 7 September. Water levels fluctuated 0.33 feet during that time period. Water levels dropped on a daily basis until August 13 when a significant rainstorm passed through the area. Stream temperatures averaged $16^{\circ}\text{C} \pm 1.5^{\circ}\text{C}$, while air temperatures averaged $18 \pm 4.4^{\circ}\text{C}$. Nine percent of the days were clear, 51% were partly cloudy, and 40% were completely overcast. Measurable rain was recorded on 29 days during the adult escapement. A total of 174 mm of rain fell during this period.

Adult Enumeration

The 2009 Fish Lake adult salmon escapement was enumerated from 22 July and continued daily until 7 September. During this time, 548 adult sockeye (*O. nerka*) passed through the weir. Other fish counted were 322 adult coho salmon (*O. kisutch*), 63 adult king salmon (*O. tshawytscha*), 322 adult pink salmon (*O. gorbuscha*), 73 adult chum salmon (*O. keta*), 20 adult rainbow trout (*O. mykiss*), and 1 adult dolly varden (*Salvelinus malma malma*).

Only 17 adult sockeye salmon were sampled for age, sex and length characteristics before sampling efforts were abandoned due to fish being unduly stressed during this procedure. Due to the small sample size, the results are not statistically valid, but the data is included in the appendices.

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RECOMMENDATIONS

Even though the number of sockeye salmon returning to Fish Lake in 2009 was relatively small, monitoring to assess fry rearing conditions and sockeye salmon smolt production from the 2009 spawning population is recommended for 2011. To assess the rearing conditions of the lake, the water quality and the zooplankton community in Fish Lake should also be sampled in 2011. This information could then be used to assess future management strategies for the lake.

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LITERATURE CITED

CIAA, 2009. Fish Lake Procedures Manual. Cook Inlet Aquaculture Association 40610
Kalifornsky Beach Road Kenai, Alaska 99611, page 20.

ADF&G (Alaska Department of Fish and Game). 2007. Management plan for invasive northern pike in Alaska. Alaska Department of Fish and Game, Southcentral Northern Pike Control Committee, Anchorage.
http://www.adfg.alaska.gov/staticsf/invasive_species/PDFs/pike_management_plan.pdf

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APPENDICES

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Appendix 1 Fish Lake 2009 – Environmental Conditions

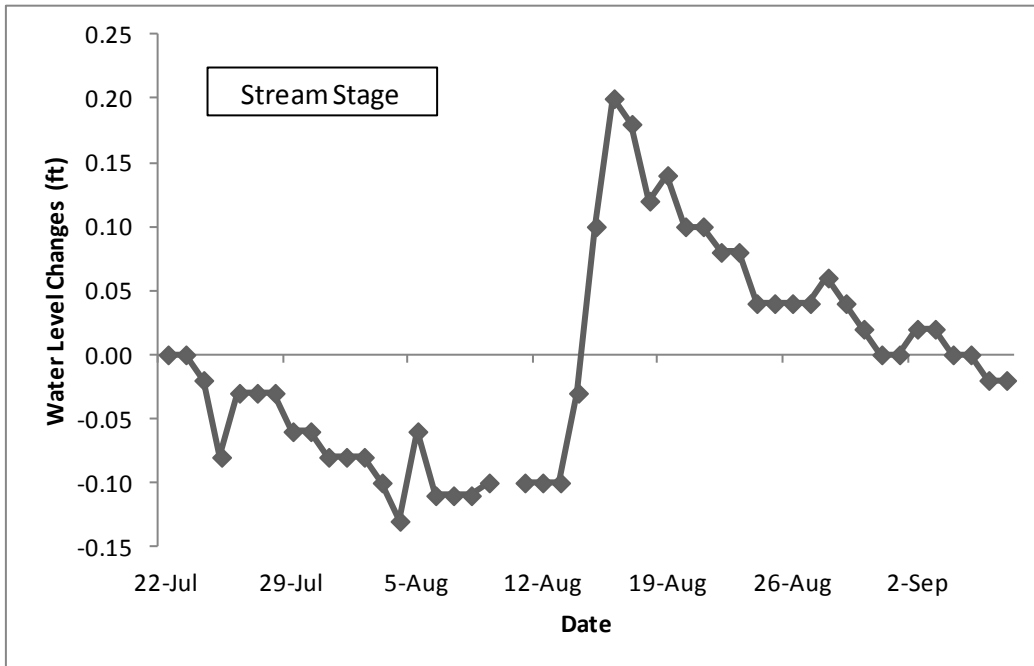
| Adult Migration | | | | | |
|-----------------|-----|-----------------|-------------------------|------------------------|----------------------|
| Date | Sky | Precip. (mm) | Stage Change (ft) | Water Temp. (°C) | Air Temp. (°C) |
| 22-Jul | 4 | 0.0 | 0.00 | 18 | 20 |
| 23-Jul | 3 | 2.5 | 0.00 | 18 | 20 |
| 24-Jul | 2 | 0.0 | -0.02 | 17 | 19 |
| 25-Jul | 5 | 3.5 | -0.08 | 17 | 15 |
| 26-Jul | 5 | 8.3 | -0.03 | 17 | 16 |
| 27-Jul | 4 | 1.5 | -0.03 | 16 | 20 |
| 28-Jul | 4 | 10.0 | -0.03 | 17 | 21 |
| 29-Jul | 4 | 1.5 | -0.06 | 18 | 19 |
| 30-Jul | 3 | 2.3 | -0.06 | 18 | 21 |
| 31-Jul | 3 | 2.6 | -0.08 | 18 | 17 |
| 1-Aug | 2 | 1.0 | -0.08 | 18 | 25 |
| 2-Aug | 2 | 0.0 | -0.08 | 17 | 24 |
| 3-Aug | 1 | 0.0 | -0.10 | 18 | 31 |
| 4-Aug | 3 | 0.0 | -0.13 | 18 | 27 |
| 5-Aug | 5 | 13.8 | -0.06 | 17 | 15 |
| 6-Aug | 4 | 6.2 | -0.11 | 17 | 14 |
| 7-Aug | 2 | 0.3 | -0.11 | 18 | 23 |
| 8-Aug | 2 | 0.0 | -0.11 | 19 | 23 |
| 9-Aug | 2 | 0.0 | -0.10 | 18 | 22 |
| 10-Aug | ND | ND | ND | ND | ND |
| 11-Aug | 2 | 0.0 | -0.10 | 17 | 19 |
| 12-Aug | 4 | 0.0 | -0.10 | 16 | 16 |
| 13-Aug | 5 | 12.0 | -0.10 | 15 | 12 |
| 14-Aug | 4 | 24.5 | -0.03 | 16 | 15 |
| 15-Aug | 5 | 14.0 | 0.10 | 16 | 15 |
| 16-Aug | 3 | 12.0 | 0.20 | 16 | 21 |
| 17-Aug | 2 | 0.0 | 0.18 | 16 | 22 |
| 18-Aug | 5 | 2.5 | 0.12 | 16 | 15 |
| 19-Aug | 2 | 8.5 | 0.14 | 16 | 18 |
| 20-Aug | 1 | 1.0 | 0.10 | 16 | 19 |
| 21-Aug | 1 | 0.0 | 0.10 | 16 | 24 |
| 22-Aug | 2 | 0.0 | 0.08 | 16 | 18 |
| 23-Aug | 5 | 6.5 | 0.08 | 15 | 12 |
| 24-Aug | 2 | 3.5 | 0.04 | 16 | 13 |
| 25-Aug | 2 | 0.1 | 0.04 | 14 | 17 |
| 26-Aug | 5 | 11.0 | 0.04 | 14 | 13 |
| 27-Aug | 3 | 4.0 | 0.04 | 14 | 18 |
| 28-Aug | 5 | 1.3 | 0.06 | 14 | 15 |
| 29-Aug | 2 | 6.0 | 0.04 | 14 | 17 |
| 30-Aug | 4 | 0.3 | 0.02 | 14 | 14 |
| 31-Aug | 3 | 0.0 | 0.00 | 15 | 14 |
| 1-Sep | 5 | 5.0 | 0.00 | 14 | 11 |
| 2-Sep | 4 | 8.5 | 0.02 | 14 | 12 |
| 3-Sep | 2 | 0.0 | 0.02 | 14 | 15 |
| 4-Sep | 2 | 0.0 | 0.00 | 14 | 24 |
| 5-Sep | 1 | 0.0 | 0.00 | 14 | 22 |
| 6-Sep | 2 | 0.0 | -0.02 | 14 | 22 |
| 7-Sep | 2 | 0.0 | -0.02 | 15 | 17 |
| Total | | 174 | | | |
| Avg. | | 3.7 | | 16 | 18 |
| Min. | | 0.0 | -0.13 | 14 | 11 |
| Max. | | 24.5 | 0.20 | 19 | 31 |
| SD | | 5.3 | | 1.5 | 4.4 |

Summary of Cloud Cover - Percent of Days

| | No. Days | Meas. Rain | Overcast | Partly Cloudy | Clear |
|--------|----------|------------|----------|---------------|-------|
| Adults | 47 | 62% | 40% | 51% | 9% |

- 1.0 = Clear
- 2.0 = Cloud Cover <50%
- 3.0 = Cloud Cover >50%
- 4.0 = Overcast
- 5.0 = Rain
- ND = No Data

Appendix 2 Fish Lake 2009 Water Level Fluctuation

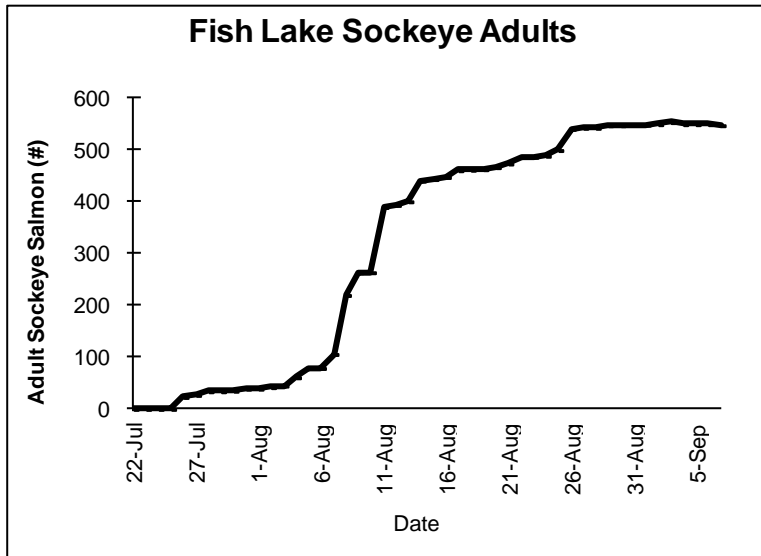


Appendix 3 Fish Lake 2009 – Adult Escapement

| Date | Sockeye | | Coho | King | Pink | Chum | Rainbow | D.V. |
|---------|------------------|--------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | Daily Escapement | Total Return | Daily Escapement | Daily Escapement | Daily Escapement | Daily Escapement | Daily Escapement | Daily Escapement |
| 22-Jul | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23-Jul | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24-Jul | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-Jul | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26-Jul | 23 | 23 | 0 | 0 | 0 | 0 | 1 | 0 |
| 27-Jul | 4 | 27 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28-Jul | 7 | 34 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29-Jul | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30-Jul | 1 | 35 | 0 | 2 | 0 | 0 | 0 | 0 |
| 31-Jul | 4 | 39 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1-Aug | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2-Aug | 3 | 42 | 0 | 0 | 0 | 1 | 0 | 1 |
| 3-Aug | 3 | 45 | 0 | 1 | 0 | 0 | 0 | 0 |
| 4-Aug | 16 | 61 | 0 | 0 | 2 | 0 | 2 | 0 |
| 5-Aug | 18 | 79 | 0 | 1 | 6 | 0 | 1 | 0 |
| 6-Aug | 0 | 79 | 0 | 0 | 1 | 0 | 0 | 0 |
| 7-Aug | 27 | 106 | 0 | -1 | 0 | 0 | 0 | 0 |
| 8-Aug | 114 | 220 | 0 | 16 | 14 | 0 | 0 | 0 |
| 9-Aug | 44 | 264 | 0 | 3 | -2 | 0 | 1 | 0 |
| 10-Aug | 0 | 264 | 0 | 1 | 1 | 0 | 0 | 0 |
| 11-Aug | 126 | 390 | 0 | 8 | 46 | 0 | 6 | 0 |
| 12-Aug | 4 | 394 | 0 | 19 | 18 | 0 | -1 | 0 |
| 13-Aug | 7 | 401 | 0 | 5 | 26 | 0 | 0 | 0 |
| 14-Aug | 40 | 441 | 21 | 15 | 77 | 0 | 0 | 0 |
| 15-Aug | 3 | 444 | 1 | -1 | 12 | 0 | 2 | 0 |
| 16-Aug | 4 | 448 | 2 | -1 | 0 | 0 | 0 | 0 |
| 17-Aug | 13 | 461 | 9 | -4 | 33 | 0 | 0 | 0 |
| 18-Aug | 1 | 462 | 2 | 0 | 22 | 0 | 0 | 0 |
| *19-Aug | 1 | 463 | 3 | 1 | 16 | 0 | 0 | 0 |
| 20-Aug | 4 | 467 | 10 | 6 | 3 | 1 | 0 | 0 |
| 21-Aug | 7 | 474 | 9 | -3 | 27 | 2 | 0 | 0 |
| 22-Aug | 13 | 487 | 2 | -1 | 18 | 2 | 2 | 0 |
| 23-Aug | 0 | 487 | 0 | 0 | 0 | 3 | 1 | 0 |
| 24-Aug | 2 | 489 | 7 | -3 | -1 | 1 | 1 | 0 |
| 25-Aug | 11 | 500 | 25 | 0 | 1 | 6 | 0 | 0 |
| 26-Aug | 41 | 541 | 11 | 1 | 3 | 1 | 3 | 0 |
| 27-Aug | 2 | 543 | 4 | -2 | 2 | 2 | 0 | 0 |
| 28-Aug | 0 | 543 | 0 | 0 | -1 | 11 | 0 | 0 |
| 29-Aug | 5 | 548 | 4 | 0 | -2 | 1 | 0 | 0 |
| 30-Aug | 0 | 548 | 2 | 0 | 1 | 10 | 2 | 0 |
| 31-Aug | 1 | 549 | 14 | 0 | 0 | 3 | 1 | 0 |
| 1-Sep | 0 | 549 | 0 | 0 | -1 | 4 | 0 | 0 |
| 2-Sep | 1 | 550 | 25 | 0 | 0 | 13 | 0 | 0 |
| 3-Sep | 4 | 554 | 114 | 0 | 0 | 7 | -1 | 0 |
| 4-Sep | -4 | 550 | 5 | 0 | 0 | 4 | 1 | 0 |
| 5-Sep | 0 | 550 | 0 | 0 | 0 | -2 | -1 | 0 |
| 6-Sep | 0 | 550 | 26 | 0 | 0 | 3 | -2 | 0 |
| 7-Sep | -2 | 548 | 26 | 0 | 0 | 0 | 0 | 0 |
| Total | 548 | | 322 | 63 | 322 | 73 | 20 | 1 |

* August 19 - Crew conducted stream survey counting 20 adult sockeye salmon in Birch Creek.

Appendix 4 Fish Lake 2009 – Adult Sockeye Cumulative Escapement



Appendix 5 Fish Lake 2009 – Hourly Counts

| | AM | | | | | | | | | | | PM | | | | | | | | | | | AM | | | | |
|--------------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|--|--|--|
| | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | | | |
| Total | 0 | 1 | 4 | 0 | -1 | 1 | 1 | 34 | 90 | 72 | 50 | 42 | 74 | 89 | 5 | 4 | 2 | 40 | 22 | 9 | 9 | 0 | 0 | 0 | | | |
| 7/22/2009 | | | | | | | | | | | | | | 0 | | | 0 | | | | | | | | | | |
| 7/23/2009 | | | | | | 0 | | | | | | | | | | | 0 | | | | | | | | | | |
| 7/24/2009 | | | | | 0 | | | | 0 | 0 | 0 | 0 | | | | | 0 | | | | | | | | | | |
| 7/25/2009 | | | | | 0 | 0 | | | | 0 | 0 | 0 | | | | 0 | | | | | | | | | | | |
| 7/26/2009 | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 21 | 2 | | | | | | | | |
| 7/27/2009 | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 0 | 0 | 1 | 1 | 1 | 1 | | | | | |
| 7/28/2009 | | | | | | | | | | 6 | 0 | 0 | 0 | | | | | 0 | 1 | 0 | | | | | | | |
| 7/29/2009 | | | | | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | |
| 7/30/2009 | | | | | | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | | | | | | | | | | | | | |
| 7/31/2009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 1 | 2 | | | | | | | | | |
| 8/1/2009 | | | | | 0 | | | | | | | | | | | | 0 | 0 | 0 | 0 | | | | | | | |
| 8/2/2009 | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 0 | 1 | 2 | 0 | | | | | | |
| 8/3/2009 | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | | | | | | |
| 8/4/2009 | | | | | | | | | | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 8 | | | | | | | | |
| 8/5/2009 | | | | | | | | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 4 | 4 | 0 | | | | | |
| 8/6/2009 | | | | | | | | | | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | |
| 8/7/2009 | | | | | | 0 | | | 0 | 1 | 0 | 10 | 8 | 7 | | | 0 | 1 | 0 | | | | | | | | |
| 8/8/2009 | | | | | | | | 5 | 70 | 23 | 12 | 4 | 0 | | | | | | | | | | | | | | |
| 8/9/2009 | | 1 | 4 | | | | | 14 | 7 | 12 | 5 | 0 | 0 | 1 | 0 | 0 | | | | | | | | | | | |
| 8/10/2009 | | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | | | | | |
| 8/11/2009 | | | | | | 0 | 1 | 0 | | | | | 45 | 67 | 0 | | | 3 | 4 | 2 | 4 | | | | | | |
| 8/12/2009 | | | | | | | | | 2 | 0 | 0 | 0 | | | | | 0 | 0 | 1 | 1 | | | | | | | |
| 8/13/2009 | | | | | | | | | -1 | 4 | 4 | 0 | 0 | 0 | 0 | | | | | | | | | | | | |
| 8/14/2009 | | | | | | | | 0 | 2 | 22 | 13 | 3 | | | | | | | | | | | | | | | |
| 8/15/2009 | | | | | | 0 | 3 | 0 | | | | | | 0 | | | | | | | | | | | | | |
| 8/16/2009 | | | | | | 0 | | | 1 | | | 3 | | | 0 | | | | | | | | | | | | |
| 8/17/2009 | | | | | | | 1 | 5 | 3 | 1 | | | 2 | 1 | 0 | 0 | | | | | | | | | | | |
| 8/18/2009 | | | | | | | | | 0 | | | | | 0 | 1 | 0 | | | | | | | | | | | |
| 8/19/2009 | | | | | | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | |
| 8/20/2009 | | | | | | 1 | | | | 0 | 0 | 0 | 3 | 0 | | | | | | | | | | | | | |
| 8/21/2009 | | | | | | | 0 | 0 | 1 | 1 | 5 | 0 | | | 0 | 0 | | | | | | | | | | | |
| 8/22/2009 | | | | | | | 0 | 5 | 3 | 1 | 3 | 0 | 1 | 0 | | | | | | | | | | | | | |
| 8/23/2009 | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | |
| 8/24/2009 | | | | | | 0 | 1 | 1 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | |
| 8/25/2009 | | | | | | | | | | | 2 | 0 | 0 | 7 | 2 | 0 | | | | | | | | | | | |
| 8/26/2009 | | | | | -1 | 0 | 0 | 0 | | | | 17 | 16 | 4 | 1 | 4 | | | | | | | | | | | |
| 8/27/2009 | | | | | | | | | | 0 | 0 | 1 | -1 | 1 | 1 | | | | | | | | | | | | |
| 8/28/2009 | | | | | | | | | | | 0 | 0 | 0 | 0 | | | | | | | | | | | | | |
| 8/29/2009 | | | | | 0 | 0 | -1 | 4 | 0 | 2 | 0 | | | | | | | | | | | | | | | | |
| 8/30/2009 | | | | | | | 0 | 0 | -1 | 1 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | |
| 8/31/2009 | | | | | | | 0 | 0 | 0 | -1 | 1 | 1 | 0 | 0 | | | | | | | | | | | | | |
| 9/1/2009 | | | | | | | | 1 | 0 | 0 | -1 | 0 | | | | | | | | | | | | | | | |
| 9/2/2009 | | | | | | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | |
| 9/3/2009 | | | | | | 0 | -2 | 0 | 2 | 2 | -1 | 2 | 0 | 1 | | | | | | | | | | | | | |
| 9/4/2009 | | | | | | 0 | -1 | -3 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | |
| 9/5/2009 | | | | | | 0 | 0 | | | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | |
| 9/6/2009 | | | | | | | 0 | 0 | -1 | 1 | 0 | 0 | | | | | | | | | | | | | | | |
| 9/7/2009 | | | | | | | -1 | 0 | -1 | 0 | | | | | | | | | | | | | | | | | |

Appendix 6 Fish Lake 2009 – Adult Sockeye Age Composition

| | Age Group | | | Total |
|---------------|-----------|-------|-------|---------|
| | 1.3 | 2.2 | 2.3 | |
| Males | 330 | 0 | 0 | 330 |
| Percent | 58.76% | 0.00% | 0.00% | 58.76% |
| Sample Size | 10 | 0 | 0 | 10 |
| Mean Lth (mm) | 594 | 0 | 0 | 539 |
| Std. Error | 7 | 0 | 0 | 2 |
| Females | 166 | 33 | 33 | 232 |
| Percent | 29.56% | 5.84% | 5.84% | 41.24% |
| Sample Size | 5 | 1 | 1 | 7 |
| Mean Lth (mm) | 558 | 435 | 560 | 541 |
| Std. Error | 14 | | | 10 |
| Both Sexes | 496 | 33 | 33 | 562 |
| Percent | 88.32% | 5.84% | 5.84% | 100.00% |
| Sample Size | 15 | 1 | 1 | 17 |
| Mean Lth (mm) | 582 | 435 | 560 | 572 |
| Std. Error | 7 | | | 6 |

** This data is not statistically valid due to the small sample size and should not be used to reference the characteristics of the returns to Fish Lake.*