

**Chenik Lake
Progress Report
2005**

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January 2006**

This year's operation of the Chenik Lake Project was made possible through enhancement taxes paid by the commercial fishermen in Area H, Cook Inlet and associated waters and a grant administered through the National Oceanic and Atmospheric Administration and the Alaska Department of Fish and Game provided by Senator Ted Stevens .

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DISCLAIMER

The Cook Inlet Aquaculture Association 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 progress report is a synopsis of the monitoring and evaluation studies conducted for the Chenik Lake project.

The purpose of the progress 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 progress reports.

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ACKNOWLEDGEMENTS

Many individuals and agencies contributed to the success of the Chenik Lake Project in 2005. Appreciation is extended to Cook Inlet Aquaculture Association field assistants, Alger Aleck, Mike Dozier; and all full time staff who endured many long hours in the field. Special thanks go to the Alaska Department of Fish and Game for the support they provided during this project.

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TABLE OF CONTENTS

DISCLAIMER.....	iii
ACKNOWLEDGEMENTS.....	v
TABLE OF CONTENTS.....	vii
LIST OF FIGURES.....	ix
LIST OF TABLES.....	xi
ABSTRACT.....	xiii
INTRODUCTION AND PURPOSE.....	1
PROJECT AREA.....	3
METHODS.....	5
Environmental Conditions.....	5
Adult Escapement.....	5
RESULTS AND DISCUSSION.....	7
Environmental Conditions.....	7
Adult Escapement.....	7
RECOMMENDATIONS.....	9
LITERATURE CITED.....	11
APPENDICES.....	13

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LIST OF FIGURES

Figure 1. Excerpt from U.S. Geological Survey Iliamna A- 4; Scale 1:63,360	3
Figure 2. Hydrographic map of Chenik Lake.....	7

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LIST OF TABLES

Table 1. Summary of Chenik Lake salmon escapement, age distribution and fish length - 2005.....7

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ABSTRACT

The enumeration of adult sockeye salmon, *Oncorhynchus nerka*, was undertaken in concert with the Cook Inlet Aquaculture Association (CIAA) and the Alaska Department of Fish and Game (ADF&G). The 2005 escapement into Chenik Lake was estimated at 14,507 adult sockeye salmon and derived from a combination of weir (12,775) and video counts. Adult sockeye salmon averaged 535 mm (standard fork length); however male length average (547 mm) was greater than female average length (523 mm). Age 1.3 dominated the age composition with 96.8%. Age 1.2 and age 2.3 each made up 1.5% of the escapement. Age 2.2 only made up 0.2% of the escapement. Male to female ratio was virtually 1:1.

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INTRODUCTION AND PURPOSE

In 2005 CIAA acquired a grant through the Southeast Sustainable Salmon Fund to monitor adult salmon populations. CIAA approached ADF&G Area Management Biologists and requested identification of the systems which they most wanted escapement information. Chenik Lake was one of the sites the CIAA Board of Directors chose from list.

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PROJECT AREA

Chenik Lake is located approximately 10.5 km east of Chenik Head near the mouth of the Paint River (Figure 1). The Lake is located in T11S, R29W Section 20. The lake covers 118.2 ha, has a maximum depth of 56.99 m, a mean depth of 28.74 m, a 5.56 km shoreline, and is located at an elevation of 42 m above sea level (Figure 2).

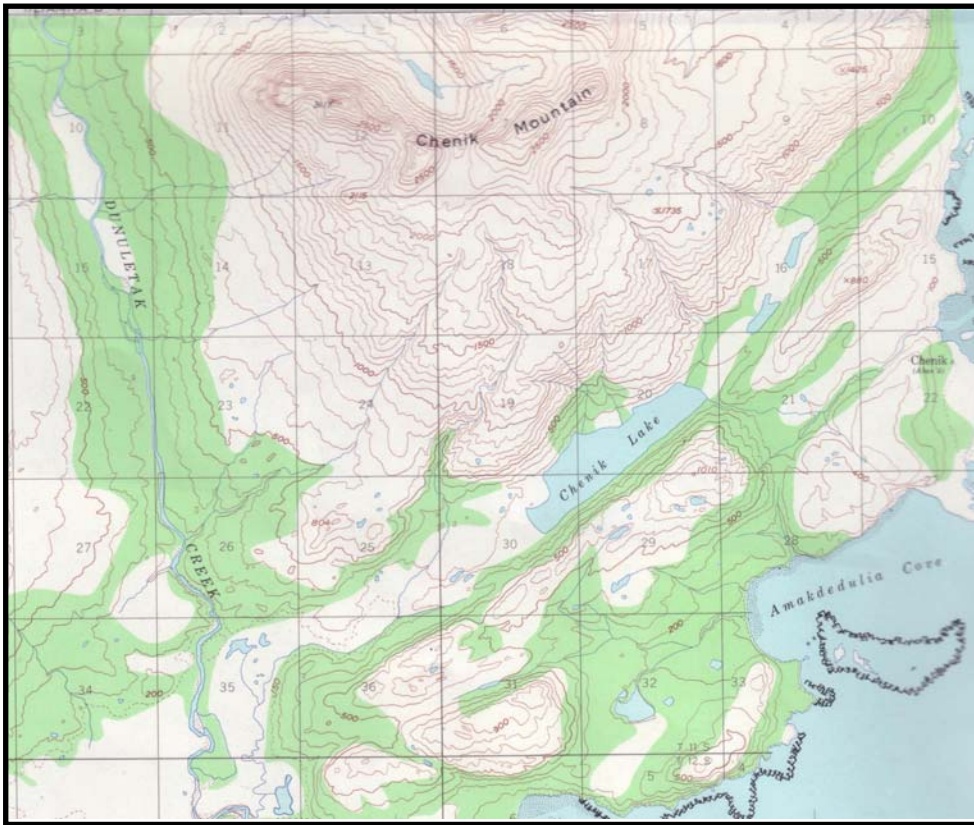


Figure 1. Excerpt from U.S. Geological Survey Iliamna A- 4; Scale 1:63,360

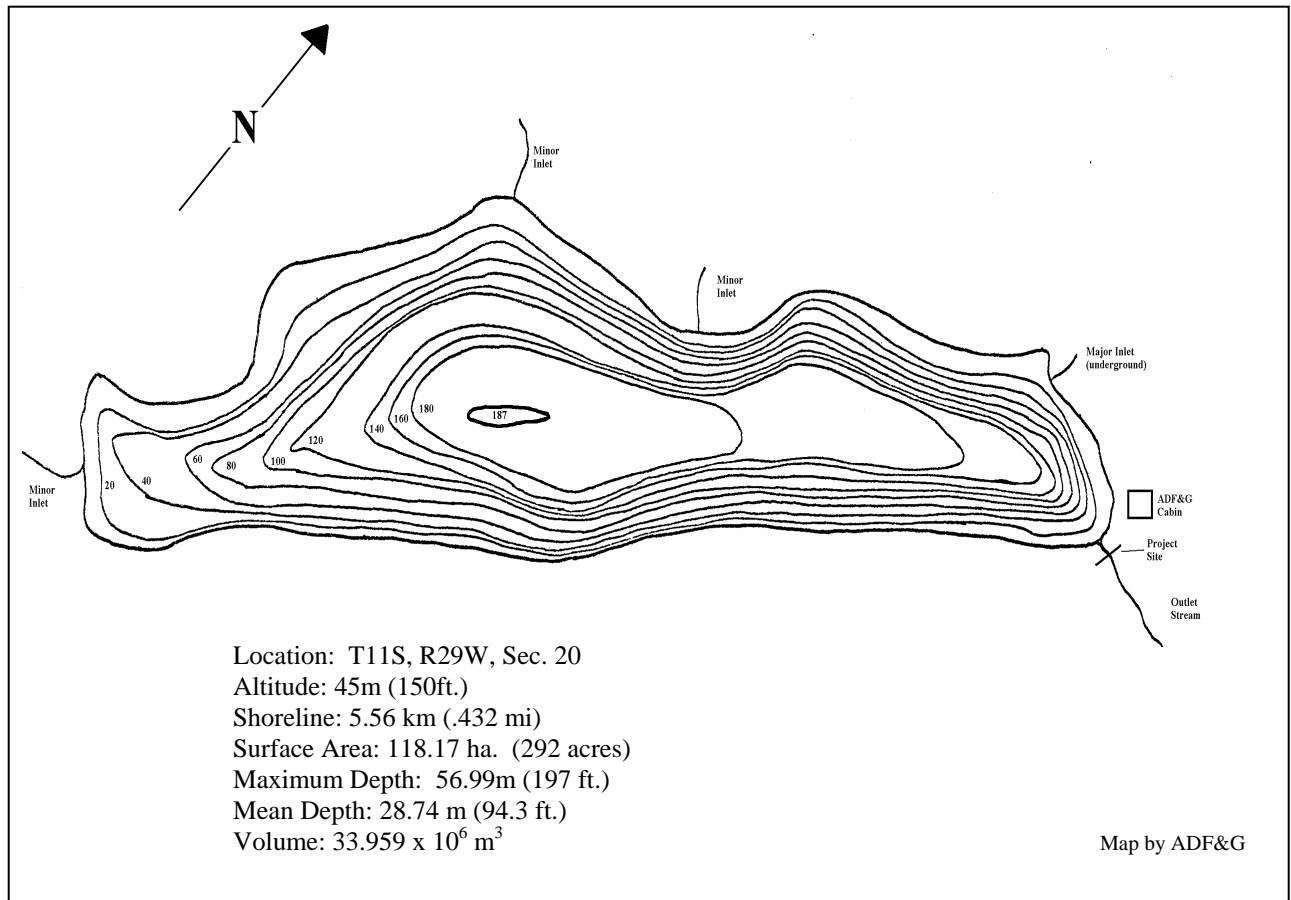


Figure 2. Hydrographic map of Chenik Lake

METHODS

Environmental Conditions

Percent Cloud Cover was estimated, precipitation measured to the nearest millimeter, and Chenik Creek water and air temperatures were recorded at 5:00 PM each day by CIAA as part of the escapement enumeration activities. Standard CIAA procedures were followed for collecting these measurements.

Adult Escapement

The escapement enumeration of adult sockeye salmon to Chenik Lake includes the assessment of sex, age, and standard fork length¹ of the returning population of fish.

To enumerate returning salmon, sample and collect sex, age, and length information, an adult counting weir was temporarily installed in Chenik. 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.

By removing one or two pickets fish were permitted to pass through the weir. Field personnel counted the adult fish as they ascended Chenik Creek. Initially counts were made at least twice a day. As the number of fish ascending Chenik Creek increased, counts were made more frequently to prevent fish from accumulating behind the weir.

¹ Standard fork length is defined as the measurement from mid-eye to the fork of the tail

An average return based on past counts done by ADF&G, CIAA assumed that approximately 15,000 sockeye salmon would return to Chenik Lake during the enumeration period of 1 July 2005 to 4 August, 2005. Based on this assumption and the goal to obtain an adequate sample size for determining, age, sex, and sized, approximately every 25th fish counted upstream was temporarily held, measure, and released upstream. The adult return, however, was slightly less than projected and fewer fish than expected were collected and measured.

RESULTS AND DISCUSSION

Environmental Conditions

Environmental conditions during the Chenik Lake adult sockeye migration were monitored from 1 July to 4 August 2005. Stream stage measurements averaged 0.56 feet and ranged from 0.50 to 0.62 feet. Stream temperatures averaged 15.6°C and ranged from 14.0 to 18.0°C and air temperatures averaged 17.3°C and ranged from 12.0 to 27.0°C. Seventeen percent of the days were clear, 46% were partly cloudy, and 37% were completely overcast. Rain was recorded on 13 of the days during the adult migration. A total of 37 mm of rain fell during this period (Appendix 1).

Adult Escapement

Adult sockeye salmon return was monitored by CIAA from 1 July to 4 August 2005 (Appendix 2). During this time a total of 12,755 adult sockeye salmon were counted the weir at Chenik Lake. An additional 1,752 fish were counted by ADF&G via remote video. Therefore the estimated escapement to Chenik Lake was 14,507 adult sockeye salmon.

The percentage of adult male and adult female sockeye salmon returning to Chenik Lake in 2005 was 50.6% and 49.4%, respectively. Male fish averaged 547 mm (21.5 in) in length and the females averaged 523 mm (20.6 in). An estimated 96.8% of the fish were age 1.3, 1.5% were age 1.2, 1.5% were 2.3, and 0.2% were 2.2 (Table 1).

Table 1. Summary of Chenik Lake salmon escapement, age distribution and fish length - 2005.

Year	Number	Escapement		Major Age Classes							
		Sex		1.2		1.3		2.2		2.3	
		% male	% female	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)	(%)	Lth(mm)
2005	12,775	50.6	49.4	1.5	489	96.8	536	0.2	495	1.5	538

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RECOMMENDATIONS

There are no recommendations for operations of future weir counts at Chenik Lake.

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LITERATURE CITED

No literature cited

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APPENDICES

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Appendix 1. Chenik Lake 2005 – Environmental Conditions.

Date	Sky	Precip. (mm)	Stage (ft)	Flow	Water Temp. (°C)	Air Temp. (°C)
1-Jul	3	ND	ND	ND	ND	ND
2-Jul	3	ND	ND	ND	ND	ND
3-Jul	2	ND	ND	ND	ND	ND
4-Jul	3	ND	ND	ND	ND	ND
5-Jul	2	0	0.62	ND	16.0	24.0
6-Jul	2	0	0.62	ND	17.0	22.0
7-Jul	1	0	0.62	ND	17.0	25.0
8-Jul	1	0	0.61	ND	16.0	27.0
9-Jul	1	0	0.60	ND	17.5	21.0
10-Jul	2	0	0.59	ND	18.0	19.0
11-Jul	1	0	0.55	ND	17.0	17.0
12-Jul	4	3	0.57	ND	15.0	12.0
13-Jul	5	1	0.57	ND	15.0	15.0
14-Jul	1	0	0.56	ND	18.0	20.0
15-Jul	3	0	0.57	ND	15.0	17.0
16-Jul	5	4	0.58	ND	15.0	13.0
17-Jul	4	2	0.59	ND	16.0	17.0
18-Jul	3	0	0.58	ND	16.0	16.0
19-Jul	5	0	0.58	ND	15.0	13.0
20-Jul	2	1	0.56	ND	17.0	19.0
21-Jul	1	0	0.52	ND	16.0	18.0
22-Jul	2	0	0.52	ND	16.0	15.0
23-Jul	5	1	0.52	ND	15.0	13.0
24-Jul	5	5	0.54	ND	14.0	13.0
25-Jul	5	6	0.56	ND	14.0	18.0
26-Jul	5	6	0.52	ND	14.0	12.0
27-Jul	4	2	0.55	ND	14.0	15.0
28-Jul	2	0	0.54	ND	15.0	18.0
29-Jul	3	0	0.52	ND	14.0	16.0
30-Jul	2	0	0.52	ND	15.0	18.0
31-Jul	2	0	0.52	ND	16.0	19.0
1-Aug	3	0	0.50	ND	15.0	17.0
2-Aug	5	3	0.51	ND	15.0	12.0
3-Aug	5	4	0.52	ND	15.0	17.0
4-Aug	4	1	0.52	ND	15.0	17.0
Total	35	37				

- 1 = Clear
- 2 =Cloud Cover <50%
- 3 =Cloud Cover>50%
- 4 =Overcast
- 5 =Rain

ND = No Data

Appendix 2. Chenik Lake 2005 – Sockeye Migration.

Date	Escapement		Morts	Total
	Daily	Total		
1-Jul	0	0		0
2-Jul	0	0		0
3-Jul	0	0		0
4-Jul	0	0		0
5-Jul	3	3		3
6-Jul	0	3		3
7-Jul	0	3		3
8-Jul	0	3		3
9-Jul	1	4		4
10-Jul	1,132	1,136		1,136
11-Jul	954	2,090		2,090
12-Jul	1,591	3,681		3,681
13-Jul	146	3,827		3,827
14-Jul	40	3,867		3,867
15-Jul	0	3,867		3,867
16-Jul	7	3,874		3,874
17-Jul	501	4,375		4,375
18-Jul	1,139	5,514		5,514
19-Jul	2,281	7,795		7,795
20-Jul	230	8,025		8,025
21-Jul	10	8,035		8,035
22-Jul	11	8,046		8,046
23-Jul	0	8,046		8,046
24-Jul	0	8,046		8,046
25-Jul	61	8,107		8,107
26-Jul	569	8,676		8,676
27-Jul	281	8,957		8,957
28-Jul	50	9,007		9,007
29-Jul	98	9,105		9,105
30-Jul	13	9,118		9,118
31-Jul	1,030	10,148		10,148
1-Aug	42	10,190		10,190
2-Aug	761	10,951		10,951
3-Aug	469	11,420		11,420
4-Aug	1,355	12,775		12,775
	12,775		0	