

Regional Information Report No. 1J08-15

2008 Management Plan for the Lynn Canal (District 15) Drift Gillnet Fishery

by

Randall L. Bachman

April 2008

Alaska Department of Fish and Game

Division of Commercial Fisheries



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Weights and measures (metric)		General		Measures (fisheries)	
centimeter	cm	Alaska Administrative		fork length	FL
deciliter	dL	Code	AAC	mid-eye-to-fork	MEF
gram	g	all commonly accepted		mid-eye-to-tail-fork	METF
hectare	ha	abbreviations	e.g., Mr., Mrs., AM, PM, etc.	standard length	SL
kilogram	kg			total length	TL
kilometer	km	all commonly accepted			
liter	L	professional titles	e.g., Dr., Ph.D., R.N., etc.		
meter	m	at	@	Mathematics, statistics	
milliliter	mL	compass directions:		<i>all standard mathematical</i>	
millimeter	mm	east	E	<i>signs, symbols and</i>	
		north	N	<i>abbreviations</i>	
		south	S	alternate hypothesis	H _A
		west	W	base of natural logarithm	<i>e</i>
		copyright	©	catch per unit effort	CPUE
		corporate suffixes:		coefficient of variation	CV
		Company	Co.	common test statistics	(F, t, χ^2 , etc.)
		Corporation	Corp.	confidence interval	CI
		Incorporated	Inc.	correlation coefficient	
		Limited	Ltd.	(multiple)	R
		District of Columbia	D.C.	correlation coefficient	
		et alii (and others)	et al.	(simple)	r
		et cetera (and so forth)	etc.	covariance	cov
		exempli gratia	e.g.	degree (angular)	°
		(for example)		degrees of freedom	df
		Federal Information	FIC	expected value	<i>E</i>
		Code		greater than	>
		id est (that is)	i.e.	greater than or equal to	≥
		latitude or longitude	lat. or long.	harvest per unit effort	HPUE
		monetary symbols		less than	<
		(U.S.)	\$, ¢	less than or equal to	≤
		months (tables and		logarithm (natural)	ln
		figures): first three		logarithm (base 10)	log
		letters	Jan, ..., Dec	logarithm (specify base)	log ₂ , etc.
		registered trademark	®	minute (angular)	'
		trademark	™	not significant	NS
		United States		null hypothesis	H ₀
		(adjective)	U.S.	percent	%
		United States of		probability	P
		America (noun)	USA	probability of a type I error	
		U.S.C.	United States	(rejection of the null	
			Code	hypothesis when true)	α
		U.S. state	use two-letter	probability of a type II error	
			abbreviations	(acceptance of the null	
			(e.g., AK, WA)	hypothesis when false)	β
				second (angular)	"
				standard deviation	SD
				standard error	SE
				variance	
				population	Var
				sample	var

Weights and measures (English)

cubic feet per second	ft ³ /s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity	pH
(negative log of)	
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

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**2008 MANAGEMENT PLAN FOR THE LYNN CANAL (DISTRICT 15)
DRIFT GILLNET FISHERY**

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TABLE OF CONTENTS

	Page
LIST OF TABLES.....	ii
LIST OF FIGURES.....	ii
LIST OF APPENDICES.....	iii
ABSTRACT.....	1
INTRODUCTION.....	1
FISHERY AREA.....	2
CONTRIBUTING STOCKS.....	2
Regulatory Decision Process.....	2
GENERAL MANAGEMENT GOAL.....	2
2008 OUTLOOK.....	3
Chilkat River Drainage Sockeye Salmon.....	3
Chilkoot Sockeye Salmon.....	4
Berners Sockeye Salmon.....	4
Summer Chum Salmon.....	5
Fall Chum Salmon.....	5
Coho Salmon.....	6
Chinook Salmon.....	6
2008 MANAGEMENT PLAN.....	6
Section 15-A.....	6
Section 15-B.....	7
Section 15-C.....	8
Golden North Salmon Derby.....	9
2008 STOCK ASSESSMENT PROJECTS.....	9
APPENDIX A: LYNN CANAL AND CHILKAT RIVER KING SALMON FISHERY MANAGEMENT PLAN..	44
APPENDIX B: CALENDAR DATES FOR STATISTICAL WEEKS IN 2008.....	47
APPENDIX C: DATA COLLECTED FROM THE INSEASON INFORMATION SYSTEM TO DETERMINE FISHERY PERFORMANCE BY SPECIES.....	49
APPENDIX D: INCLUSIVE DATES OPERATION FOR CHILKOOT LAKE AND CHILKAT LAKE WEIRS AND CHILKAT RIVER FISH WHEELS.....	52

LIST OF TABLES

Table	Page
Table 1.–Historical catches of king, sockeye, coho, pink, and chum salmon in the District 15 (Lynn Canal) drift gillnet fishery by regulatory Section, 1976–2007.....	12
Table 2.–Biological and sustainable escapement goals for Lynn Canal salmon stocks by species and location.	14
Table 3.–Yearly pre-season smolt based forecast compared to the estimated total return of adult Chilkat Lake sockeye salmon, 1992, 1997–2006.....	14
Table 4.–Annual total return of Chilkat Lake sockeye salmon by week, 1977 to 2007.	15
Table 5.–Annual escapements of Chilkat Lake sockeye salmon by week, 1977–2007.....	17
Table 6.–Chilkat Lake sockeye salmon smolt age, weight, and length compositions (wild and enhanced components), 1989–1990 and 1994–2006.....	19
Table 7.–Percent age, average length and average weight composition of Chilkat Lake sockeye salmon smolt, 1989–1990 and 1994–2006.	20
Table 8.–Historical age composition of sockeye salmon escapements to Chilkat Lake, 1982–2007.	21
Table 9.–Weekly and annual escapement of Chilkat River mainstem sockeye salmon, 1994–2007.....	22
Table 10.– Historical age composition of sockeye salmon escapements to Chilkat River mainstem areas, 1984 to 2007.....	23
Table 11.–Annual total return of Chilkoot Lake sockeye salmon by week, 1978–2007.	24
Table 12.–Annual weir counts of Chilkoot Lake sockeye salmon by week, 1976–2007.	26
Table 13.–Selected data for Chilkoot Lake, annual autumn hydroacoustic pre-smolt estimates, total adult return, and average annual zooplankton densities for years 1987–2007.....	28
Table 14.–Historical age composition of sockeye salmon escapements to Chilkoot Lake, 1982–2007.....	29
Table 15.–Historical age composition of sockeye salmon escapements to Berners Bay rivers, 1984 to 2007.....	30
Table 16.–Annual harvests of Chilkat River mainstem and Berners Bay rivers, and other non-Chilkat or Chilkoot Lake, sockeye salmon by week, 1976– 2007.	31
Table 17.–Summary of releases of DIPAC chum salmon from Boat Harbor and Amalga Harbor, 1988–2007.	33
Table 18.–Summary of returns from DIPAC summer chum salmon enhancement projects in lower Lynn Canal, 1991–2007 with projections for 2008.....	34

LIST OF FIGURES

Figure	Page
Figure 1.–Map of the Lynn Canal district and statistical area boundaries.....	35
Figure 2.–Map of upper Lynn Canal showing Chilkat and Chilkoot lakes.	36
Figure 3.–Lynn Canal sockeye salmon weekly abundance by stock/age (Data from 1983–1992 average).....	37
Figure 4.–Run timing (weekly proportion CPUE) of Chinook, coho, summer and fall chum, and pink salmon in the Lynn Canal drift gillnet fishery. Data for period 1992 to 2007.....	37
Figure 5.–Historical commercial catches of Chinook, sockeye, coho, pink, and chum (summer and fall) salmon in the District 15 (Lynn Canal) drift gillnet fishery, 1960 to 2007.....	38
Figure 6.–Historical escapement and harvest of Chilkoot and Chilkat lake sockeye salmon, 1976 to 2007 compared to escapement goals.	39
Figure 7.–Yearly comparisons of Chilkoot Lake autumn hydroacoustic counts of juvenile sockeye salmon and average zooplankton densities, 1987–1991 and 1995–2007.	40
Figure 8.–Peak aerial survey results for Sawmill Creek chum salmon, 1997–2007 compared with 1997–2007 average results.	40
Figure 9.–Peak aerial survey results for Western Lynn Canal chum salmon streams combined, 1997–2006 compared to the 1996–2007 average.....	41
Figure 10.–Total Chilkat River coho salmon fish wheel catch by year, 1997–2007 compared to the 1997–2007 average.	42
Figure 11.–Average 1994–2007 run timing for Chilkat River sockeye salmon stocks at the Chilkat River fish wheels by fresh water age class.....	42
Figure 12.–Map showing area in Lower Lynn Canal that may be opened for additional time during peak weeks of hatchery chum return (Statistical Weeks 28–31).	43

LIST OF APPENDICES

Appendix	Page
Appendix A–5 AAC 33.384. Lynn Canal and Chilkat River King Salmon Fishery Management Plan.....	45
Appendix B–Calendar dates for statistical weeks in 2008.....	48
Appendix C.–Data collected from the inseason information program to determine fishery performance by species.	50
Appendix D.–Inclusive dates of operation for Chilkoot and Chilkat weirs and Chilkat River fish wheels, 1976 to 2007.....	53

ABSTRACT

Generally, for 2008, returns of sockeye salmon stocks to Lynn Canal are expected to be similar to the 2007 run. Above average Chilkoot Lake and Chilkat River mainstem returns but below average returns for Chilkat Lake sockeye salmon. Hatchery chum salmon returning to Amalga and Boat Harbor release sites are expected to be well above average in abundance. Pink salmon returns are expected to be average. Fall chum and coho salmon returns are expected to be near the previous ten-year average. This document describes plans for the management of the 2008 Lynn Canal (District 15) drift gillnet salmon fishery.

The purpose of this plan is to provide commercial fishers and processors with a general idea of how the fishery is to be managed, what options are available to the manager, the conditions that trigger management actions and an idea of the expected run size of targeted salmon stocks. This plan will also serve as a reference that consolidates important historical harvest and escapement data and current fisheries information.

Key words: salmon, drift gillnet fishery, Lynn Canal (District 15), management plan.

INTRODUCTION

The Lynn Canal drift gillnet fishery targets sockeye, summer chum, coho, and fall chum salmon. Chinook and pink salmon are taken incidentally.

The sockeye salmon runs in Lynn Canal have historically been among the largest in Southeast Alaska. The coho salmon run to the Chilkat River is also among the largest in northern Southeast Alaska. In recent years Chilkoot and Chilkat River mainstem sockeye, coho and fall chum salmon stocks have been very productive and meeting escapement goals. Fall chum salmon returns have improved in the last several years since a decline in abundance beginning in 1989. Results from aerial escapement information and mark-recapture work, indicate improved returns of Chilkat River fall chum salmon. Production of Chilkat Lake sockeye salmon has been in decline since 2005. The department believes that the decline in Chilkat Lake sockeye salmon production is caused by a downturn in zooplankton production during 2001 through 2003. Zooplankton production since 2004 has improved.

Sockeye salmon are targeted from June through early September. The primary stocks originate from Chilkat Lake, Chilkoot Lake, Berners Bay rivers, and mainstem spawning areas of the Chilkat River. Hatchery and wild summer chum salmon are harvested from late June through early August. Fall chum and coho salmon are targeted from September through early-October. The primary fall chum salmon stocks originate in the Klehini and Chilkat rivers and the primary coho salmon stocks originate from the Chilkat and Berners Bay rivers.

During the 2006, Board of Fish meeting, Escapement goals for Chilkoot and Chilkat Lake sockeye salmon were modified. Essentially, the escapement goals for Chilkoot Lake sockeye salmon have not changed. The difference is there will no longer be separate escapement goals for the early and late run segments. Weekly escapement goals are based on the historical run timing of sockeye salmon through the Chilkoot River weir. Chilkat Lake sockeye salmon escapement goals are now based on a mark-recapture program that has been in place since 1994. Beginning in 2008, a DIDSON (**D**ual frequency **i**dentification **s**onar) will replace physical weir count methods in estimating escapement of Chilkat Lake sockeye salmon. Increased boat activity and flow reversals on the inlet slough in recent years have hampered the ability to count returning salmon into Chilkat Lake. The weir will remain in the outlet slough to assist in collecting biological samples. The DIDSON will enumerate sockeye salmon as they migrate through the weir boat gate opening.

FISHERY AREA

The Lynn Canal drift gillnet fishery occurs in the waters of District 15. The district is divided into three regulatory sections: 15-A (upper Lynn Canal), 15-B (Berners Bay), and 15-C (lower Lynn Canal). These regulatory sections are further divided into eight statistical areas (Figure 1).

CONTRIBUTING STOCKS

Stocks targeted by the gillnet fishery and the harvest timing are as follows:

1. Sockeye salmon contribute to the fishery from June through early September. The primary stocks originate in Chilkat and Chilkoot lakes (Figure 2). Sockeye salmon originating from Chilkat Lake, Chilkoot Lake and others are managed separately. Sockeye salmon from rivers within Berners Bay, the mainstem of the Chilkat River, and other smaller, local stocks are also harvested in the fishery and are managed separately. The return timing for the Chilkat and Chilkoot lake sockeye salmon stocks in the Lynn Canal drift gillnet fishery is presented in detail in Figure 3.
2. DIPAC hatchery chum and wild pink salmon stocks are both harvested from late June through mid-July. The return timing for Chinook, summer chum, pink and coho salmon stocks to the Lynn Canal drift gillnet fishery is shown in Figure 4.
3. Fall chum and coho salmon are harvested from September through early-October. The primary fall chum salmon stocks originate in the Klehini and Chilkat rivers. The primary coho salmon stocks originate in the Chilkat River drainage and rivers within Berners Bay.

For 2008, the southeast Alaska drift gillnet fishery is limited to a share of “Treaty” king salmon. This allocation does not include Alaskan hatchery produced fish. This amount is based on 2.9% of the Chinook all gear quota for Southeast Alaska. For 2008, the Chinook salmon quota specified for set and drift gillnet fisheries is 5,930 fish. In District 15, the Lynn Canal and Chilkat River King Salmon Fishery Management Plan (5AAC 33.384, shown in Appendix A) will guide the management in Chilkat Inlet during the first three weeks of the season based on a preseason projected inriver forecast. This plan establishes management measures for subsistence, commercial, and sport fisheries, which harvest Chilkat River Chinook salmon.

Historical catches for sockeye, coho, pink, chum, and Chinook salmon in the Lynn Canal drift gillnet fishery are shown in Table 1 and Figure 5.

REGULATORY DECISION PROCESS

The fishery will open at 12:01 p.m. on June 15, the third Sunday of June (statistical week 25, Appendix B). Weekly fishing periods are established by emergency order and announced to the public by news releases that are generally issued on Thursday afternoons.

GENERAL MANAGEMENT GOAL

The overall management goal is to achieve desired spawning escapement levels while harvesting the available surplus for a long-term maximum sustainable yield of all Lynn Canal salmon stocks. Escapement to Chilkoot Lake is monitored by a weir located on the outlet of Chilkoot Lake. Escapements to Chilkat River and Chilkat Lake are monitored using fish wheels operated in the lower Chilkat River and a weir/DIDSON located near the outlet to Chilkat Lake. Other

stocks in the general Lynn Canal area are monitored by aerial surveys, foot surveys, or mark-recapture studies.

Specific management goals for the 2008 Lynn Canal drift gillnet fishery follow and formal escapement goals are presented in tabular form as Table 2:

1. Obtain an escapement of between 50,000 and 90,000 (weir count units) sockeye salmon to Chilkoot Lake.
2. Obtain an escapement of between 80,000 and 200,000 sockeye salmon to Chilkat Lake. The escapement will be monitored in season by the lower Chilkat River fish wheel project and the final escapement will be derived from DIDSON counts at the outlet of Chilkat Lake.
3. Obtain an escapement of between 1,750–3,500 three-ocean age and older king salmon to the Chilkat River.
4. Obtain a peak foot escapement count between 4,000 and 9,200 coho salmon to Berners River.
5. Obtain a peak index stream count for Chilkat River drainage coho salmon that corresponds to a total escapement of 30,000–70,000 fish.
6. Provide for sufficient chum, coho, and pink salmon spawning escapements to the Chilkat, Chilkoot, and Berners rivers and other Lynn Canal systems, while harvesting those fish in excess of escapement needs.
7. Harvest all DIPAC hatchery-produced chum salmon available in the Boat Harbor Terminal Harvest Area or in the Vanderbilt Reef (Postage stamp) area while conserving wild stock summer chum salmon migrating to streams on the western shoreline of Lynn Canal.

2008 OUTLOOK

CHILKAT RIVER DRAINAGE SOCKEYE SALMON

The 2008 forecast return of Chilkat Lake sockeye salmon is expected to be below average (Table 3), the expected return is 70% of the 1977 to 2007 historical average of 204,600 fish (Table 4). The 2008 total forecast return of Chilkat Lake sockeye salmon is again expected to be below average. Smolt information collected each spring forms the information base to predict future returns of this stock. Due to strong flow reversals and very high water levels in the spring of 2005 and 2006, the quality of the smolt data was not sufficient enough to estimate the total out migration of sockeye salmon smolt in those years. Based on parental year escapement and zooplankton density during the two years the fry reared in Chilkat Lake, the expected Chilkat Lake sockeye salmon return in 2008 is expected to be below average. The 2008 run size of Chilkat River mainstem sockeye salmon is expected to be above average.

Chilkat Lake escapement estimates of 128,000 and 113,000 during the 2002 and 2003 parent years were within the sustainable escapement goal range of 80,000–200,000 (Table 5, Figure 6, bottom). Although no smolt estimates are available for the dominant smolt years (2005 and 2006, Table 6) for the 2008 return, the average size and weight of age-1.0 and age-2.0 smolt sampled were near or above the historical average indicating improving rearing conditions in Chilkat Lake. The average weight and length of age-1.0 Chilkat Lake sockeye salmon smolt in 2004 was below

average while the size of smolt in 2005 was near average (Table 7). On average, 71% of the Chilkat Lake sockeye salmon escapements are 3-ocean age fish (32.7% are age-1.3 fish, 39.4% are age-2.3 fish and 0.3% are age-3.3 fish, (Table 8). Approximately 26% of this run is 2-ocean age fish. The age composition of the 2007 run of 2-ocean age fish was near average indicating, at best, an average return of 3-ocean age fish in 2008.

Mark-recapture estimates of the Chilkat River mainstem sockeye salmon escapements in 2003, 2004, and 2005, (the dominant parent-years) were 36,100, 44,800, and 50,800 fish, respectively (Table 9). The escapement estimates for the 2003–2005 returns were above the historical 1994–2007 average of 32,900 fish for all brood years. The dominant age classes for this run includes age-0.2 (20.5%), age-0.3 (37.0%), and age-1.3 (29.9%) fish (Table 10). The proportion of age-0.2 and age-1.2 fish of the 2007 escapement was well above average indicating that the 2008 return of age-0.3 and 1.3 fish to the mainstem Chilkat River may be above average in run strength. The Lower Chilkat River fish wheel project has been providing inseason stock assessment and post-season escapement estimates of Chilkat River mainstem sockeye salmon since 1994 (Bachman and McGregor 2001, Bachman *In prep*).

CHILKOOT SOCKEYE SALMON

Returns of Chilkoot Lake sockeye salmon in 2008 are expected to be above average. The total return of 107,000 Chilkoot Lake sockeye salmon in 2003 (dominant brood year) was below average (Table 11). The Chilkoot Lake sockeye salmon weir count during the dominant parental brood year (2003) for the 2008 return was 74,500 fish, within the desired escapement goal range (Table 12, Figure 6, top). The Chilkoot River weir is used to collect scale pattern standards and monitor the escapement of this stock during the commercial fishing season (Kelley and Bachman, 1999, Bachman, *In prep*).

The 2004 fall hydroacoustic pre-smolt estimate and zooplankton density was above average. (Table 13; Figure 7). Due to recent years low zooplankton and rearing smolt densities in Chilkoot Lake, the department will implement management decisions in the commercial drift gillnet salmon fishery to achieve target escapement levels near the lower end of the escapement goal range for this stock.

Age composition of the 2007 escapement was near average for most of the dominant age classes (Table 14). Given this information, the department is expecting an above average return of Chilkoot Lake sockeye salmon for 2008. Management decisions will continue to based on inseason data for the District 15 drift gillnet fishery.

BERNERS SOCKEYE SALMON

An above average run of Berners Bay sockeye salmon is expected in 2008. Total escapement estimates are not available for Berners Bay sockeye salmon systems. Peak aerial escapements to Berners Bay streams were near or above average for all brood years. The average dominant age classes for Berners Bay streams are age-0.3 (17.3%), age-1.2 (13.0%), and age-1.3 (64.7%, Table 15). The proportion of age-0.2 fish in the 2007 escapement was above the historical average indicating a possible above average return of age-0.3 fish in 2008. The 2004 and 2005 commercial harvests of Berners Bay and Chilkat River mainstem sockeye salmon were estimated at 33,500 and 13,200 fish respectively. These harvests were above the historic 1976–2007 average harvest of 14,300 fish in 2004 and near this average in 2005 (Table 16).

SUMMER CHUM SALMON

The majority of the summer chum salmon production in the district is from hatchery releases at Amalga Harbor and the Boat Harbor terminal harvest areas by the Douglas Island Pink and Chum Salmon Inc. (DIPAC). DIPAC has been enhancing the chum salmon returns to Lynn Canal since 1987 (Table 17). Projections for the Boat Harbor Terminal Harvest Area chum salmon return in 2008 is approximately 319,000 fish. This forecast return is below the 2007 return and 1.8 times the 1991–2007 average of 180,800 fish (Table 18). The preseason projection for the Amalga Harbor chum salmon return is approximately 1.007 million fish, 90% of the 1991–2007 average of 1.123 million fish (Table 18).

Based on parental-year escapement counts, the wild summer chum salmon return in 2008 should be average to above average in run strength but at a much lower scale than the hatchery summer chum salmon return.

The majority of the summer chum salmon harvest in lower Lynn Canal is comprised of hatchery fish from remote release sites at Boat Harbor and Amalga Harbor. Smaller numbers of wild chum salmon are produced from local area streams such as Sawmill Creek and other Berners Bay rivers on the eastern side of Lynn Canal. The Endicott, Beardslee, and St. James rivers on the western side of Lynn Canal are also important contributors to the wild summer chum harvest in the drift gillnet fishery.

Peak aerial escapement counts of summer chum salmon in Sawmill Creek in 2003, 2004, and 2005 were 550, 1,000, and 900 fish respectively. The peak aerial escapements are well below the 1997–2007 average for this index system for all brood years (Figure 8). Combined peak counts of chum salmon in western Lynn Canal streams for the same brood years were 27,000, 15,000, and 22,400 fish respectively. All peak counts conducted during these brood years were near or exceeded the ten-year average (Figure 9).

FALL CHUM SALMON

The 2008 return of the Chilkat River drainage fall chum salmon stock is expected to be above average. For the Chilkat River parent years, the peak aerial survey counts were 45,700 and 55,400 fish (2004 and 2005). These counts were well above the peak aerial escapement count average of 23,000 for both years. Peak aerial counts in the Klehini River were 13,000 and 1,400 fish respectively, above average for 2004 and below average in 2005. The total drainage wide estimated escapement in 2004 and 2005 based on mark-recapture methods was 310,000 and 202,000 chum salmon. These estimates are near average for years where total drainage escapements estimates are available.

The commercial harvest during the dominant parental brood years (2004 and 2005) was slightly below the previous 10-year average. Escapements of Chilkat River fall chum salmon since 1999 have improved. Management strategies designed to reduce harvests of these stocks have been successful. Fish wheel counts, mark-recapture estimates and aerial escapement surveys in recent years have indicated an increasing trend in abundance for this stock. The mark-recapture work has estimated escapements of 310,000 fish in 2004 and 202,000 fish in 2005. A relationship index between fish wheel catch and mark-recapture estimates has been developed for this stock. During the years 2002–2005, on average, the fish wheel catch is approximately 1.5% of the total fall chum salmon returning to the Chilkat River drainage (Bachman, *In prep*).

COHO SALMON

The Lynn Canal coho salmon return is expected to be below average during 2008. Coho salmon systems in the area include the Chilkat River, Berners River and Chilkoot River. Parent-year survey counts at the Chilkat River tributaries and Chilkoot River drainage were generally very good and above the ten-year average. The 2004 and 2005 escapements to Berners Bay (14,450 and 5,220) were well above (2004) and within (2005) the escapement goal range of 4,000 to 9,200 fish.

Sport Fish Division has been conducting coho salmon smolt coded wire-tagging (CWT) studies on the Chilkat River to estimate smolt size, age structure, production of coho salmon smolts and marine survival of coho salmon since 1999. The 2004 and 2005 Chilkat River fish wheel catches of 1,745 and 1,450 coho were below the 1997–2007 average of 2,530 fish. Index stream escapements for coho salmon in 2004 and 2005 were 67,400 and 38,400 fish, respectively. These escapement counts were within the escapement goal range for both years. The District 15 gillnet catch of 52,000 coho salmon in 2004 and 28,000 in 2005 were below the previous ten-year average for both brood years (Table 1). The lower Chilkat River fish wheel catches during the important brood years for the 2008 return was well below average (Figure 10). The below average prediction for Lynn Canal coho stocks is based on recent marine survival trends. Prior to 2004, the average marine survival for years 1999–2003 for Chilkat River coho salmon was 11.5%. In recent years, the average marine survival has dropped to 7% in years 2005–2007. The 2007 return exhibited a marine survival rate of 4.2% (lowest on record).

CHINOOK SALMON

The 2008 preseason escapement forecast for mature (\geq age 1.3) Chilkat River Chinook salmon is estimated to be below average and near the lower end of the biological escapement goal range of 1,750–3,600 fish. Since the preseason forecast is projected to be within the escapement goal range, the northern line in Chilkat Inlet will move northward to Glacier Point on the third week of the season and may be moved to the latitude of Cannery point by the fourth week of the season depending on sockeye and Chinook salmon run strength as indicated by the lower Chilkat River fish wheel project.

2008 MANAGEMENT PLAN

In 2008, ADF&G intends to manage the summer Lynn Canal drift gillnet fishery to obtain the mid-point of the escapement goal ranges for Chilkat Lake sockeye salmon, and plans to manage for the lower end of escapement goal range for Chilkoot Lake. The department intends to manage the fishery to minimize harvest of wild stock summer chum salmon while harvesting expected large returns of hatchery chum salmon. The fall Lynn Canal drift gillnet fishery will be managed to conserve Klehini River (early-run) fall chum salmon while providing opportunity to harvest Chilkat River fall chum and coho salmon.

Section 15-A

Section 15-A will open for two days south of the latitude of Seduction Point beginning 12:01 PM Sunday June 15 (statistical week 25) with no mesh restriction. If the Chilkoot River weir count through June 12 is less than 2,500 sockeye salmon, the eastern side of Section 15-A will be closed. If the weir count is 2,500 sockeye salmon or greater on June 12, the eastern portion of 15-A may be opened. During the first three weeks of the season, Chilkat Inlet will be managed in accordance to the Chilkat River King Salmon Fishery Management Plan. (Appendix A). Since

the preseason forecast for Chilkat River drainage Chinook salmon is near the lower end of the goal range, during the first two weeks of the season, Chilkat Inlet will be closed north of the latitude of Seduction Point. In week 27, Chilkat Inlet may be open south of the latitude of the Glacier Point-Twin Coves line. In week 28, Chilkat Inlet may be open south of the latitude of Cannery Point or at the latitude of the northernmost tip of Kochu Island. Chilkat Lake sockeye salmon run strength will dictate commercial fishery openings in Chilkat Inlet. It is likely that the northern boundary line within Chilkat Inlet will remain at the northernmost tip of Kochu Island or Cannery Point for the remainder of the summer season if escapements of Chilkat Lake sockeye salmon are projected to be within the desired goal range. If the Chilkoot Lake sockeye salmon return is strong, all of Section 15-A south of the latitude of Seduction point may be opened during the fourth week of the season for 2 or 3 days. Since ADF&G is forecasting an above average return of sockeye salmon to Chilkoot Lake and a below average Chilkat Lake sockeye salmon return, it is likely that openings in northern Section 15-A will be similar to openings during 2007. Decisions will be dictated by the results of various in season stock assessment programs operating on the Chilkat and Chilkoot River drainages. Additional fishing opportunity in Chilkoot Inlet north of the latitude of Mud Bay Point for 2 or 3 days or more in weeks 31 through 37 may be possible if the Chilkoot Lake sockeye salmon return is as strong as expected. If the inseason information system indicates that the Chilkat Lake sockeye salmon return is not forecasted to meet minimum escapement goals, limits in time and area of Section 15-A will be implemented until the department can project sockeye escapement within desired goal ranges. Six-inch minimum mesh size gear restrictions may be in place to reduce the harvest rate on Chilkat Lake sockeye salmon during the summer season if necessary. Data from the Chilkat River fish wheel mark-recapture program and from the commercial fishery will be used to judge run strength inseason and escapement levels post season.

Chilkat mainstem returns overlap with Chilkat Lake returns and peaks in early to middle July followed by late run Chilkat Lake sockeye salmon, which dominate during August (Figure 11). Return timing is tied to freshwater age: mainstem sockeye salmon are predominantly age 0, Chilkat Lake early run fish are predominantly age 1, and Chilkat Lake late run fish are predominantly age 2.

Fall fishery management in Section 15-A will begin from statistical week 34 until the end of the season. As in recent years, the northern boundary line in Section 15-A will move southward in stages as the coho and fall chum stocks begin to migrate back to parental streams. Depending on effort levels, and coho and chum salmon run strength, fishing opportunity in Section 15-A may be similar to openings in 2007.

Section 15-B

Based on inseason information for coho salmon to Berners Bay, Section 15-B may be opened from statistical week 38 to the end of the season south of the latitude of Cove Point (Figure 12) for 2 or 3 days each week. Inseason information collected from coded wire tag recoveries and commercial harvest from various gear types will provide the data to manage fishing opportunity in Section 15-B. Since the preseason forecast is for a below average return of coho salmon for Lynn Canal, it is unlikely that openings within Berners Bay will occur in 2008. Inseason information collected from coded wire tag recoveries and commercial harvest from various gear types will provide the data to manage fishing opportunity in Section 15-B.

Section 15-C

Section 15-C will open for two days beginning 12:01 PM Sunday, June 15 with no mesh restriction. If the Chilkoot River weir count is less than 2,500 sockeye salmon through June 14, the eastern side of Section 15-C will be closed north of the latitude of Bridget Point (excluding the Boat Harbor Terminal Harvest Area).

Due to the below average expected returns of Chilkat Lake sockeye salmon, open fishing time in Section 15-C will be limited to 2 or 3 days (except for the Boat Harbor THA). If in season projections for the Chilkat or Chilkoot Lake sockeye salmon returns are below the escapement goal range, it is possible that additional time, area and gear restrictions be placed in Section 15-C during the summer season to boost escapement of sockeye salmon at desired levels.

To provide adequate escapements for northbound wild salmon stocks, openings of the small area in eastern Section 15-C defined as:

the waters of Section 15-C from the eastern shoreline of Lynn Canal at the latitude of Vanderbilt Reef Light to Vanderbilt Reef Light and east of a line from Vanderbilt Reef Light to Little Island Light, (Figure 12).

may occur on the 3rd and/or 4th day during peak weeks (statistical weeks 27 through 31) of the hatchery chum salmon return. This strategy will be used to provide opportunity to harvest summer chum salmon while reducing the harvest of northbound wild salmon stocks migrating through section 15-C. The decision to use this strategy will be considered inseason based on Chilkat River fish wheel counts, Chilkoot Lake weir counts and results from site-specific sampling of the commercial fishery.

The Boat Harbor Terminal Harvest Area (THA) will be opened for extended periods beginning in week 27, (June 29). The Boat Harbor THA is defined as: those waters within two nautical miles of the western shoreline of Lynn Canal south of the latitude of Danger Point at 58°41.73' N. latitude and north of a point 2.4 miles north of Point Whidbey at 58°37.05' N. latitude. The northern line of the Boat Harbor area will remain at the latitude of Danger Point through week 31. The purpose of this strategy is to decrease the harvest rate on Endicott River and other western Lynn Canal wild chum salmon stocks that migrate through this area during the summer season when large returns of hatchery chum salmon are present. This action has been in place for the last six seasons. Escapements of wild chum salmon to the Endicott River have improved because of this action.

The section within the Boat Harbor area west of a line from the entrance to the Boat Harbor proper area will be opened continuously beginning the first week of the season. This strategy will be used to harvest expected large returns of hatchery chum salmon that enter the Boat Harbor proper area with little risk to wild salmon stocks outside of this area.

Fall season management will begin in statistical week 34 (August 17) in Section 15-C. Management of Section 15-C during the fall season will be based on coho and fall chum salmon overall run strength and fishing effort levels. Commercial fishing effort will be directed at harvesting coho and fall chum salmon in Section 15-C in excess of escapement needs. Fishing time will be limited from 2 to 3 days each week in the fall season.

Golden North Salmon Derby

In order to avoid conflicts with sport fisheries, the District 15 drift gillnet fishery will not be open concurrent with the 2008 Juneau Golden North Salmon Derby (August 8–10). Consequently, during Statistical Week 33, the District 15 gillnet fishery will not open until Monday, August 11.

2008 STOCK ASSESSMENT PROJECTS

The Haines Commercial Fisheries Division's salmon stock assessment projects include the Chilkoot River weir, Chilkat River fish wheels, Chilkat Lake weir and the marine fishery performance project. Funding for the Chilkoot River weir, Chilkat Lake weir and marine fishery performance projects are supported through the general fund. Funding through the Southeast Alaska Sustainable Salmon Fund (SSSF) supports the Chilkat River fish wheel project. The funding for the fish wheel project is secured through 2008 only.

Information collection from the Chilkat River fish wheel, Chilkoot River weir and marine fishery performance projects form the inseason escapement and commercial catch information system used to make fishery decisions to manage the drift gillnet fishery in Lynn Canal.

Information from the lower Chilkat River fish wheel program is used to estimate the spawning escapements of Chilkat Lake and Chilkat River mainstem sockeye salmon through mark-recapture experiments. Sockeye salmon are marked at the fish wheels and ratios of marked to unmarked fish are determined from recaptured fish at the Chilkat Lake weir and on Chilkat River mainstem spawning areas. Since this program began in 1994, the average escapement to Chilkat Lake and the Chilkat River mainstem area are estimated at 114,600 and 32,900 respectively, using mark-recapture methods (Table 5 and 9). A new dual frequency identification sonar (DIDSON) will be used to enumerate Chilkat Lake sockeye salmon into Chilkat Lake. Severe flow reversals and increased in boat traffic into and out of Chilkat Lake have made sockeye salmon enumeration into this system very difficult. Using DIDSON technology to estimate spawning escapement for this stock will improve the quality of escapement estimates for this very important stock.

A mark-recapture project utilizing the Chilkat River fish wheels began in 2002 to measure the abundance of fall chum salmon from June 8 through October 19. Over the past four years, this mark-recapture study has documented escapements of approximately 204,100 in 2002, 165,700 in 2003, 309,520 in 2004 and 202,000 in 2005. This information will be used to correlate fish wheel catch and to estimates of abundance based on the 2002–2005 mark-recapture work.

The department plans to sample emigrating sockeye salmon smolt from Chilkoot and Chilkat Lakes in the spring of 2008. Incline plane traps will be placed at the weir sites of both lakes to document out migration timing, and to collect biological samples for length, weight and age composition.

The Chilkoot Lake weir project has been in operation since 1976. The weir will operate beginning the first week in June to estimate the spawning escapement of this stock. The department will conduct a radio-telemetry study for the second year on returning Chilkoot Lake adult sockeye salmon to document spawning distribution and weir detection rates. Fish will be radio tagged at the weir and released below the weir and tracked throughout the Chilkoot River watershed.

Abundance of zooplankton, a chief food item for rearing Chilkoot Lake sockeye fry, was negatively affected by interannual reductions in summer euphotic zone depth. Chilkoot Lake functions as a clear lake during spring and early summer, changing to a glacial lake in the summer. With increasing air temperatures, glaciers melt more rapidly, and more silt is deposited, increasing the lake's turbidity. Increased turbidity causes a reduction in euphotic zone depth, in primary production, and in carrying capacity at all trophic levels (Riffe, 2006). The intensity of the change depends on summer weather patterns.

As in previous years, the department's management crews as part of the marine fishery performance project will be on the fishing grounds during commercial fishing periods to sample sockeye and Chinook salmon and to monitor the fishery during each opening. The department requests that commercially caught sockeye and king salmon be retained in separate fish holds or totes so department staff can collect scale and length data from targeted fish while monitoring the fishery. The sockeye salmon scale samples that are collected from the commercial gillnet fishery form the basis of our stock separation analysis. The department vessels stand by on **channel 10 VHF** when on the fishing grounds.

Please report any commercial fisheries violations to the Alaska Wildlife Troopers at (907) 766-2533 (Haines), (907) 465-4000 (Juneau).

REFERENCES CITED

- Bachman R.L. *In prep.* Stock assessment studies of Chilkat River salmon stocks in 2003 and 2004. Alaska Department of Fish and Game, Division of Commercial Fisheries, Fishery Data Series Report.
- Bachman R.L. *In prep.* Stock assessment studies of Chilkat River salmon stocks in 2005 and 2006. Alaska Department of Fish and Game, Division of Commercial Fisheries, Fishery Data Series Report.
- Bachman R.L. 2005. Stock assessment studies of Chilkat River salmon stocks in 2002. Alaska Department of Fish and Game, Division of Commercial Fisheries, Fishery Data Series Report 05-36.
- Bachman R. L. and A. J. McGregor. 2001. Stock assessment studies of Chilkat River salmon stocks in 1999. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J01-36, Juneau.
- Bachman R.L. and M. M. Sogge. 2006. Chilkoot River Weir Results, 1999 to 2003. Alaska Department of Fish and Game, Division of Commercial Fisheries, Fishery Data Series Report No. 06-30, Anchorage.
- Ericksen R.P., and S. A. Fleischman. 2006. Optimal production of coho salmon from the Chilkat River. Alaska Department of Fish and Game, Fishery Manuscript No. 06-06, Anchorage.
- Ericksen, R. P., and S. A. McPherson. 2004. Optimal production of Chinook salmon from the Chilkat River. Alaska Department of Fish and Game, Fishery Manuscript No. 04-01, Anchorage.
- Ericksen R. P. 2003. Smolt production and harvest of coho salmon from the Chilkat River, 2001–2002. Alaska Department of Fish and Game, Fishery Data Series, No. 03-28, Anchorage.
- Gieger, H.J., R.L. Bachman, S.C. Heinl, K. Jensen, Todd A. Johnson, A. Piston, R. Riffe. 2005. Sockeye salmon stock status and escapement goals in Southeast Alaska [*in*] Der Hovanisian and H.J. Gieger, *editors*. Stock status and escapement goals for salmon in Southeast Alaska 2005. Alaska Department of Fish and Game, Special Publication No. 05-22, Anchorage.
- Kelley, M. S. and R. L. Bachman. 1999. Chilkoot River weir results, 1998. Alaska Department of Fish and Game, Commercial Fisheries Division, Regional Information Report 1J99-25, Juneau.
- McPherson, S. A. 1990. An inseason management system for sockeye salmon returns to Lynn Canal, Southeast Alaska. M. S. Thesis, University of Alaska Fairbanks.
- McPherson, S., D. Bernard, J. H. Clark, K. Pahlke, E. Jones, J. Der Hovanisian, J. Weller, and R. Ericksen, 2003. Stock status and escapement goals for Chinook salmon stocks in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 03-01, Anchorage.
- Riffe, R. 2006. Summary of limnology and fishery investigation of Chilkoot Lake, 2001–2004. Alaska Department of Fish and Game, Fishery Data Series No. 06-17, Anchorage.
- Shaul, L., E. Jones and K. Crabtree. 2005. Coho salmon stock status and escapement goals in Southeast Alaska [*in*] Der Hovanisian and H.J. Gieger, *editors*. Stock status and escapement goals for salmon in Southeast Alaska 2005. Alaska Department of Fish and Game, Special Publication No. 05-22, Anchorage.

Table 1.—Historical catches of king, sockeye, coho, pink, and chum salmon in the District 15 (Lynn Canal) drift gillnet fishery by regulatory Section, 1976–2007.

Year	Chinook				Sockeye				Coho			
	15-A	15-B	15-C	Total	15-A	15-B	15-C	Total	15-A	15-B	15-C	Total
76	2,044	0	24	2,068	122,735	0	3,887	126,622	49,167	0	22,817	71,984
77	1,156	0	58	1,214	159,312	0	767	160,079	50,453	0	40,973	91,426
78	457	0	79	536	105,491	0	2,989	108,480	26,084	0	27,081	53,165
79	3,554	0	18	3,572	192,692	0	282	192,974	23,426	0	3,589	27,015
80	434	0	6	440	53,096	0	891	53,987	26,120	0	2,778	28,898
81	1,083	2	215	1,300	81,740	1,289	10,166	93,195	30,452	109	14,089	44,650
82	5,878	1	66	5,945	268,290	160	5,432	273,882	47,719	78	24,573	72,370
83	1,993	5	121	2,119	349,884	155	19,791	369,830	53,622	66	15,822	69,510
84	5,822	13	264	6,099	320,277	3,759	10,546	334,582	43,637	58	24,520	68,215
85	2,753	177	330	3,260	233,972	7,736	61,533	303,241	64,547	414	33,329	98,290
86	2,141	41	590	2,772	248,264	1,100	40,541	289,905	48,046	4	34,071	82,121
87	3,021	2	200	3,223	381,856	1,244	32,236	415,336	31,195	15	22,541	53,751
88	1,136	27	94	1,257	327,330	17,469	7,000	351,799	50,984	410	30,142	81,536
89	1,478	33	444	1,955	351,706	9,249	110,959	471,914	29,484	98	20,725	50,307
90	364	16	290	670	248,878	3,612	104,928	357,418	36,260	48	26,764	63,072
91	462	0	283	745	275,428	0	32,383	307,811	23,031	0	105,334	128,365
92	225	0	385	610	230,229	0	55,806	286,035	30,021	0	78,732	108,753
93	302	0	439	741	119,754	0	53,359	173,113	7,499	0	52,453	59,952
94	253	4	723	980	111,061	80	60,588	171,729	55,925	13,805	71,034	140,764
95	56	0	772	831	41,570	505	34,351	88,572	21,093	11,632	43,696	79,949
96	106	0	491	642	65,031	0	41,354	149,961	16,525	0	29,885	52,658
97	280	0	487	834	52,669	0	42,413	118,348	2,034	0	12,558	15,572
98	375	0	304	679	114,467	0	20,470	134,937	7,003	0	19,115	26,118
99	373	0	180	553	145,917	0	17,613	163,530	4,478	0	30,852	35,330
00	140	0	157	297	76,732	0	32,648	109,380	7,652	0	27,984	35,636
01	373	0	1,229	1,672	57,055	0	90,756	147,811	10,932	0	23,283	34,215
02	64	0	518	582	41,677	6	40,326	82,014	23,823	12,574	41,544	77,941
03	71	0	594	665	57,370	74	37,692	95,136	17,769	10,408	28,929	57,106
04	365	0	440	805	73,944	130	77,171	151,245	13,323	5,822	32,815	51,960
05	309	0	402	711	38,249	0	27,220	65,469	10,435	0	17,512	27,947
06	51	0	292	343	114,091	96	31,280	145,467	25,875	5,400	23,875	55,133
07	413	0	650	1,063	108,247	0	58,551	156,798	7,173	0	10,964	18,137
Averages												
1998–07	253	0	484	737	82,768	31	42,385	125,183	12,846	3,420	25,686	41,953
1976–07	1,173	10	350	1,537	161,530	1,458	36,126	201,583	27,993	1,904	31,074	61,308

-Continued-

Table 1.—Continued (Page 2 of 2)

Year	Pink				Chum				Summer	Fall
	15-A	15-B	15-C	Total	15-A	15-B	15-C	Total		
76	3,866	0	563	4,429	329,974	0	45,052	375,026	5,173	369,853
77	130,644	0	216	130,860	152,923	0	48,711	201,634	5,577	196,057
78	3,260	0	551	3,811	82,443	0	35,985	118,428	7,845	110,583
79	28,752	0	11	28,763	225,713	0	17,119	242,832	7,006	235,826
80	79,441	0	2,902	82,343	157,515	0	11,338	168,853	19,888	148,965
81	112,471	4,107	20,692	137,270	90,619	508	26,248	117,375	13,215	104,160
82	67,415	126	1,509	69,050	271,659	37	34,889	306,585	5,337	301,248
83	134,319	452	22,775	157,546	311,510	1,116	28,519	341,145	19,303	321,842
84	68,611	2,128	7,261	78,000	552,232	10,177	79,829	642,238	59,567	582,671
85	169,644	6,079	63,357	239,080	582,649	12,377	103,784	698,810	77,806	621,004
86	31,927	34	6,154	38,115	305,610	1,357	74,415	381,382	18,987	362,395
87	124,066	430	41,255	165,751	295,663	548	96,727	392,938	26,698	366,240
88	193,991	10,343	4,070	208,404	284,127	28,664	64,792	377,583	60,206	317,377
89	61,365	291	48,798	110,454	90,735	3,508	29,388	123,631	28,813	94,818
90	48,645	1,247	51,207	101,099	122,157	2,908	85,477	210,542	84,282	126,260
91	3,815	0	1,657	5,472	100,121	0	110,068	210,189	100,627	109,562
92	243,297	0	108,265	351,562	114,157	0	131,090	245,247	132,505	112,742
93	680	0	10,656	11,336	62,190	0	244,376	306,566	229,284	77,282
94	57,648	2	89,627	147,277	155,172	4,482	525,795	685,449	529,380	156,069
95	883	0	14,641	5,799	62,206	1,332	494,792	568,368	493,279	75,089
96	1,290	0	958	2,358	55,321	0	337,709	415,547	340,021	75,526
97	13,601	0	36,864	32,962	28,410	0	425,122	461,614	431,699	29,915
98	22,260	0	10,091	32,351	29,933	0	130,736	160,669	136,515	24,154
99	36,989	0	25,748	62,737	46,947	0	303,947	350,894	290,325	60,569
00	15,938	0	5,070	21,008	66,848	0	686,181	753,029	680,536	72,493
01	26,709	0	41,009	67,718	66,024	0	377,501	443,525	358,987	84,538
02	37,938	0	50,106	88,044	44,184	632	620,869	665,685	625,743	39,518
03	33,936	0	19,685	53,621	35,487	2,114	356,287	393,888	348,820	45,672
04	62,157	0	36,184	98,341	74,618	1,061	668,977	744,656	666,038	78,257
05	89,755	0	120,078	209,833	63,048	0	263,847	326,895	240,055	86,840
06	66,422	0	28,278	94,700	64,371	984	1,028,857	1,094,212	1,035,956	58,257
07	50,260	0	39,522	89,782	76,888	0	746,270	823,158	754,590	65,629
Averages										
1998–07	44,236	0	37,577	81,813	56,840	479	518,864	576,183	524,994	50,920
1976–07	63,187	789	28,430	91,558	156,297	2,244	257,496	417,307	248,326	168,896

Table 2.—Biological and sustainable escapement goals for Lynn Canal salmon stocks by species and location.

Species	Stock	Escapement Goal Type	Escapement Goal Range	Escapement Method
Sockeye ^a	Chilkoot Lake Total	Sustainable	50,000 to 90,000	Weir Count
Sockeye ^a	Chilkat Lake Total	Sustainable	80,000 to 200,000	Mark-Recapture Estimate
Coho ^b	Berners River	Biological	4,000 to 9,200	Peak Foot Count
Coho ^c	Chilkat River Combined	Biological	30,000 to 70,000	Sum of Peak Foot Index Counts
Chinook ^d	Chilkat River Combined	Biological	1,750 to 3,500	Mark-Recapture Estimate

^a Gieger, et al. 2005

^b Shaul and Crabtree. 2005

^c Ericksen and Feischman. *In prep*

^d Ericksen and McPherson. 2004

Table 3.—Yearly preseason smolt based forecast compared to the estimated total return of adult Chilkat Lake sockeye salmon, 1992, 1997–2006.

Year	Pre-season Forecast	Estimated Total Return	Difference Forecast vs. TR	Percent Difference
1992	218,000	209,627	8,373	4%
1993 ^a	N/A	310,447	N/A	N/A
1994 ^a	N/A	275,752	N/A	N/A
1995 ^a	N/A	247,937	N/A	N/A
1996 ^a	N/A	359,232	N/A	N/A
1997	266,974	308,859	-41,885	-16%
1998	262,123	331,758	-69,635	-27%
1999	295,520	386,089	-90,569	-31%
2000	177,093	210,190	-33,097	-19%
2001	181,568	190,634	-9,066	-5%
2002	210,655	175,403	35,252	17%
2003	156,056	162,827	-6,771	-4%
2004	115,101	168,833	-53,732	-47%
2005	100,607	106,931	-6,324	-6%
2006	175,000	88,639	86,323	49%
2007 ^a	N/A			
92, 97–2006 Avg.	196,242	212,708	-16,466	-8%

^a No forecast due to incomplete smolt data.

Note: Escapement for years 1994–2006 based on mark-recapture methods.

Table 4.—Annual total return of Chilkat Lake sockeye salmon by week, 1977 to 2007.

Statistical	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Week																
23													62		1	
24		22	6										689	202	44	10
25	214	4,861	1,556	675	1,542	469		2,550	408	88			13,398	2,358	1,516	53
26	5,346	2,645	3,941	1,053	1,960	2,170	1,452	6,348	1,732	361	1,968	2,438	19,180	6,021	2,727	3,452
27	9,661	8,622	6,955	1,152	1,826	4,061	3,116	11,132	1,731	1,304	5,307	5,497	18,284	7,966	3,157	6,280
28	2,350	3,799	7,017	3,560	1,635	3,524	16,747	5,413	6,456	1,227	3,713	5,416	13,456	8,758	3,902	5,310
29	2,412	13,648	14,088	4,355	3,053	3,087	19,741	12,331	5,459	1,997	12,411	7,607	20,959	13,254	2,892	12,216
30	1,586	4,528	17,288	6,685	6,171	3,618	16,317	14,147	3,471	2,229	7,580	4,127	25,615	12,637	4,928	10,681
31	1,841	22,108	19,520	3,401	3,123	13,135	18,993	9,295	9,962	2,266	6,073	10,476	15,994	11,372	6,294	7,825
32	4,502	18,979	30,268	5,550	5,934	30,622	24,469	12,203	11,705	10,775	15,401	8,462	35,253	26,950	10,202	15,267
33	5,350	23,568	21,765	10,337	1,746	30,708	23,031	21,367	11,493	30,806	11,230	13,569	18,503	35,594	7,870	25,623
34	6,185	12,968	23,389	12,510	3,430	18,548	17,307	7,807	27,805	45,640	10,041	7,337	21,241	2,948	14,332	15,416
35	7,392	4,384	17,551	13,799	19,487	21,353	22,356	21,427	39,750	15,353	12,649	7,008	21,047	36,947	19,423	36,915
36	20,193	6,903	5,110	11,032	8,097	12,250	25,274	22,913	20,105	45,368	4,112	7,106	12,212	23,929	11,436	22,689
37	8,982	6,362	20,149	29,820	19,652	8,004	15,674	22,509	11,180	13,083	1,852	11,491	16,250	4,020	7,726	8,234
38-42	6,419	23,689	7,980	22,099	54,893	55,708	53,618	44,058	41,970	21,811	26,325	13,532	47,778	14,331	16,245	39,656
Yearly Total	82,433	157,086	196,583	126,028	132,549	207,257	258,095	213,500	193,227	192,308	118,662	104,066	299,921	207,287	112,695	209,627
Weekly Mean	5,888	10,472	13,106	9,002	9,468	14,804	19,853	15,250	13,802	13,736	9,128	8,005	18,745	13,819	7,043	13,975

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Table 4.–(Page 2 of 2)

Statistical																77–07
	Week	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
23															0	21
24			57		476	592	258	53	105	683	144	87	157		0	211
25	2,358		4,516	987	5,003	4,308	1,127	3,861	2,046	6,595	1,875	1,237	904	592	795	2,440
26	2,886	6,261	7,021	5,954	6,569	14,634	10,292	18,395	8,353	8,177	2,920	3,810	2,776	1,588	883	5,268
27	6,120	10,224	10,474	11,981	15,157	29,804	20,235	21,008	10,802	10,290	3,940	9,299	3,836	3,270	1,092	8,503
28	9,787	15,900	14,557	34,411	8,338	31,533	46,640	18,335	14,305	10,457	3,244	16,586	5,469	2,443	2,007	10,526
29	9,417	16,880	11,359	30,905	8,469	36,090	35,884	16,039	23,472	12,363	4,519	16,485	5,863	3,198	2,339	12,348
30	10,541	14,476	20,856	31,177	15,775	31,506	39,289	15,403	26,331	14,267	5,321	14,643	6,020	5,225	7,828	12,912
31	9,317	17,780	19,782	34,786	23,640	32,112	28,573	16,273	19,647	16,056	6,598	13,620	5,896	9,914	4,219	13,545
32	13,613	21,151	22,516	58,568	31,728	41,282	36,690	21,336	27,652	23,266	17,393	20,781	7,876	11,358	5,028	20,219
33	26,504	46,225	20,818	39,784	17,349	36,814	33,663	18,377	16,358	16,560	26,531	20,962	6,468	7,661	7,235	20,447
34	33,161	29,319	44,587	37,510	20,648	31,761	35,772	18,609	11,091	14,304	24,585	18,984	7,395	10,140	5,670	19,046
35	38,108	35,280	28,202	31,720	26,064	31,529	35,087	11,137	10,136	13,927	25,053	15,236	7,373	11,075	9,055	20,833
36	29,950	32,105	17,769	20,683	22,670	19,649	19,154	12,845	10,546	15,655	23,323	15,124	11,933	8,712	13,575	17,175
37	5,901	26,137	23,374	18,089	29,896	27,720	15,695	6,044	3,396	7,806	11,063	3,356	11,904	7,724	10,465	13,341
38-42	112,784	4,012	2,048	2,676	77,078	46,224	42,015	12,474	6,395	4,996	10,510	7,968	23,066	6,250	12,035	27,763
Total	310,447	275,752	247,937	359,232	308,859	430,106	398,822	210,190	190,635	175,403	167,019	178,177	106,937	89,150	82,226	204,588
Mean	22,175	21,212	16,529	25,659	20,591	27,704	26,692	14,013	12,709	11,694	11,135	11,878	7,129	6,368	5,873	14,112

16

Table 5.—Annual escapements of Chilkat Lake sockeye salmon by week, 1977–2007.

Statistical	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Week																
23													62		1	
24		22	6										689	202	44	10
25	214	476	44	72	3			302					5,802	639	305	53
26	305	1,302	698	887	0	31	368	1,441	7	4	88	59	10,690	3,615	901	1,016
27	572	8,622	6,930	1,152	5	532	1,248	5,436	98	2	1,777	2,015	7,845	1,660	1,600	1,653
28	773	2,751	2,081	3,560	141	605	11,144	623	1,317	602	2,197	496	2,295	4,353	1,971	1,762
29	207	11,816	8,576	4,355	549	461	15,284	3,280	1,141	139	5,601	9	8,126	9,566	503	6,529
30	542	1,310	4,068	4,575	1,071	2,515	8,935	6,011	334	20	2,542	722	15,810	2,380	2,812	5,034
31	711	1,814	1,413	2,100	1,002	1,743	10,750	929	812	24	1	1,969	3,161	1,449	2,234	2,263
32	1,184	40	2,056	2,100	266	3,496	6,865	141	2,029	1	123	1,965	4,340	1,925	3,724	3,579
33	725	1,078	5,895	2,100	729	509	4,254	2,971	157	3	1,776	200	11	380	1,821	1,197
34	968	1,634	7,288	5,666	1,450	4,073	5,589	1,417	1,555	138	1,875	566	3,207	2,948	4,295	5,768
35	1,269	1,246	11,212	6,910	767	5,151	1,433	14,899	4,434	736	6,193	280	7,582	7,167	10,732	10,357
36	18,711	5,670	3,639	10,351	4,967	1,575	5,475	18,015	3,271	1,006	1,618	469	8,379	9,647	5,380	13,172
37	8,664	6,106	19,464	29,613	18,652	6,091	10,526	18,512	3,372	5,364	27	7,973	15,019	259	2,260	6,014
38	144	7,747	12	10,739	1,113	20,378	21,097	21,106	12,639	6,943	259	2,254	34,155	664	3,264	8,779
39	5,821	9,469	2,353	7,015	6,134	25,516	9,455	17,510	17,688	3,796	18,033	2,747	2,713	4,465	1,873	22,150
40	234	6,334	1,413	3,374	32,516	7,467	9,398	2,252	5,258	3,762	6,165	4,551	2,936	3,552	1,091	6,171
41	0	91	2,125	778	10,222	78	7,305	424	2,009	831	0	655	3,053	4,456	1,427	1,891
42			1,316		4,502		5,081		1,603	576	318	663	4,600	904	6,651	342
Yearly Total	41,044	67,528	80,589	95,347	84,089	80,221	134,207	115,269	57,724	23,947	48,593	27,593	140,475	60,231	52,889	97,740
Weekly Mean	2,160	3,554	4,029	5,609	4,672	5,014	7,895	6,067	3,396	1,330	2,700	1,533	7,024	3,170	2,644	5,144

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Table 5.-(Page 2 of 2)

Statistical																1977-06	
Week	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
23																	32
24	10			57		476	395	270	53	105	683	140	81	157			212
25	53	75		2,232		1,857	2,562	1,140	3,861	392	4,695	1,398	1,150	904	82	76	1,232
26	1,016	1,745	1,510	5,323	2,720	3,618	6,382	5,737	14,933	4,580	6,169	2,148	2,441	2,281	611	51	2,634
27	1,653	3,557	3,456	8,471	11,051	11,759	12,307	12,659	13,238	5,014	6,699	2,827	5,757	2,312	1,303	354	4,578
28	1,762	4,240	8,223	9,674	32,814	5,951	10,495	26,856	10,034	6,595	7,185	1,883	8,046	3,600	1,618	1,154	5,646
29	6,529	3,552	5,125	9,387	28,393	5,713	12,343	16,442	9,594	12,139	6,745	3,027	7,909	4,401	1,729	1,565	6,587
30	5,034	7,615	8,025	18,775	28,308	13,187	9,500	20,819	8,399	19,314	9,037	2,498	7,426	4,795	2,789	4,070	7,201
31	2,263	5,336	8,184	17,172	26,778	16,044	10,900	14,853	7,176	12,945	11,728	2,968	7,984	4,713	8,219	2,720	6,132
32	3,579	6,490	9,375	17,973	42,335	22,138	15,897	17,906	8,886	20,775	15,074	10,872	15,718	5,949	10,904	3,409	8,308
33	1,197	14,537	34,085	15,054	22,358	11,283	17,350	21,197	9,347	11,512	14,182	16,530	14,216	4,966	6,838	6,816	7,873
34	5,768	6,643	17,559	25,643	17,767	9,617	16,221	20,962	11,167	10,196	10,325	16,080	14,305	4,922	9,578	4,361	7,864
35	10,357	23,593	16,367	21,007	21,848	14,521	19,738	20,035	7,145	9,084	10,109	16,637	10,692	5,059	9,399	8,081	9,796
36	13,172	19,677	19,346	13,394	13,942	18,044	12,723	9,563	9,647	9,641	13,339	16,996	12,648	9,886	6,662	12,982	9,995
37	6,014	1,251	18,274	20,377	14,112	27,518	19,149	10,180	5,595	3,139	7,219	8,805	2,537	9,067	7,159	10,387	10,409
38	8,779	61,222	4,012		425	42,800	12,857	13,788	6,492	2,813	2,379	5,654	2,455	15,324	4,911	11,981	11,280
39	22,150	32,323				9,474	18,121	10,382	3,009	2,519	1,354	4,156	2,095	5,702	1,263		9,153
40	6,171	297				21,328	10,598	10,685	1,742	924	902		2,235				6,049
41	1,891	2,947				3,475	3,163	2,899	1,003		287		1,219				2,189
42	342	14,630					413						366				2,998
Yearly Total	97,740	209,730	153,540	184,541	262,852	238,803	211,114	236,374	131,322	131,687	128,111	112,619	119,280	84,039	73,064	68,008	114,599
Weekly Mean	5,144	10,487	10,236	13,182	17,523	11,940	11,111	13,132	7,296	7,746	7,468	7,039	6,923	5,252	4,871	4,858	6,613

Note: From 1994 through 2006, estimates of escapement are determined from mark-recapture methods; weekly escapement numbers are derived from fish wheel CPUE and stock composition data.

Table 6.—Chilkat Lake sockeye salmon smolt age, weight, and length compositions (wild and enhanced components), 1989–1990 and 1994–2006.

Year	Total Outmigration ^a	Fry Stocked	Total Wild	Total Enhanced	% Enhanced	Enhanced Survival %	Wild age-1.0	Enhanced age-1.0	Wild age-2.0	Enhanced age-2.0	Wild age-3.0	Enhanced age-3.0
1989	2,000,000		2,000,000				1,520,000		480,000			
1990	2,600,000		2,600,000				702,000		1,898,000			
1994	2,367,891	4,400,000	2,367,891				1,207,624		1,160,267			
1995	1,897,413	2,393,558	1,210,977	686,436	36.0%	23.1%	403,217	686,436	801,223	n/a	6,537	
1996	2,869,160	2,691,311	2,269,741	599,419	21.0%	27.7%	939,393	269,365	1,325,183	330,054	5,165	
1997	1,515,859	2,806,858	1,039,634	476,225	31.0%	4.9%	113,201	98,786	918,711	377,439	7,722	
1998	1,386,118		1,115,700	270,418	19.5%	23.8%	666,224	220,892	340,569	33,683	108,907	15,843
1999	1,809,273		1,362,342	446,931	24.7%		620,377		716,718	446,931	25,247	
2000	1,629,883		1,629,883				115,214		1,509,020		5,649	
2001	1,398,802	2,698,874	1,398,802				657,269		694,397		47,136	
2002	434,411		432,608	1,803	0.4%		114,619	1,803	316,686		1,303	
2003	1,458,025		1,401,462	56,563	3.9%		840,998		549,390	56,563	11,075	
2004	1,457,990		1,457,990				831,210		624,685		2,096	
2005	1,300,000		1,300,000				1,379,553		206,140		n/a	
2006	552,226		552,226				397,603		149,653		4,970	
2007 ^b	N/A											
97–06 Ave.	1,525,952	2,732,348	1,340,816	308,560			602,951	147,712	716,436	248,934	23,811	15,843

^a Total sockeye salmon smolt out migration estimated from mark-recapture techniques.

^b Chilkat Lake sockeye salmon smolt data not collected.

Table 7.—Percent age, average length and average weight composition of Chilkat Lake sockeye salmon smolt, 1989–1990 and 1994–2006.

Year	Age %			AVG Length (mm)			AVG Weight (g)		
	age-1.0	age-2.0	age-3.0	age-1.0	age-2.0	age-3.0	age-1.0	age-2.0	age-3.0
1989	76.0%	24.0%		100.2	121.0		8.9	14.6	
1990	27.0%	73.0%		103.9	118.9		10.0	14.8	
1994	51.0%	49.0%		102.3	119.5		9.9	14.8	
1995	62.0%	37.0%	4.0%	92.5	115.4	147.4	7.1	13.2	27.2
1996	42.0%	58.0%	2.0%	86.3	107.2	185.0	5.7	10.3	56.0
1997	13.0%	86.0%	1.0%	95.2	101.2	154.5	7.0	8.8	34.4
1998	64.0%	27.0%	9.0%	92.7	109.4	138.3	7.3	11.2	22.7
1999	34.0%	64.0%	2.0%	88.1	107.6	155.8	5.3	9.5	37.7
2000	7.1%	92.6%	0.3%	93.8	104.8	120.4	7.1	9.4	14.3
2001	47.0%	49.6%	3.4%	92.5	113.4	131.5	6.8	11.8	19.0
2002	26.8%	72.9%	0.2%	85.5	92.7	175.0	5.2	6.3	38.7
2003	75.3%	24.1%	0.6%	88.9	111.4	136.9	5.9	11.4	21.1
2004	57.0%	42.8%	0.1%	87.2	93.8	115.0	5.6	6.8	12.5
2005	87.0%	13.0%	0.0%	93.0	116.0	n/a	6.9	14.1	n/a
2006	72.0%	27.1%	0.9%	95.4	114.9	149.0	7.1	12.8	30.1
2007 ^a									
89–90, 94–06 Ave.	49.4%	49.3%	2.0%	93.2	109.8	146.0	7.1	11.3	28.4

^aChilkat Lake sockeye salmon smolt data not collected.

Table 8.—Historical age composition of sockeye salmon escapements to Chilkat Lake, 1982–2007.

Year	Sample	Percent by Age Class										
	Size	0.3	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.2	3.3
1982	1,630	0.1	0.4	2.3	12.9	0.0	2.6	45.3	34.8	0.0	1.3	0.1
1983	2,848	0.0	0.7	3.2	38.0	0.0	2.7	27.9	27.1	0.0	0.1	0.0
1984	2,728	0.0	0.1	1.5	22.8	0.0	1.5	53.6	20.2	0.0	0.2	0.0
1985	1,333	0.0	0.6	0.7	9.2	0.2	3.3	39.7	45.7	0.0	0.5	0.0
1986	940	0.0	0.0	1.7	1.6	0.0	0.5	20.6	73.1	0.0	1.9	0.5
1987	1,461	0.0	0.9	1.8	24.5	0.0	2.7	34.2	35.0	0.1	0.5	0.2
1988	1,918	0.1	0.0	0.8	47.3	0.2	0.0	7.9	43.4	0.1	0.1	0.1
1989	3,874	0.0	0.0	0.7	42.8	0.1	0.0	28.9	27.3	0.0	0.0	0.1
1990	2,635	0.1	0.0	1.8	14.0	0.5	0.0	24.8	58.0	0.1	0.8	0.0
1991	1,602	0.0	0.0	2.1	36.1	0.1	0.0	21.8	39.5	0.2	0.0	0.2
1992	2,505	0.1	0.0	1.1	40.8	0.2	0.0	16.9	40.7	0.0	0.0	0.1
1993	2,367	0.1	0.0	6.4	15.0	0.0	0.0	36.2	38.7	0.0	3.6	0.0
1994	2,187	0.0	0.0	2.6	58.6	0.1	0.0	11.4	26.6	0.0	0.1	0.6
1995	2,691	0.0	0.0	5.5	27.1	0.9	0.0	17.7	48.6	0.0	0.1	0.0
1996	308	0.0	0.0	10.4	67.5	0.0	0.0	8.8	13.3	0.0	0.0	0.0
1997	750	0.0	0.4	38.8	19.9	0.0	1.3	14.0	25.6	0.0	0.0	0.0
1998	1,198	0.0	0.1	4.9	69.4	0.0	0.3	19.0	6.0	0.2	0.0	0.0
1999	2,548	0.0	0.0	1.7	31.6	0.1	0.0	14.3	52.0	0.2	0.0	0.0
2000	2,316	0.0	0.0	2.4	5.1	0.3	0.0	7.8	81.4	0.1	2.8	0.0
2001	2,441	0.0	0.0	2.9	54.7	0.1	0.0	11.8	25.9	0.2	0.1	4.1
2002	2,504	0.0	0.0	2.5	26.5	0.4	0.1	20.1	50.3	0.0	0.0	0.0
2003	2,169	0.1	0.2	5.1	21.0	0.2	0.4	14.8	57.5	0.3	0.3	0.0
2004	3,004	0.1	0.1	3.5	49.7	0.0	0.2	17.2	28.4	0.2	0.1	0.4
2005	2,264	0.1	0.1	3.9	33.5	0.7	0.3	9.5	51.8	0.1	0.0	0.0
2006	2,063	0.2	0.1	4.8	51.8	0.0	0.6	7.0	34.9	0.0	0.0	0.4
2007	1,568	0.1	0.6	6.3	30.0	0.6	2.2	20.3	39.1	0.5	0.3	0.0
Average	2,071	0.0	0.2	4.6	32.7	0.2	0.7	21.2	39.4	0.1	0.5	0.3
SE		0	0	0.1	0.2	0	0	0.2	0.2	0	0	0

Table 9.—Weekly and annual escapement of Chilkat River mainstem sockeye salmon, 1994–2007.

Statistical	1994–														
Week	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
23															
24		27		69	65		53	51	98	47	81				61
25		1,410		270	1,153	39	309	55	1,745	992	288	703	164	33	597
26	137	2,867	585	162	3,820	431	2,222	1,294	4,917	4,051	1,662	2,777	1,003	222	1,868
27	1,061	3,700	4,428	1,189	2,842	1,565	5,817	2,254	7,001	7,555	4,279	3,257	2,345	824	3,437
28	3,427	3,529	12,508	1,059	2,893	5,571	8,440	2,261	6,159	5,474	6,541	3,694	2,382	2,560	4,750
29	1,434	3,116	10,239	1,433	3,312	2,671	13,472	3,145	5,068	4,330	7,002	4,736	1,638	2,068	4,547
30	2,242	4,283	11,416	3,277	3,335	5,001	7,805	6,645	3,966	2,684	3,789	6,813	2,263	5,083	4,900
31	2,720	3,140	6,615	2,845	4,271	2,607	8,025	2,627	4,884	2,597	5,169	4,816	4,551	1,760	4,045
32	3,170	1,588	5,207	2,222	1,252	2,891	4,944	2,330	2,136	3,608	6,670	7,188	2,778	1,793	3,413
33	8,431	1,229	1,036	613	1,201	1,724	2,318	964	1,200	1,958	3,905	4,681	2,564	1,252	2,363
34	1,882	449	661	371	243	1,083	657	209	996	1,505	2,518	4,803	2,349	328	1,290
35	886	740	398	430	481	257	139	34	432	1,071	1,890	3,098	1,126	715	836
36	691		217	140		381	65	29	484	249	899	2,702	529	805	599
37	105		59	377	90			26			104	854	243	102	218
38				180		133					52	519		2,057	588
39												180		88	134
Total	26,186	26,078	53,369	14,637	24,958	24,354	54,266	21,924	39,086	36,121	44,849	50,824	23,936	19,693	32,877
Avg	2,182	2,173	4,447	976	1,920	1,873	4,174	1,566	3,007	2,779	2,990	3,388	1,841	1,313	2,473

Note: Estimates based on mark-recapture methods. Weekly estimates are calculated from stock proportions of sockeye salmon captured in the lower Chilkat River fish wheels.

Table 10.— Historical age composition of sockeye salmon escapements to Chilkat River mainstem areas, 1984 to 2007.

Year	Sample	Percent by Age Class										
	Size	0.1	0.2	0.3	0.4	1.1	1.2	1.3	1.4	2.2	2.3	2.4
1984	145	0.0	6.2	26.2	0.0	0.7	2.1	64.8	0.0	0.0	0.0	0.0
1985	136	0.0	14.7	42.6	0.0	0.0	0.0	39.7	0.7	1.5	0.7	0.0
1986	114	0.0	6.1	49.1	0.9	0.0	14.9	26.3	0.9	0.0	0.9	0.9
1987	51	0.0	9.8	9.8	0.0	0.0	3.9	74.5	0.0	0.0	2.0	0.0
1988	93	1.1	36.6	32.3	0.0	1.1	23.7	5.4	0.0	0.0	0.0	0.0
1989	195	0.0	4.6	27.2	0.0	0.0	3.6	63.1	0.0	0.5	1.0	0.0
1990	57	0.0	14.0	19.3	0.0	0.0	5.3	57.9	0.0	0.0	3.5	0.0
1991	310	0.6	21.0	52.3	0.0	1.0	9.7	15.5	0.0	0.0	0.0	0.0
1992	437	0.5	18.3	24.9	0.5	2.1	3.2	50.6	0.0	0.0	0.0	0.0
1993	67	0.0	1.5	85.1	0.0	0.0	0.0	13.4	0.2	0.0	0.0	0.0
1994	574	2.4	31.5	26.5	0.0	2.4	20.4	16.0	0.0	0.5	0.0	0.0
1995	474	0.0	29.7	36.1	0.2	0.0	12.4	21.5	0.0	0.0	0.0	0.0
1996	585	0.0	11.6	62.4	0.0	0.2	5.6	20.2	0.0	0.0	0.0	0.0
1997	437	0.2	18.3	62.9	0.0	0.0	3.2	15.3	0.0	0.0	0.0	0.0
1998	429	1.2	28.0	42.0	0.0	1.9	7.5	19.6	0.0	0.0	0.0	0.0
1999	334	5.1	47.3	14.4	0.0	4.2	20.1	8.4	0.0	0.6	0.0	0.0
2000	556	0.0	28.4	62.6	0.0	0.4	4.5	4.1	0.0	0.0	0.0	0.0
2001	438	0.0	3.4	49.8	0.0	0.0	6.8	40.0	0.0	0.0	0.0	0.0
2002	302	0.7	13.6	21.9	0.0	0.7	10.9	52.3	0.0	0.0	0.0	0.0
2003	547	0.0	47.9	21.4	0.0	2.6	13.3	14.4	0.0	0.0	0.2	0.0
2004	848	0.0	14.4	47.6	0.0	0.0	21.9	15.8	0.0	0.2	0.0	0.0
2005	1,158	0.2	20.3	30.4	0.0	2.2	19.5	27.1	0.0	0.2	0.0	0.0
2006	762	2.1	16.7	34.6	0.3	1.2	8.0	37.1	0.0	0.0	0.0	0.0
2007	609	0.8	48.3	7.1	0.2	2.1	26.6	14.9	0.0	0.0	0.0	0.0
Average	402	0.6	20.5	37.0	0.1	1.0	10.3	29.9	0.1	0.1	0.3	0.0
SE		0	0.2	0.2	0	0	0.1	0.3	0	0	0	0

Table 11.—Annual total return of Chilkoot Lake sockeye salmon by week, 1978–2007.

Stat.	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Week 23	844	3	0	0	0	0	333	8	25	11	0	571	328	1	31
24	1,957	8,738	0	25	252	467	3,349	6	101	176	95	4,266	2,060	471	4,744
25	3,796	4,802	1,312	3,394	14,437	2,764	13,273	630	414	198	1,082	26,973	5,062	8,300	8,775
26	1,007	2,188	1,479	4,255	13,272	10,175	14,204	6,975	647	21,421	6,097	15,106	14,736	7,186	9,426
27	6,677	2,832	1,824	2,309	6,972	6,636	12,092	3,372	2,992	23,211	28,807	13,475	9,912	5,030	21,317
28	2,404	12,032	2,241	3,346	7,306	7,186	18,878	6,926	4,685	8,025	20,534	28,206	9,938	9,064	10,118
29	4,984	1,097	5,894	16,810	10,680	7,929	28,068	2,856	4,025	51,328	29,550	45,814	13,233	13,531	15,498
30	9,173	8,064	10,184	24,110	28,921	41,318	61,590	8,196	7,809	54,190	25,275	37,381	46,320	30,131	16,556
31	6,348	29,879	10,225	20,685	56,819	61,978	56,888	37,270	13,506	51,040	54,337	65,123	31,621	53,137	22,984
32	6,128	56,146	27,834	12,128	41,839	45,339	46,017	33,668	29,464	95,943	46,488	48,270	36,726	57,302	25,652
33	3,449	21,877	28,288	17,209	29,943	44,734	26,207	32,265	33,637	47,338	49,678	35,796	32,794	44,373	30,146
34	2,207	10,019	14,261	11,611	21,130	25,253	27,087	55,628	49,703	49,361	25,032	10,998	13,553	41,469	15,382
35	359	5,801	11,971	5,567	10,965	31,197	13,338	17,265	27,309	19,521	28,384	8,312	18,492	24,411	16,460
36	136	1,379	1,205	4,751	2,272	26,034	7,454	12,367	15,178	6,455	13,495	4,337	12,215	11,310	7,161
37	123	634	518	915	1,865	7,794	3,258	2,817	7,277	1,466	4,577	1,245	4,568	6,968	2,703
38–42	126	319	122	49	892	3,008	173	1,102	1,682	496	1,811	890	630	1,995	837
Total	49,718	165,810	117,358	127,164	247,565	321,812	332,209	221,351	198,454	430,180	335,242	346,763	252,188	314,679	207,790

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Table 11.--(Page 2 of 2)

Stat.																1978-07
Week	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Mean
23	65	309	185	0	873	0	1	0	89	102	15	41		247	418	155
24	249	2,687	295	129	2,317	117	59	174	265	2,005	342	233	417	644	2,905	1,318
25	2,592	1,117	1,747	1,862	13,611	327	143	413	3,928	3,427	709	1,640	1,270	2,359	4,986	4,511
26	13,123	8,630	1,507	5,389	8,785	824	859	2,637	9,025	4,118	1,629	996	3,583	4,729	996	6,500
27	11,730	8,852	1,332	3,574	5,899	969	2,181	2,800	9,965	4,105	4,090	3,285	2,984	8,811	4,197	7,408
28	12,017	7,004	2,164	5,987	4,825	909	1,270	4,696	8,109	7,457	5,789	8,910	4,635	8,857	9,586	8,103
29	9,274	3,760	1,069	3,060	4,762	1,241	1,326	6,157	20,119	9,984	7,982	13,370	5,051	12,256	14,317	12,168
30	8,745	3,351	1,754	12,819	7,866	1,864	2,184	7,546	21,434	13,098	12,623	19,284	8,581	16,842	36,837	19,468
31	10,374	7,558	1,944	12,518	8,212	2,067	3,048	8,566	31,855	11,090	28,349	20,488	5,699	30,090	45,040	26,625
32	9,309	3,951	561	9,726	3,775	2,091	2,633	7,696	24,341	9,722	24,257	23,907	7,749	32,841	22,170	26,456
33	7,798	4,431	795	5,213	2,786	1,469	1,329	7,272	8,378	4,048	11,720	21,505	7,261	23,251	21,203	20,206
34	7,946	4,518	633	3,180	4,405	1,293	1,378	3,033	2,523	5,341	2,888	6,466	11,869	33,045	9,835	15,702
35	4,436	3,640	502	3,363	2,997	818	3,058	3,201	2,204	3,448	4,086	9,716	10,019	24,619	12,604	10,935
36	3,030	2,182	562	1,226	1,588	280	2,517	3,297	1,267	3,850	1,630	8,071	7,707	11,871	6,938	6,059
37	2,010	721	76	1,056	468	237	1,225	602	271	839	657	4,000	2,847	5,002	1,646	2,280
38-42	553	119	29	499	0	34	331	139	12	4	13	224	826	247	50	574
Total	103,251	62,830	15,155	69,600	73,167	14,541	23,542	58,229	143,785	82,636	106,778	142,133	80,498	215,464	204,889	168,826

Table 12.—Annual weir counts of Chilkoot Lake sockeye salmon by week, 1976–2007.

Statistical																		
Week	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	
23	124	14	844	3					333	8	25	11		571	328	1	31	
24	623	9,572	1,957	8,738		25	252	467	3,349	6	101	176	95	4,266	2,060	471	4,744	
25	241	35,751	1,368	2,730	391	1,108	12,220	2,764	11,100	104	163	198	1,082	21,300	2,778	5,599	8,775	
26	3,579	11,150	274	469	1,157	2,177	9,440	8,860	7,444	4,681	224	16,583	1,506	2,466	12,190	3,083	2,310	
27	735	3,361	6,677	407	1,824	559	2,623	4,062	4,406	783	857	6,879	22,846	1,009	1,893	2,097	8,450	
28	397	6,970	1,311	309	2,241	606	1,981	3,304	9,993	463	3,650	3,365	5,872	913	1,980	2,528	975	
29	1,752	1,844	2,526	95	5,894	7,346	5,095	4,090	6,738	810	2,328	7,000	4,389	2,122	0	5,436	1,222	
30	4,091	1,854	7,650	2,871	9,239	15,951	17,574	21,548	11,917	3,601	5,467	8,134	2,554	2,942	4,989	21,990	2,902	
31	28,061	9,016	3,465	22,765	8,294	9,006	20,806	12,747	9,610	19,778	11,438	8,998	5,416	3,614	1,853	17,870	9,488	
32	13,587	9,561	5,157	31,000	20,860	9,963	13,358	4,507	8,020	9,832	21,563	9,944	5,824	4,313	1,995	7,317	7,173	
33	11,827	6,059	2,316	16,091	21,333	15,631	8,287	3,614	5,522	12,501	12,276	5,899	5,683	2,157	4,255	8,229	10,572	
34	5,205	1,019	1,469	5,140	12,968	10,659	4,938	2,720	11,185	7,013	11,839	16,978	10,851	2,793	13,553	4,115	2,530	
35	346	372	155	3,880	10,669	5,028	2,655	3,016	3,435	4,432	6,348	6,018	6,650	3,067	13,734	5,077	3,531	
36	49	403	56	933	1,077	4,519	1,518	4,366	4,474	2,817	5,416	3,918	4,544	1,840	9,147	3,988	2,549	
37	118	103	106	427	479	794	1,404	2,604	2,891	1,546	5,071	738	2,646	876	2,128	1,879	1,200	
38	410	2	83	8	45		822	1,070		480	762	217	759	232	365	416	346	
39	142		12	70	36			502		145	409	112	381	216	5	294	273	
40–42	10		28	10	5			102		26	87	17	176	203	71	248		
Yearly Total	71,297	97,051	35,454	95,946	96,512	83,372	102,973	80,343	100,417	69,026	88,024	95,185	81,274	54,900	73,324	90,638	67,071	

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Table 12.--(Page 2 of 2)

Stat.																1976-06
Week	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
23	65	309	185		873		1		89	102	15	41		247	418	202
24	249	2687	295	129	2317	117	59	174	265	2,005	342	233	417	644	2,905	1,605
25	2,592	1,117	243	459	6,677	327	143	413	2,811	2,451	448	1,640	1,270	1,358	2,860	4,140
26	5,431	4,752	342	1,418	3,433	664	521	2,494	4,171	3,195	1,165		3,098	3,801	2,859	4,030
27	2,306	4,170	317	1,956	1,407	857	1,980	2,208	3,125	1,869	2,805	1,178	1,886	6,400	2,046	3,249
28	5,883	4,241	298	4,393	3,143	676	884	2,558	3,083	4,138	4,074	3,288	2,963	6,650	2,856	3,000
29	3,488	1,141	325	2,482	2,440	791	668	3,385	7,953	6,193	7,207	5,343	4,013	8,805	956	3,559
30	5,021	2,123	1,517	12,040	4,805	1,534	1,734	5,154	11,168	10,433	11,437	10,724	6,778	6,810	9,509	7,689
31	5,864	5,158	1,731	9,163	3,919	1,687	2,706	4,756	21,480	7,599	21,041	12,655	3,588	11,503	8,796	10,121
32	6,807	1,342	417	6,743	3,524	1,924	1,864	6,359	11,231	4,775	14,103	8,750	3,382	12,972	8,778	8,655
33	4,298	2,140	545	3,867	2,606	1,352	1,041	6,344	5,094	2,994	5,677	9,457	2,710	6,832	11,385	6,831
34	4,857	3,220	237	2,655	4,246	1,217	1,108	2,699	2,320	4,764	1,251	3,583	4,755	11,886	5,670	5,608
35	2,222	2,736	270	2,919	2,880	678	3,058	3,067	2,064	3,322	3,564	7,307	7,272	9,783	8,009	4,299
36	899	1,656	472	1,081	1,540	261	2,262	3,246	1,182	3,716	902	7,333	6,336	5,501	4,186	2,881
37	1,427	624	15	969	444	216	990	559	247	805	428	3,908	2,259	3,011	1,328	1,320
38	418			465		34	265	139			0	156	451			345
39																200
40-42																82
Yearly Total	51,827	37,416	7,209	50,739	44,254	12,335	19,284	43,555	76,283	58,361	74,459	75,596	51,178	96,203	72,561	67,315

Table 13.—Selected data for Chilkoot Lake, annual autumn hydroacoustic pre-smolt estimates, total adult return, and average annual zooplankton densities for years 1987–2007.

Year	Survey Date	Estimated Juveniles	Total Return	Average zooplankton density (no./m ²)	Average zoo biomass (mg/m ²)
1987	30-Oct	1,344,951	430,180	172,295	207
1988	2-Oct	3,066,118	335,242	131,446	147.5
1989	16-Oct	874,794	346,763	46,872	135.5
1990	25-Oct	607,892	252,188	53,987	145.5
1991	22-Oct	475,404	314,679	9,751	25
1992	N/A	N/A	207,790	N/A	N/A
1993	N/A	N/A	103,251	N/A	N/A
1994	N/A	N/A	62,830	N/A	N/A
1995	6-Nov	260,797	15,155	26,579	84.7
1996	24-Oct	418,152	69,600	44,081	143.75
1997	22-Oct	755,060	73,167	15,063	46
1998	6-Oct	1,446,736	14,552	46,678	91.5
1999	14-Oct	351,096	23,542	14,329	46.25
2000	13-Oct	1,190,717	58,229	62,156	247
2001	17-Oct	696,000	143,785	88,791	275
2002	10-Oct	1,196,701	82,636	46,434	194
2003	10-Oct	1,384,754	106,778	46,788	155
2004	5-Nov	996,046	142,133	126,233	221
2005	9-Nov	247,243	80,498	3,265	7.7
2006	9-Nov	356,957	245,464	72,332	211
2007	9-Nov	140,237	204,889	N/A	N/A
Average		925,493	166,321	68,952	136

Table 14.—Historical age composition of sockeye salmon escapements to Chilkooot Lake, 1982–2007.

Year	Sample	Percent By Age Class										
	Size	0.3	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.2	3.3
1982	1,687	0.1	0.0	19.0	78.4	0.9	0.1	0.5	0.9	0.0	0.0	0.0
1983	1,790	0.1	0.1	12.0	60.4	0.2	0.1	1.4	25.8	0.0	0.0	0.0
1984	1,902	0.0	0.0	4.5	86.7	0.8	0.0	0.4	7.6	0.0	0.0	0.0
1985	1,623	0.0	0.1	12.2	66.4	2.4	0.0	2.6	15.9	0.3	0.1	0.0
1986	2,147	0.0	0.0	13.2	67.0	0.6	0.0	2.2	16.8	0.1	0.0	0.0
1987	2,207	0.0	0.0	8.4	69.2	0.2	0.0	2.2	19.8	0.1	0.0	0.0
1988	2,661	0.0	0.0	4.4	77.9	1.4	0.0	2.7	13.2	0.3	0.0	0.0
1989	2,586	0.0	0.0	4.5	54.9	1.2	0.0	5.0	33.5	0.4	0.0	0.5
1990	2,815	0.0	0.0	2.0	45.4	0.1	0.0	1.5	49.1	0.1	0.0	0.1
1991	2,297	0.0	0.0	12.5	55.9	0.4	0.0	4.9	25.9	0.3	0.0	0.1
1992	2,039	0.0	0.0	1.8	62.6	0.7	0.0	5.8	28.3	0.5	0.1	0.1
1993	2,075	0.0	0.0	2.6	35.6	0.3	0.0	1.8	59.0	0.4	0.0	0.2
1994	1,986	0.1	0.0	1.8	66.9	0.6	0.0	1.6	28.8	0.2	0.1	0.1
1995	606	0.0	0.0	44.1	30.7	0.8	0.0	3.8	20.0	0.7	0.0	0.0
1996	2,063	0.0	0.0	6.2	84.2	0.2	0.0	0.8	8.5	0.0	0.0	0.0
1997	2,111	0.0	0.0	2.2	90.1	0.1	0.0	0.4	7.1	0.0	0.0	0.0
1998	941	0.0	0.0	5.0	60.6	1.4	0.0	2.1	30.6	0.1	0.0	0.1
1999	2,033	0.0	0.0	28.8	46.5	0.2	0.0	8.1	16.3	0.2	0.0	0.0
2000	2,228	0.0	0.0	13.2	58.6	0.1	0.0	1.9	26.1	0.0	0.0	0.0
2001	2,345	0.3	0.0	4.8	89.8	0.0	0.0	0.2	4.9	0.0	0.0	0.0
2002	2,836	0.0	0.0	6.4	89.6	0.5	0.0	1.1	2.5	0.0	0.0	0.0
2003	2,611	0.0	0.0	41.3	45.0	0.4	0.0	4.2	9.1	0.0	0.0	0.0
2004	2,715	0.0	0.0	14.8	71.0	0.0	0.0	5.9	8.1	0.0	0.0	0.0
2005	2,730	0.0	0.0	19.9	67.5	0.0	0.0	3.9	8.6	0.0	0.0	0.0
2006	2,581	0.0	0.0	8.2	80.4	0.0	0.0	0.9	10.4	0.0	0.0	0.0
2007	3,020	0.0	0.0	7.1	79.0	0.6		0.6	12.7	0.0	0.0	0.0
Average	2,178	0.0	0.0	11.6	66.2	0.5	0.0	2.6	18.8	0.1	0.0	0.0
SE		0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0

Table 15.—Historical age composition of sockeye salmon escapements to Berners Bay rivers, 1984 to 2007.

Year	Sample	Percent by Age Class										
	Size	0.1	0.2	0.3	0.4	1.1	1.2	1.3	1.4	2.1	2.2	2.3
1984	319	0.0	0.0	6.6	0.0	0.0	1.6	91.8	0.0	0.0	0.0	0.0
1985	84	3.6	10.7	4.8	1.2	4.8	11.9	61.9	0.0	0.0	1.2	0.0
1986	189	0.0	2.6	35.4	0.0	2.1	12.7	46.0	0.0	0.0	0.0	1.1
1987	133	0.0	0.0	32.3	0.0	0.0	4.5	62.4	0.0	0.0	0.0	8.0
1988	109	0.0	0.0	7.3	0.0	0.0	10.1	82.6	0.0	0.0	0.0	0.0
1989	285	0.0	1.8	2.1	0.0	1.1	6.7	85.3	0.0	0.4	0.7	2.1
1990	136	0.0	2.2	14.7	0.0	3.7	40.4	33.8	0.0	0.0	0.7	4.4
1991	409	0.7	3.2	27.6	0.0	1.5	15.6	50.1	0.2	0.0	0.2	0.7
1992	452	0.0	2.7	18.4	0.0	0.9	4.0	74.1	0.0	0.0	0.0	0.0
1993	451	0.0	1.3	30.8	0.0	0.9	14.4	51.7	0.0	0.0	0.2	0.7
1994	478	0.0	1.3	3.3	0.0	3.8	13.2	77.8	0.2	0.0	0.2	0.2
1995	333	0.0	2.7	13.5	0.0	0.3	35.7	45.3	1.2	0.0	0.6	0.6
1996	492	0.0	0.2	8.9	0.0	0.4	2.8	87.6	0.0	0.0	0.0	0.0
1997	218	0.5	0.9	38.5	0.0	0.9	11.0	48.2	0.0	0.0	0.0	0.0
1998	314	0.0	0.3	14.6	0.0	0.3	4.1	80.6	0.0	0.0	0.0	0.0
1999	297	0.3	0.3	6.7	0.0	1.0	8.1	82.2	0.0	0.0	0.0	1.3
2000	290	0.0	4.5	19.3	0.0	0.3	12.1	63.4	0.0	0.0	0.0	0.3
2001	339	0.0	1.2	17.7	0.3	3.2	4.7	72.9	0.0	0.0	0.0	0.0
2002	235	0.4	1.3	5.1	0.0	0.9	24.3	68.1	0.0	0.0	0.0	0.0
2003	278	0.0	1.1	11.2	0.0	1.1	17.1	72.7	0.0	0.0	0.0	7.6
2004	187	0.0	0.5	5.3	0.0	1.1	17.1	75.9	0.0	0.0	0.0	0.0
2005	119	0.8	5.0	13.4	0.0	2.5	15.9	61.6	0.8	0.0	0.0	0.0
2006	145	0.7	4.1	22.8	0.0	0.0	16.6	54.5	0.0	0.0	0.7	0.7
2007	147	0.0	15.0	54.4	0.0	0.7	7.5	21.8	0.7	0.0	0.0	0.0
Average	268	0.3	2.6	17.3	0.1	1.3	13.0	64.7	0.1	0.0	0.2	1.2
SE		0.1	0.2	0.5	0.0	0.1	0.4	0.6	0.0	0.0	0.1	0.1

Table 16.—Annual harvests of Chilkat River mainstem and Berners Bay rivers, and other non-Chilkat or Chilkoot Lake, sockeye salmon by week, 1976– 2007.

Statistical		1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Week																		
25		60		548	504	381	143	44		355	134	16			3,214	1,823	2,213	
26		694	2,653	1,759	1,328	56	101	210	49	514	1,688	599	734	968	3,381	1,783	6,782	4,926
27		963	1,330	207	0	725	145	145	255	491	5,173	1,233	6,958	6,611	2,440	6,998	4,097	8,241
28		1,194	332	386	494	158	150	155	294	383	6,691	4,365	983	4,889	1,742	2,221	2,470	5,650
29		375	848	316	501	73	181	175	105	309	273	738	872	5,100	2,030	1,054	3,451	4,275
30		735	116	577	1,414	0	116	172	268	561	522	897	263	1,057	1,725	4,601	1,012	3,327
31		204	0	486	1,942	76	154	549	1,204	706	746	597	330	1,316	2,922	4,669	1,729	2,488
32		227	0	0	0	75	67	128	740	536	448	903	350	442	1,956	4,251	1,138	2,356
33		151	0	269	165	8	0	329	663	244	377	948	111	348	366	3,088	224	1,422
34		132	98	74	492	3	14	0	256	73	68	825	121	101	494	0	151	280
35		76	0	29	195	3	0	0	78	130	48	206	22	100	233	297	635	280
36		8	0	6	35	0	0	0	42	48	0	87	0	122	98	216	0	184
37		0	0	1	14	0	0	0	1	0	10	0	7	23	19	40	38	0
38–42		23	0	0	32	0	0	1	0	0	0	0	0	33	5	3	24	0
Yearly Total		4,842	5,377	4,658	7,116	1,558	1,071	1,908	3,955	4,350	16,178	11,414	10,751	21,110	20,625	31,044	23,964	33,429
Weekly Mean		346	384	333	508	111	77	136	283	311	1,156	815	768	1,508	1,473	2,217	1,712	2,388

-Continued-

Table 16.-(continued)

Statistical Week																1976-06	
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Mean	
25			1,282	1,828	1,466				1,451	385	332			406	701	864	
26	2,321	1,178	1,165	3,309	1,441	1,309	1,818	204	4,376	388	1,197	2,051	273	842	1,422	1,610	
27	4,258	2,418	976	1,245	2,070	820	535	2,007	6,071	1,502	2,782	5,465	896	2,158	1,476	2,522	
28	3,296	2,135	1,696	1,743	1,046	1,050	937	14,631	2,289	3,249	2,032	9,130	1,516	925	1,640	2,496	
29	3,012	2,619	744	2,311	1,133	4,122	2,444	4,572	4,000	2,193	1,597	6,280	1,321	1,204	2,078	1,885	
30	2,757	1,323	799	2,660	1,447	1,509	1,124	3,016	1,083	902	839	2,926	1,683	2,365	5,722	1,485	
31	1,738	2,400	457	5,535	1,495	1,520	1,093	1,594	1,331	1,123	1,804	2,096	1,603	848	1,587	1,448	
32	879	2,236	385	5,695	769	921	949	581	537	317	663	1,605	2,752	353	978	1,039	
33	433	2,291	250	2,916	168	293	417	209	198	243	930	2,467	935	320	419	663	
34	246	1,623	396	1,051	278	102	108	61	0	124	157	861	1,648	56	418	322	
35	33	723	100	333	210	31	59	29	24	8	42	415	328	293	478	170	
36	12	263	90	145	95	6	85	0	0	11	167	234	135	353	291	85	
37	0	32	61	87	24	21	0	0	0	3	52	13	135	97	38	22	
38-42	0	11	29	34	0	0	5	0	0	0	5	28	15	12	27	9	
Yearly Total	18,985	19,252	8,430	28,893	11,642	11,704	9,575	26,903	21,361	10,446	12,599	33,571	13,240	10,232	17,276	14,296	
Weekly Mean	1,460	1,481	602	2,064	832	900	737	2,069	1,526	746	900	2,582	1,018	682	1,234	1,042	

Table 17.—Summary of releases of DIPAC chum salmon from Boat Harbor and Amalga Harbor, 1988–2007.

Brood Year	Release Year	Boat Harbor Releases	Boat Harbor Release Size (g)	Amalga Harbor Releases	Amalga Harbor Release Size (g)	Total Releases
1987	1988	5,170,000	N/A			5,170,000
1988	1989	8,508,356	0.77			8,508,356
1989	1990	8,300,782	1.31			8,300,782
1990	1991	9,337,000	0.88	34,744,923	0.87	44,081,923
1991	1992	6,709,659	0.62	35,918,054	1.08	42,627,713
1992	1993	9,545,177	0.75	36,147,451	1.23	45,692,628
1993	1994	6,464,450	0.86	34,817,531	1.38	41,281,981
1994	1995	8,931,491	1.06	34,472,077	1.49	43,403,568
1995	1996	8,536,780	0.7	34,979,646	1.22	43,516,426
1996	1997	7,759,020	1.4	34,535,728	1.33	42,294,748
1997	1998	7,217,000	1.45	49,155,073	1.52	56,372,073
1998	1999	9,262,694	1.32	7,655,324	3.44 (L/L ^a)	60,045,708
				43,127,690	1.53 (Reg ^b)	
1999	2000	9,010,000	1.61	8,722,507	4.04 (L/L)	62,228,963
				44,496,456	1.55 (Reg)	
2000	2001	14,883,720	1.17	7,604,465	4.07 (L/L)	60,911,856
				38,423,671	1.41 (Reg)	
2001	2002	11,263,498	0.69	17,452,832	0.72	28,716,331
2002	2003	5,400,000	2.62 (L/L)	17,400,000	4.02 (L/L)	47,100,000
		6,800,000	1.78 (Reg)	17,500,000	2.39 (Reg)	
2003	2004	5,960,363	3.24 (L/L)	12,006,165	4.20 (L/L)	50,618,272
		8,615,776	1.54 (Reg)	24,035,968	2.29 (Reg)	
2004	2005	6,100,000	(L/L)	11,500,000	(L/L)	63,000,000
		7,400,000	(Reg)	25,300,000	(Reg)	
2005	2006	13,742,501	(L/L, Reg)	34,718,622	(L/L, Reg)	48,461,123
2006	2007	14,901,861	(L/L, Reg)	48,090,292	(L/L, Reg)	62,992,153
2007	2008 ^c	15,000,000	(L/L, Reg)	36,000,000	(L/L, Reg.)	51,000,000

^a Late large release -Fry are held and fed for longer periods prior to release.

^b Regular release –Normal fry release timing

^c Planned releases.

Source: Douglas Island Pink and Chum Inc.

Table 18.—Summary of returns from DIPAC summer chum salmon enhancement projects in lower Lynn Canal, 1991–2007 with projections for 2008.

Year	Total	% Estimated	Estimated	Boat Harbor			Amalga Harbor		
	Commercial Catch	Hatchery Contribution	Hatchery Contribution	Commercial Catch ^b	Cost Recovery	Total Return	Commercial Catch ^b	Cost Recovery	Total Return
1991	111,465	50.1%	55,818	55,818	0	55,818	0		
1992	162,231	52.9%	85,811	85,811	0	85,811	0		
1993	246,174	78.2%	192,446	192,446	0	192,446	0		
1994	568,850	81.4%	463,106	135,640	0	135,640	327,466	124,994	452,460
1995	499,167	91.2%	455,336	176,495	0	176,495	278,841	267,533	546,374
1996	340,021	78.2%	265,957	62,477	10,872	73,349	203,480	968,448	1,171,928
1997	431,699	87.8%	378,851	163,350	2,920	166,270	215,502	692,593	908,095
1998	136,515	83.4%	113,885	59,001	0	59,001	54,884	508,686	563,570
1999	290,325	85.5%	248,167	96,438	0	96,438	151,729	723,298	875,028
2000	680,536	88.6%	602,838	226,317	0	226,317	376,521	1,342,141	1,718,662
2001	358,987	85.1%	305,590	84,005	0	84,005	221,585	540,124	761,709
2002	630,486	94.5%	595,690	143,912	0	143,912	451,778	1,151,413	1,603,191
2003	348,820	96.8%	329,961	91,507	0	91,507	238,454	1,826,922	2,065,376
2004	688,471	91.7%	631,307	316,675	0	316,675	288,548	1,060,801	1,408,117
2005	240,055	92.1%	222,553	95,028	0	95,028	127,525	248,071	375,596
2006	1,035,956	96.0%	994,615	565,897	0	565,897	428,718	1,767,409	2,109,516
2007	750,999	95.0%	711,161	427,427	0	427,427	283,734	874,598	1,158,332
2008 ^a						319,000			1,007,000
91–07 Average	442,397	1	391,358	175,191	811	180,817	214,633	864,074	1,122,711

^a 2008 projected return.

^b Includes contribution to the Lynn Canal commercial drift gillnet fishery only.

Source: Douglas Island Pink and Chum Inc.

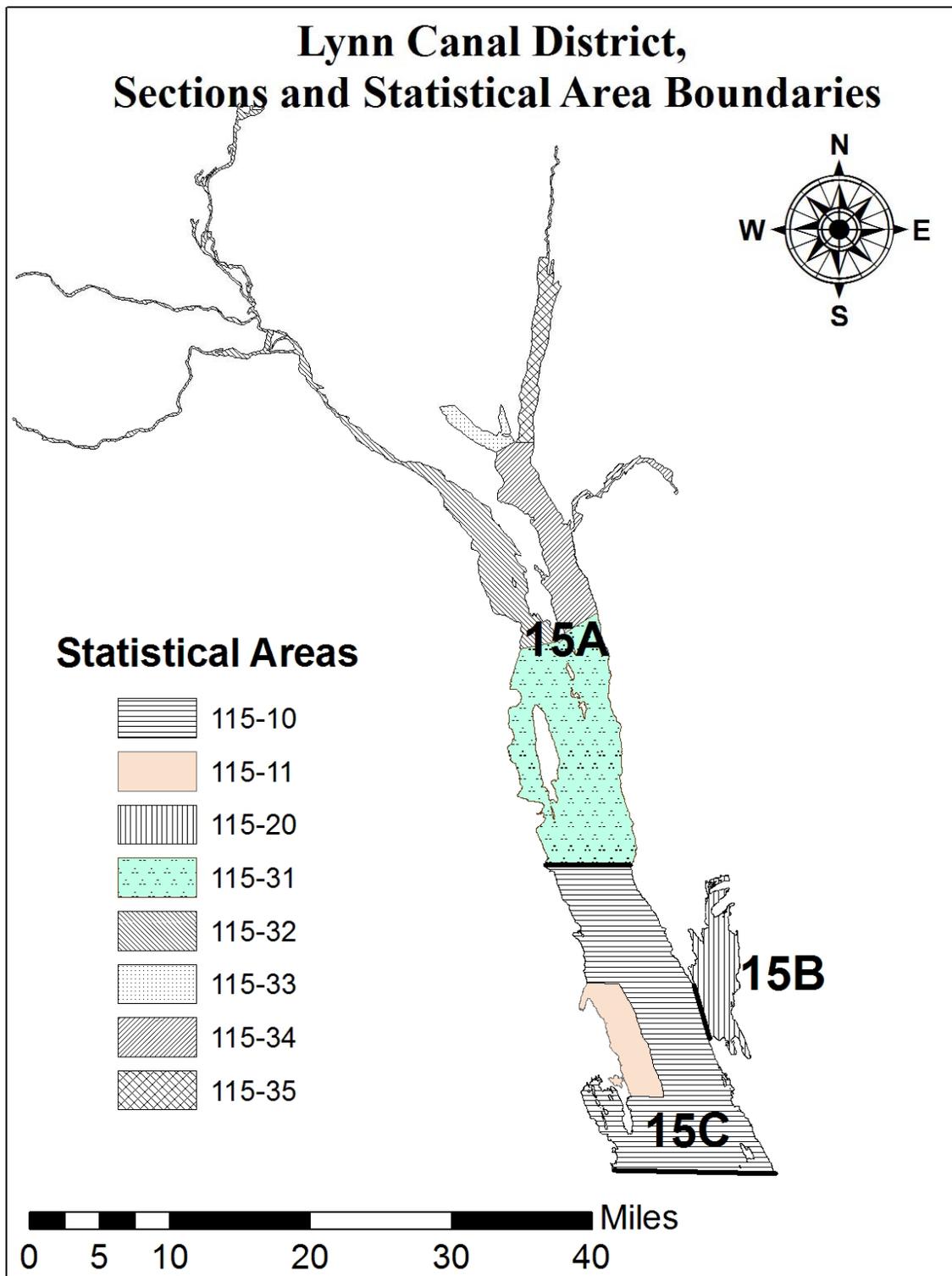


Figure 1.—Map of the Lynn Canal district and statistical area boundaries.

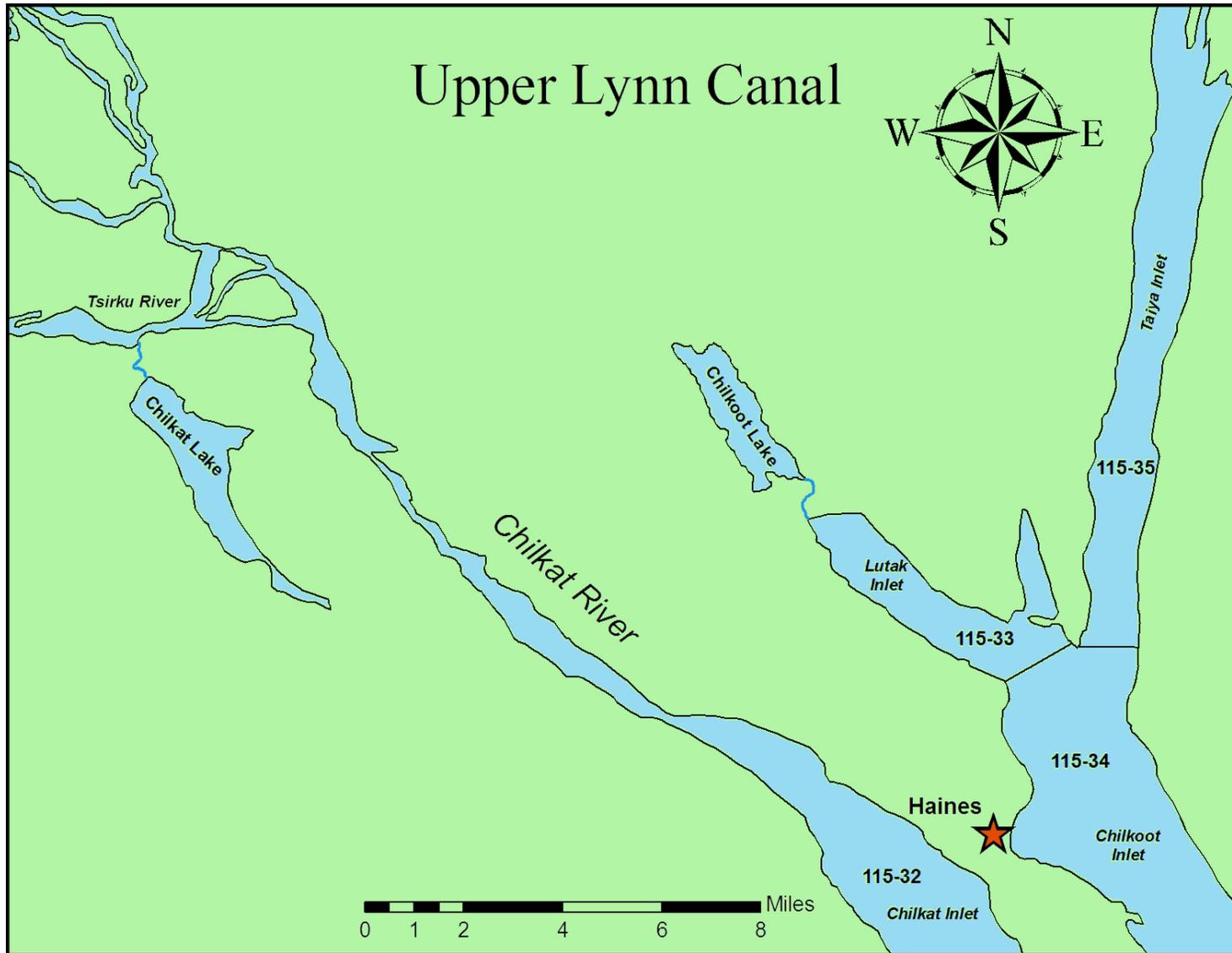


Figure 2.—Map of upper Lynn Canal showing Chilkat and Chilkoot lakes.

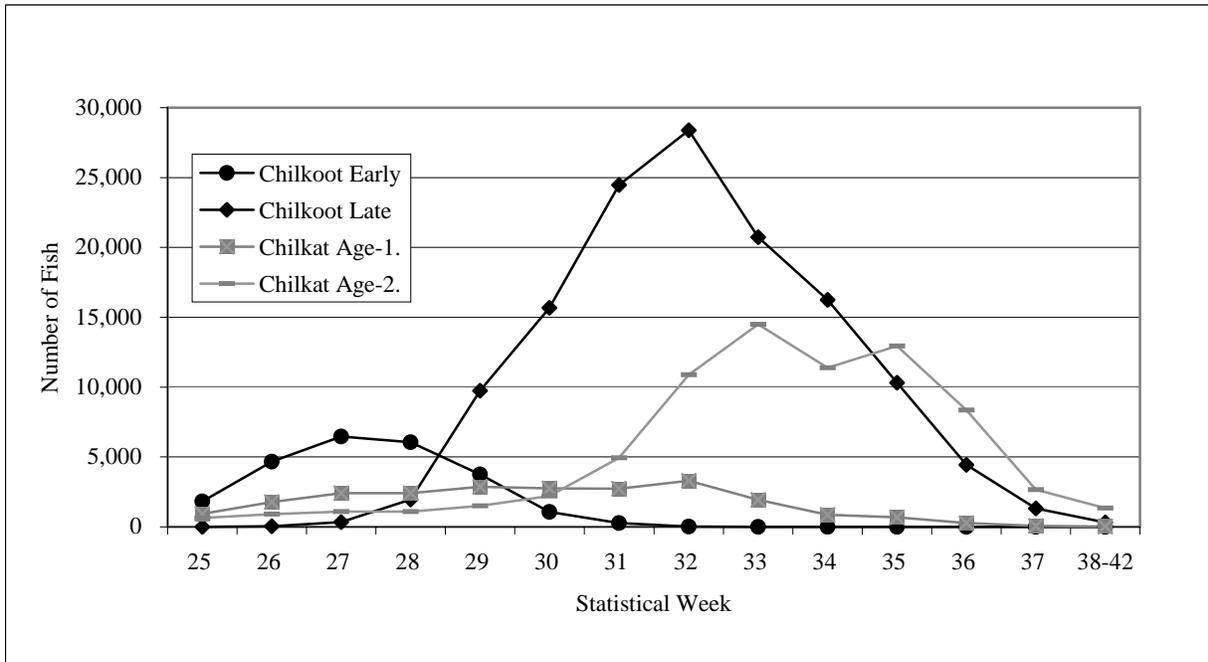


Figure 3.—Lynn Canal sockeye salmon weekly abundance by stock/age (Data from 1983–1992 average).

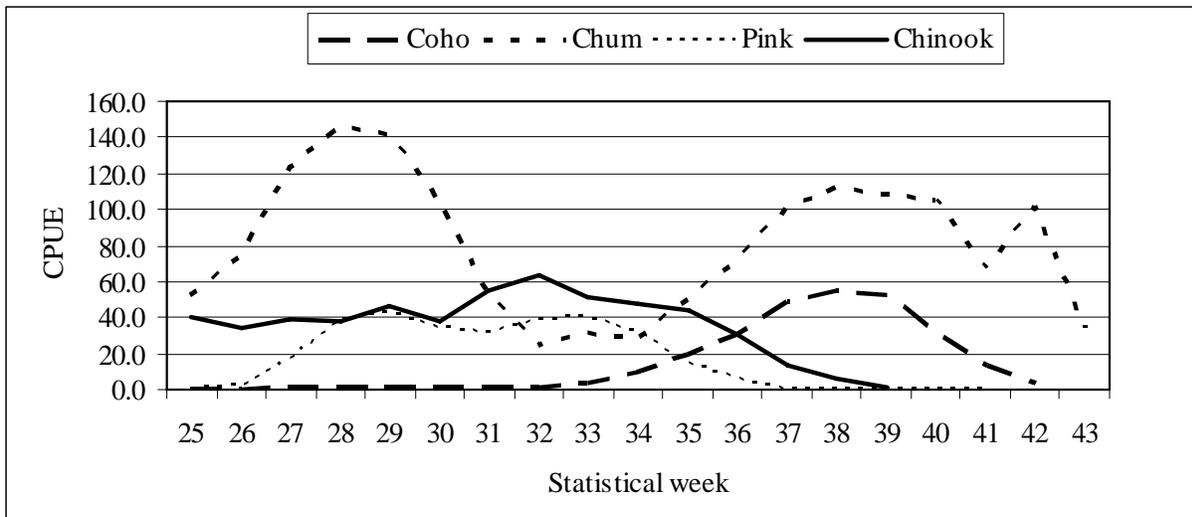


Figure 4.—Run timing (weekly proportion CPUE) of Chinook, coho, summer and fall chum, and pink salmon in the Lynn Canal drift gillnet fishery. Data for period 1992 to 2007.

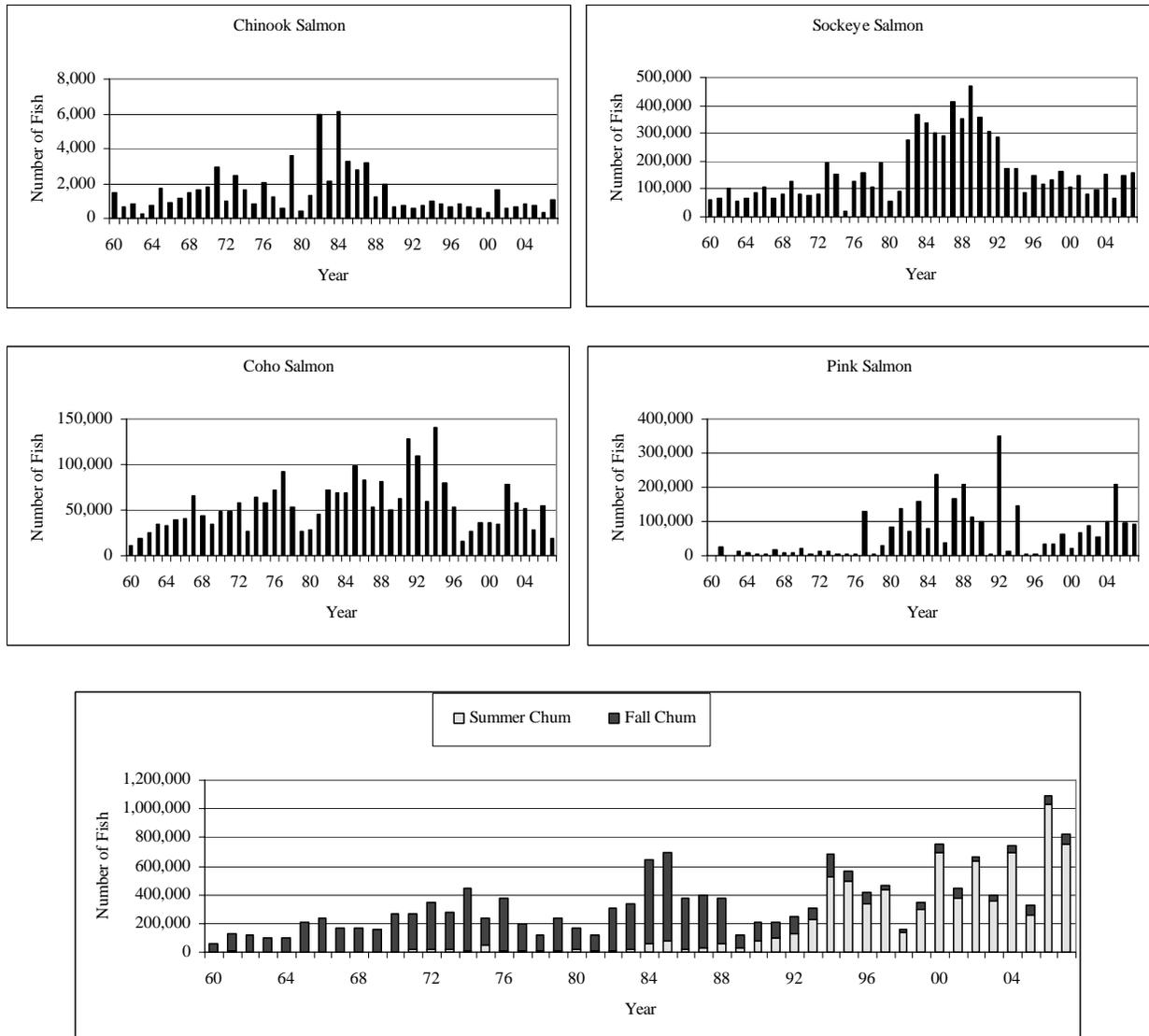


Figure 5.—Historical commercial catches of Chinook, sockeye, coho, pink, and chum (summer and fall) salmon in the District 15 (Lynn Canal) drift gillnet fishery, 1960 to 2007.

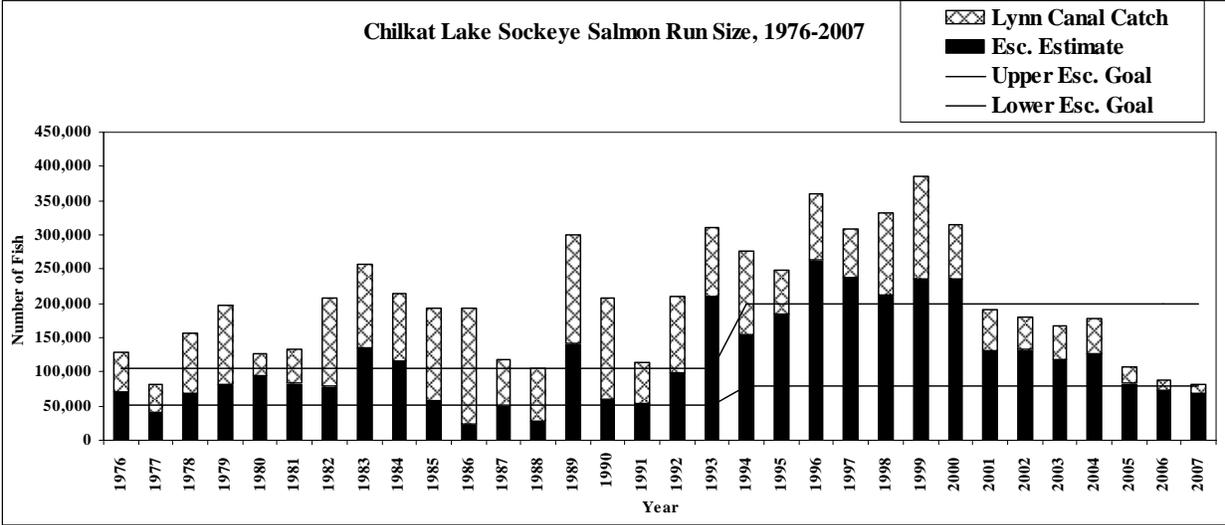
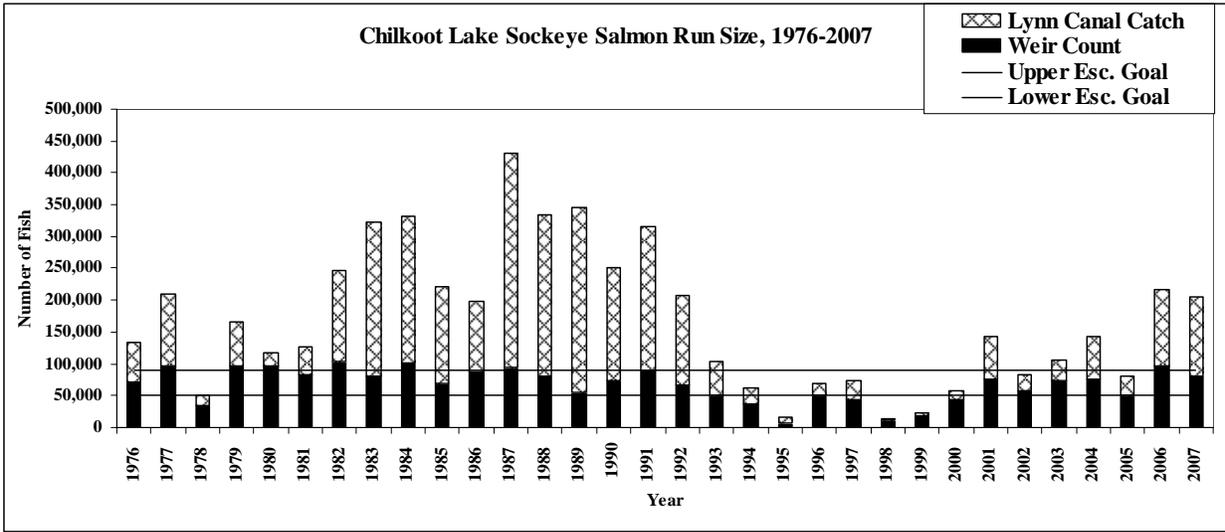


Figure 6.—Historical escapement and harvest of Chilkoot and Chilkat lake sockeye salmon, 1976 to 2007 compared to escapement goals.

Note: Escapements estimates in 1994–2007 in Chilkat Lake were based on mark-recapture estimates. Marine harvest of sockeye salmon for Chilkoot Lake in 1998 and 1999 was estimated to be 2,200 and 4,258 fish, respectively.

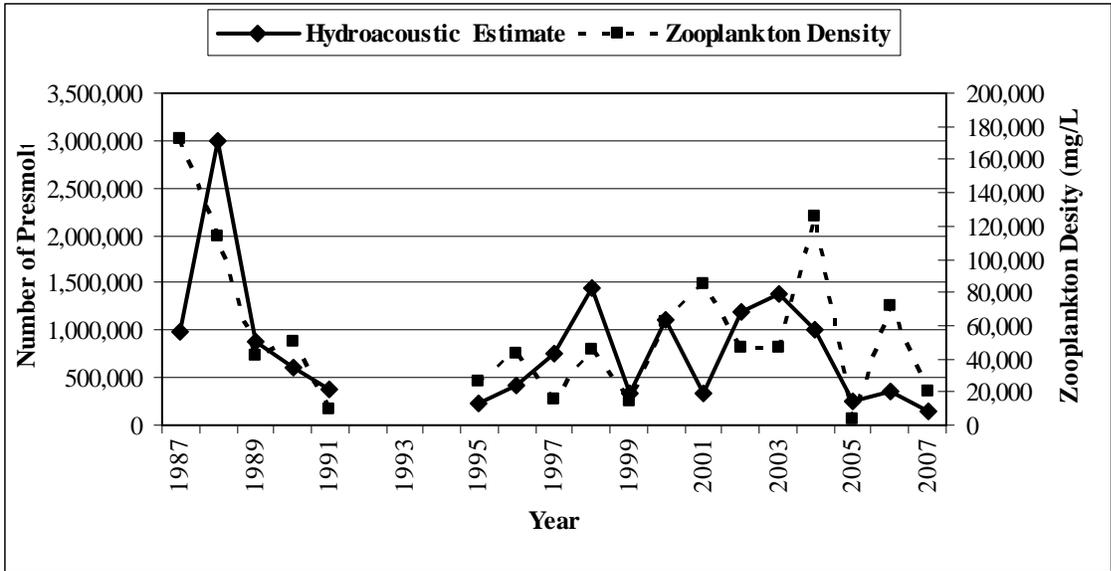


Figure 7.—Yearly comparisons of Chilkoot Lake autumn hydroacoustic counts of juvenile sockeye salmon and average zooplankton densities, 1987–1991 and 1995–2007.

Source: D. Barto, ADF&G Commercial Fisheries Division, unpublished data.

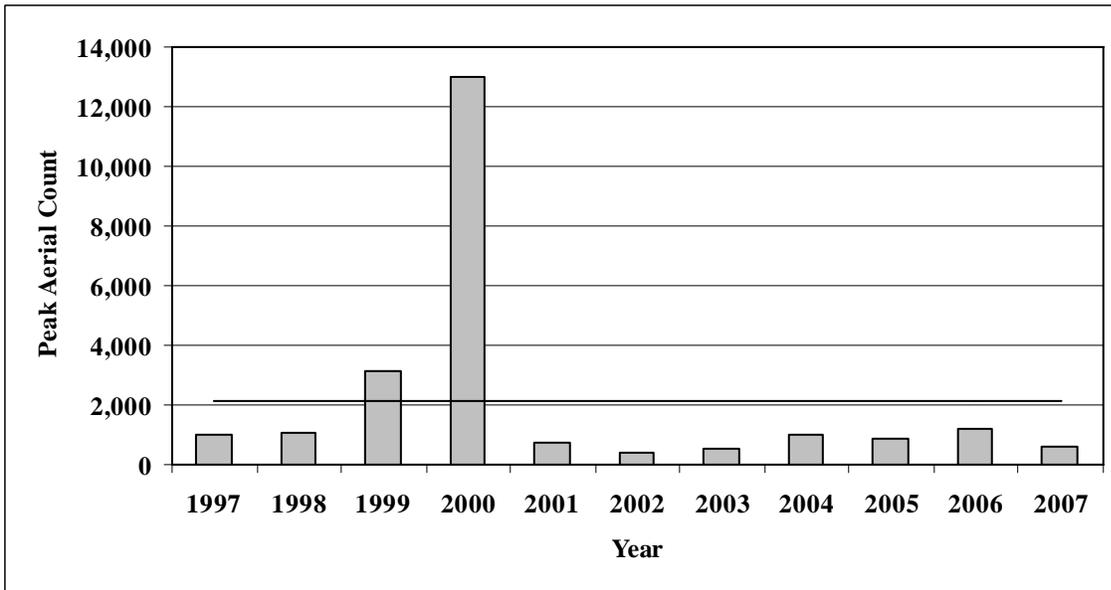


Figure 8.—Peak aerial survey results for Sawmill Creek chum salmon, 1997–2007 compared with 1997–2007 average results.

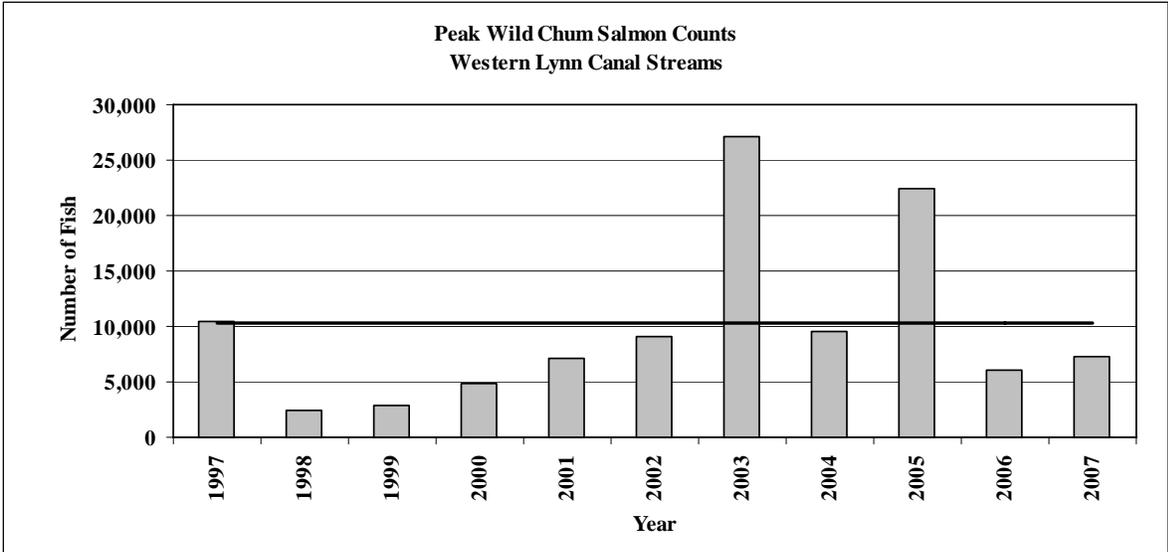


Figure 9.—Peak aerial survey results for Western Lynn Canal chum salmon streams combined, 1997–2006 compared to the 1996–2007 average.

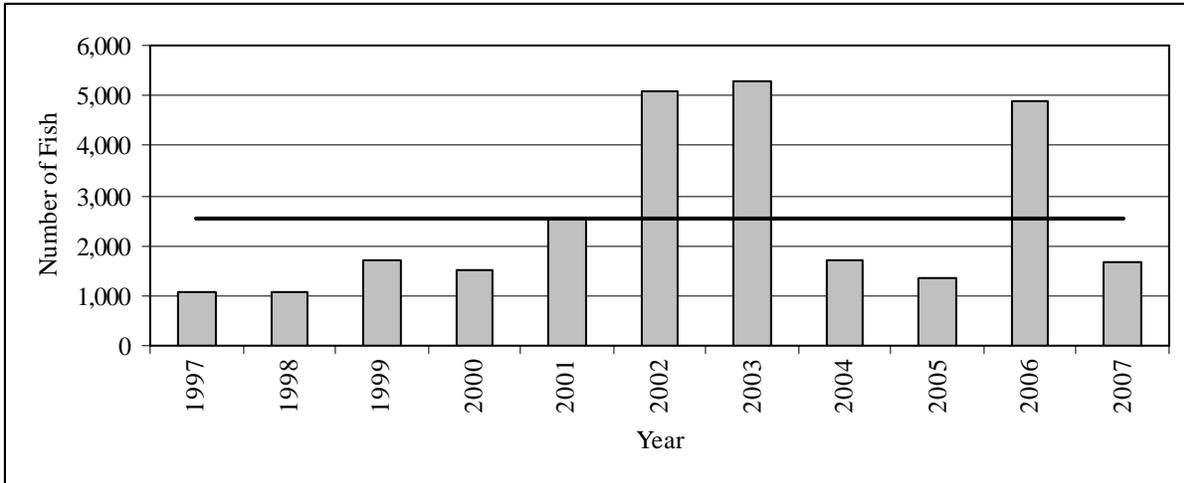


Figure 10.—Total Chilkat River coho salmon fish wheel catch by year, 1997–2007 compared to the 1997–2007 average.

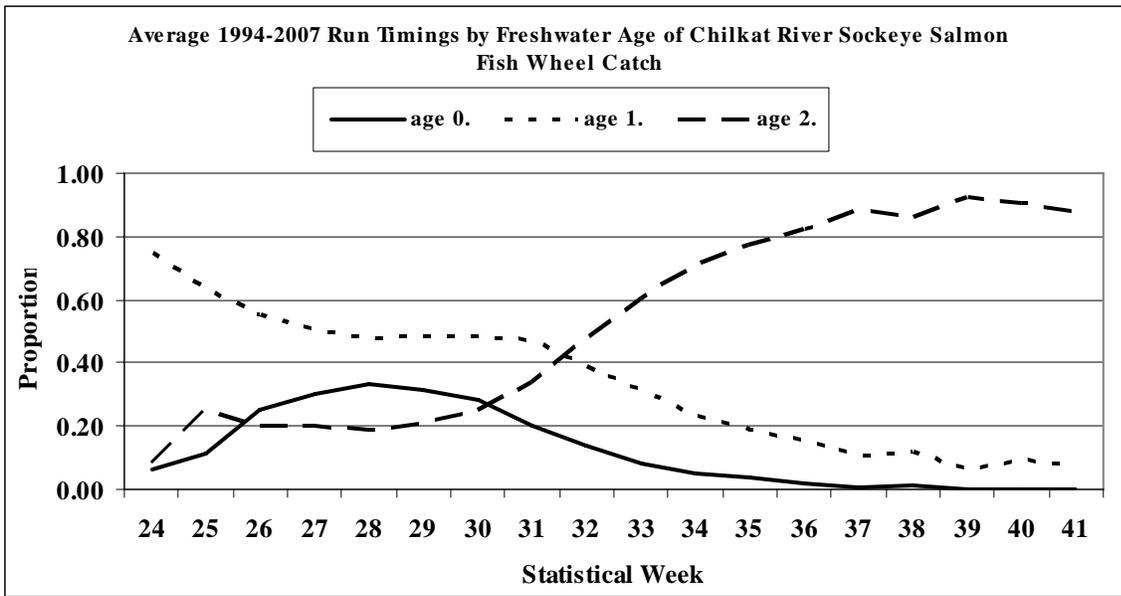


Figure 11.—Average 1994–2007 run timing for Chilkat River sockeye salmon stocks at the Chilkat River fish wheels by fresh water age class.

Note: age 0 are predominantly mainstem, age 1 are predominantly Chilkat Lake early run, and age 2 are predominantly Chilkat Lake late stock.

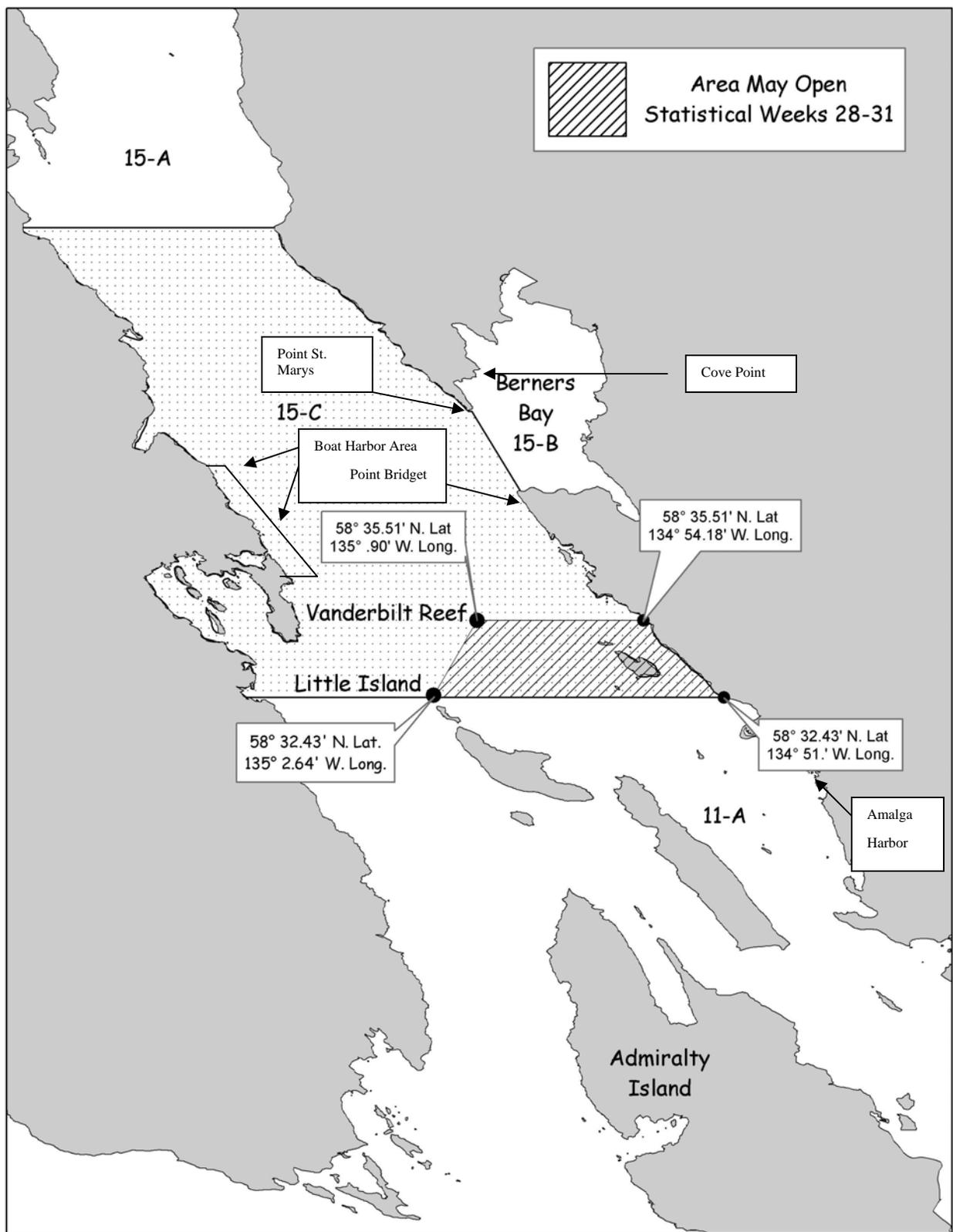


Figure 12.—Map showing area in Lower Lynn Canal that may be opened for additional time during peak weeks of hatchery chum return (Statistical Weeks 28–31).

**APPENDIX A: LYNN CANAL AND CHILKAT RIVER KING
SALMON FISHERY MANAGEMENT PLAN**

Appendix A–5 AAC 33.384. Lynn Canal and Chilkat River King Salmon Fishery Management Plan.

(a) The purpose of this management plan is to ensure biological spawning escapement requirements of king salmon to the Chilkat River. It is the intent of the Board of Fisheries (board) that the Chilkat River king salmon be harvested in the fisheries that have historically harvested them. The board, through this management plan, recognizes that the commercial drift gillnet fishery in Chilkat Inlet, and the subsistence fisheries in Chilkat Inlet and the Chilkat River are directed primarily toward sockeye salmon but catch king salmon incidentally. A secondary goal of this management plan is to provide a reasonable opportunity to harvest sockeye salmon in the Chilkat Inlet and Chilkat River subsistence fisheries while minimizing the incidental harvest of king salmon. This management plan provides the department guidelines to preclude allocation conflicts between the various user groups of this resource. The department shall manage the Chilkat River king salmon stocks in a conservative manner consistent with sustained yield principles.

(b) The department shall close the subsistence net fisheries in Chilkat Inlet north of a line extending from an ADF&G regulatory marker approximately one mile south of Anchorage Point to an ADF&G regulatory marker directly north of the Lenikof Cove boat ramp, through July 15. In the Chilkat River, that portion of the river from Haines highway mile 19, continuing upstream to Well's Bridge, are closed from approximately the third week of June through the fourth week of July.

(c) The department shall manage the commercial and sport fisheries in Lynn Canal to achieve an inriver run goal of 1,850 to 3,600 king salmon in the Chilkat River upstream of the department fish wheels located approximately adjacent to mile 9 of the Haines highway. The inriver run goal provides for the following:

(1) a biological escapement goal (BEG) of 1,750 to 3,500 large king salmon (three ocean age and older) to the Chilkat River; and

(2) an incidental harvest of king salmon in the Chilkat River subsistence sockeye fishery.

(d) The department will evaluate the inriver run of king salmon based on the following:

(1) The pre-season projected run of Chilkat River king salmon to Lynn Canal;

(2) inseason fisheries performance; and

(3) inriver stock assessment programs.

(e) The department shall manage the commercial and drift gillnet and troll fisheries in Lynn Canal, and the sport king salmon fishery in Chilkat Inlet, as follows:

(1) the department shall close the commercial troll fishery in Chilkat Inlet north of a ADF&G regulatory marker immediately north of Seduction Point through July 14;

(2) if the projected inriver run of king salmon to the Chilkat River is 1,850 fish (three ocean age and older) or less, the department shall:

(A) close the commercial drift gillnet fishery in Chilkat Inlet north of a ADF&G regulatory marker immediately north of Seduction Point through the first two weeks of the fishery; during the third and fourth week of the fishery, the Chilkat Inlet north of Glacier Point shall be closed; during the fifth week, the commercial drift gillnet fishery in Chilkat Inlet north of Cannery Point shall be closed; and

(B) close sport fishing for king salmon in Chilkat Inlet north of a ADF&G regulatory marker immediately north of Seduction Point through June 30; close king salmon fishing in Chilkat Inlet north of a line extending from an ADF&G regulatory marker one mile south of Anchorage Point to an ADF&G regulatory marker directly north of the Letnikof Cove boat ramp, through July 15; in the remainder of

Chilkat Inlet north of Seduction Point, from July 1 – July 15, sport fisherman are allowed a bag and possession limit of one king salmon, 28 inches or greater in length;

(3) if the projected inriver run of king salmon to the Chilkat River is 1,850 to 3,600 fish the department shall;

(A) close the commercial drift gillnet fishery in Chilkat Inlet north of a ADF&G regulatory marker immediately north of Seduction Point through the first two weeks of the fishery; during the third week of the fishery, close the area in Chilkat Inlet north of Glacier Point; during the fourth week, close the area in Chilkat Inlet north of Cannery Point; and

(B) close sport fishing for king salmon in Chilkat Inlet north of a line extending from an ADF&G regulatory marker approximately one mile south of Anchorage Point to an ADF&G regulatory marker directly north of the Lenikof Cove boat ramp from April 15 through July 15;

(4) if the projected inriver run of king salmon to the Chilkat River is greater than 3,600 fish the department shall;

(A) close the commercial drift gillnet fishery in Chilkat Inlet north of a ADF&G regulatory marker immediately north of Seduction Point through the first week of the fishery; during the second week of the fishery, close the area in Chilkat Inlet north of Glacier Point; during the third week, close the area in Chilkat Inlet north of Cannery Point; and

(B) close sport fishing for king salmon in Chilkat Inlet north of a line extending from an ADF&G regulatory marker approximately one mile south of Anchorage Point to an ADF&G regulatory marker directly north of the Lenikof Cove boat ramp from April 15 through July 15; the commissioner may, through emergency order, increase the bag and possession limits of king salmon north of Seduction Point.

**APPENDIX B: CALENDAR DATES FOR STATISTICAL WEEKS IN
2008**

Appendix B–Calendar dates for statistical weeks in 2008.

Week	Beginning Date	Ending Date	Week	Beginning Date	Ending Date
1	1-Jan	5-Jan	28	6-Jul	12-Jul
2	6-Jan	12-Jan	29	13-Jul	19-Jul
3	13-Jan	19-Jan	30	20-Jul	26-Jul
4	20-Jan	26-Jan	31	27-Jul	2-Aug
5	27-Jan	2-Feb	32	3-Aug	9-Aug
6	3-Feb	9-Feb	33	10-Aug	16-Aug
7	10-Feb	16-Feb	34	17-Aug	23-Aug
8	17-Feb	23-Feb	35	24-Aug	30-Aug
9	24-Feb	1-Mar	36	31-Aug	6-Sep
10	2-Mar	8-Mar	37	7-Sep	13-Sep
11	9-Mar	15-Mar	38	14-Sep	20-Sep
12	16-Mar	22-Mar	39	21-Sep	27-Sep
13	23-Mar	29-Mar	40	28-Sep	4-Oct
14	30-Mar	5-Apr	41	5-Oct	11-Oct
15	6-Apr	12-Apr	42	12-Oct	18-Oct
16	13-Apr	19-Apr	43	19-Oct	25-Oct
17	20-Apr	26-Apr	44	26-Oct	1-Nov
18	27-Apr	3-May	45	2-Nov	8-Nov
19	4-May	10-May	46	9-Nov	15-Nov
20	11-May	17-May	47	16-Nov	22-Nov
21	18-May	24-May	48	23-Nov	29-Nov
22	25-May	31-May	49	30-Nov	6-Dec
23	1-Jun	7-Jun	50	7-Dec	13-Dec
24	8-Jun	14-Jun	51	14-Dec	20-Dec
25	15-Jun	21-Jun	52	21-Dec	27-Dec
26	22-Jun	28-Jun	53	28-Dec	31-Dec
27	29-Jun	5-Jul			

**APPENDIX C: DATA COLLECTED FROM THE INSEASON
INFORMATION SYSTEM TO DETERMINE FISHERY
PERFORMANCE BY SPECIES**

Appendix C.—Data collected from the inseason information program to determine fishery performance by species.

Sockeye Salmon

- a. Inseason abundance forecasts: Forecasts will be obtained by comparing current-year total return information (catch plus escapement), and expanding those results by historical run timing percentages for each stock.
- b. Escapement tracking: Daily escapements are tracked at the Chilkoot River weir. The weir provides timely data for inseason assessment as fish pass that weir within one week of fishery. Chilkat River drainage sockeye salmon escapements will be monitored using two fish wheels in the lower Chilkat River. The Chilkat Lake weir will be operated to provide a site for mark-recovery and biological sampling
- c. Inseason catch figures: Inseason catch figures are from the ADF&G fish ticket system. In the first 24 hours of an opening interview data from the fleet is used to estimate catches. After that time a sub sample of deliveries is expanded to total effort to estimate weekly catch.
- d. Stock contributions: Inseason catch stock contributions are estimated each week from random scale samples. Estimates are made for three groups: Chilkoot Lake, Chilkat Lake, and a combination of Berners Bay and Chilkat mainstem. Postseason stock contributions are made to add to the historic database from which models are derived. Escapements are sampled for scales to determine age structure of spawners in order to combine with catch data for spawner-recruit and preseason databases.
- e. Fishery monitoring: Site-specific fishery performance data and scale sampling are used to monitor migration paths and identify areas of overlap between stocks. Information is also provided on fish buildups in specific areas.

Summer/Fall Chum and Pink Salmon

- a. Inseason catch figures: Inseason catch data are obtained from the ADF&G fish ticket system. In the first 24 hours of an opening interview data from the fleet are used to estimate total harvests. After that time, a sub sample of deliveries is expanded to total effort to estimate catches.
- b. Aerial surveys and fish wheel catch: Escapement rates and distribution are monitored by aerial survey inseason when feasible and throughout the peak spawning period. Current fish wheel catches of salmon are compared to historical years when mark-recapture methods were used to estimate escapement of fall chum salmon.
- c. Fishery monitoring: Collect catch data and other fishery performance information such as effort level, fishing conditions, influence of northerly winds on rate of entry into Chilkat River, and observations of fish buildups.
- d. Fish wheel index: Lower Chilkat River fish wheel catch rates will be compared to the historical database to be used as an indicator of abundance.

Coho Salmon

- a. Inseason catch figures: Inseason catch figures from the ADF&G fish ticket system.
- b. Aerial and foot surveys: Peak spawner counts are not obtained until postseason. However, in some index systems, Berners River and Chilkoot Lake, early season surveys provide an indication of escapement rates when water levels and conditions allow.
- c. Fishery monitoring: Availability of coho salmon is judged by comparing current CPUE and catch to the historical average and by the relative abundance of coho salmon in specific areas.
- d. Fish wheel index: Lower Chilkat River fish wheel catch rates will be compared to the historical database to be used as an indicator of abundance.
- e. Berners River coded-wire tag monitoring and inseason projections: Coded-wire tag recoveries for Berners River and Chilkat River coho salmon are monitored inseason by commercial fisheries staff. Data collected from this program will be used to project the total return of Berners and Chilkat River coho salmon. This system is used as an index for other Lynn Canal coho salmon stocks.

**APPENDIX D: INCLUSIVE DATES OPERATION FOR CHILKOOT
LAKE AND CHILKAT LAKE WEIRS AND CHILKAT RIVER FISH
WHEELS.**

Appendix D.—Inclusive dates of operation for Chilkoot and Chilkat weirs and Chilkat River fish wheels, 1976 to 2007.

Year	Chilkoot Lake Weir Operation	Chilkat Lake Weir Operation	Chilkat River Fish Wheel Operation
1976	5/30–11/2	6/3–10/21	
1977	5/28–9/11	6/3–9/27	8/21–10/21
1978	6/6–11/7	6/05–11/05	8/14–11/9
1979	6/9–11/5	6/9–11/11	
1980	6/15–10/5	6/15–10/08	
1981	6/10–10/12	6/11–10/22	
1982	6/3–9/16	6/24–10/06	10/5–10/26
1983	6/4–11/13	6/22–11/12	8/9–10/3
1984	6/3–9/14	6/9–10/07	
1985	6/5–10/21	6/23–10/22	
1986	6/6–10/29	6/16–11/14	
1987	6/4–11/2	6/19–11/20	
1988	6/9–11/12	6/18–11/14	
1989	6/4–10/30	6/5–10/28	
1990	6/3–10/30	6/6–11/13	8/14–10/25
1991	6/7–10/8	7/10–10/24	5/8–7/20
1992	6/2–9/26	6/8–10/15	
1993	6/3–9/30	6/13–10/14	
1994	6/4–9/24	5/20–10/5	6/18–9/11
1995	6/5–9/11	6/8–10/9	6/16–9/16
1996	6/6–9/11	Weir not operated	6/22–9/16
1997	6/4–9/9	Weir not operated	6/11–10/09
1998	6/4–9/13	6/9–10/13	6/9–10/13
1999	6/4–9/13	6/30–10/28	6/7–10/08
2000	6/3–9/12	6/16–10/18	6/9–10/07
2001	6/7–9/12	6/19–10/13	6/6–10/07
2002	6/8–9/11	6/23–10/18	6/7–10/19
2003	6/6–9/9	6/27–10/10	6/6–10/21
2004	6/3–9/12	7/6–10/13	6/7–10/19
2005	6/6–9/12	6/28–10/12	6/7–10/11
2006	6/5–9/13	6/27–10/11	6/9–10/14
2007	6/4–9/12	7/13–10/15	6/7–10/9