

MANAGEMENT PLAN FOR THE LYNN CANAL (DISTRICT 15)

DRIFT GILLNET FISHERY, 2001



by

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and
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TABLE OF CONTENTS

	<u>Page</u>
AUTHORS.....	2
LIST OF TABLES	4
LIST OF FIGURES.....	4
LIST OF APPENDICES.....	5
INTRODUCTION.....	6
FISHERY AREA	6
CONTRIBUTING STOCKS	6
REGULATORY DECISION PROCESS	7
GENERAL GOAL.....	7
MANAGEMENT GOALS.....	8
2001 OUTLOOK.....	8
CHILKAT SOCKEYE.....	8
CHILKOOT SOCKEYE	9
CHUM SALMON	10
Summer Chum.....	10
Fall Chum.....	10
COHO SALMON.....	11
CHINOOK SALMON	11
2001 MANAGEMENT APPROACH	12
FISHERY OPENINGS	12
Section 15-A.....	12
Section 15-B.....	13
Section 15-C.....	13
Other Comments	14
INFORMATION NEEDS.....	15
LITERATURE CITED	17
APPENDICES.....	36

LIST OF TABLES

		<u>Page</u>
Table 1.	Historical catches of chinook, sockeye, coho, pink, and chum salmon in the District 15 (Lynn Canal) drift gillnet fishery, 1960 to 2000.	18
Table 2.	Escapement goals for Lynn Canal salmon stocks by species and location.	19
Table 3.	Annual escapements of Chilkat Lake sockeye salmon by week, 1976 to 2000.	20
Table 4.	Annual harvests of Chilkat Lake sockeye salmon by week, 1976 to 2000.	21
Table 5.	Chilkat Lake sockeye smolt age, weight, and length compositions (wild and enhanced components), 1989-1990, 1994-2000.	22
Table 6.	Annual total return of Chilkat Lake sockeye salmon by week, 1976 to 2000.	23
Table 7.	Weekly and annual escapement of Chilkat River mainstem sockeye salmon, 1994-2000.	24
Table 8.	Annual harvests of Chilkat River mainstem and Berners Bay rivers, and other non-Chilkat or Chilkoot lakes, sockeye salmon by week, 1976 to 2000.	25
Table 9.	Annual escapements of Chilkoot Lake sockeye salmon by week, 1976 to 2000.	26
Table 10.	Annual harvests of Chilkoot Lake sockeye salmon by week, 1976 to 2000.	27
Table 11.	Selected data for Chilkoot Lake smolt for years 1996-2000, annual autumn hydroacoustic, total adult return, and average annual zooplankton densities for years 1987-2000.	28
Table 12.	Annual total return of Chilkoot Lake sockeye salmon by week, 1976 to 2000.	29
Table 13.	Estimated annual age compositions and brood year returns of large (?age 1.3) chinook salmon immigrating into the Chilkat River, 1991-2000 ^a	29

LIST OF FIGURES

		<u>Page</u>
Figure 1.	Lynn Canal district and section boundaries.	30
Figure 2.	Upper Lynn Canal showing Chilkat and Chilkoot lakes.	31
Figure 3.	Lynn Canal sockeye salmon weekly abundance by stock. Data for period 1976 to 1992.	32
Figure 4.	Run timing of chinook, sockeye, coho, summer and fall chum, and pink salmon in the Lynn Canal drift gillnet fishery. Data for period 1976 to 2000.	32
Figure 5.	Historical catches of chinook, sockeye, coho, pink, and chum salmon in the District 15 (Lynn Canal) drift gillnet fishery, 1960 to 2000.	33
Figure 6.	Historical escapement and harvest of Chilkoot and Chilkat Lake sockeye salmon, 1976 to 2000.	34
Figure 7.	Yearly comparisons of Chilkoot Lake autumn hydroacoustic counts of juvenile sockeye salmon and average zooplankton densities, 1987-91, 1995-2000.	35
Figure 8.	Average 1994-2000 run timing for Chilkat River sockeye salmon stocks at the Chilkat River fish wheels.	35

LIST OF APPENDICES

	<u>Page</u>
Appendix 1. Calendar dates for statistical weeks in 2001.....	37
Appendix 2a. Historical age composition of sockeye salmon escapements to Chilkat and Chilkoot lakes, 1982 to 2000.....	38
Appendix 2b. Historical age composition of sockeye salmon escapements to Chilkat mainstem areas, 1984 to 2000.....	39
Appendix 3. Inclusive dates of operation for Chilkoot and Chilkat weirs and Chilkat River fish wheels, 1967 to 2000.	40
Appendix 4. Data collected from the inseason information system to determine fishery performance by species.	41

INTRODUCTION

This document describes the management plan for the 2001 Lynn Canal drift gillnet fishery. The purpose of this plan is to provide commercial fishers and others with a general idea of how the fishery may be managed, what tools are available to the manager, and the conditions which trigger major management actions. This plan will also serve as a reference that consolidates important historical harvest and escapement data and current fisheries information.

The Lynn Canal drift gillnet fishery targets sockeye, summer chum, coho, and fall chum salmon. Chinook and pink salmon also are taken as incidental catch. The sockeye run in Lynn Canal is among the largest in Southeast Alaska. The coho run to the Chilkat River is among the largest in northern Southeast Alaska. Currently, Chilkat River sockeye and Lynn Canal coho stocks are healthy. Total returns of Chilkoot Lake sockeye salmon have been below average since 1993. Fall chum stocks have not recovered to historical highs of the mid-1980s since a dramatic decline beginning in 1989, although escapements in 1999 and 2000 were much improved over recent years.

Currently, problems exist in the management of Lynn Canal, especially in our understanding of reduced sockeye salmon production from Chilkoot Lake and Chilkat/Klehini River chum salmon. Potential stock assessment projects intended to fill some of these information gaps are briefly discussed.

Details presented for managing the 2001 season may be updated as factors change during the season or new information becomes available.

Fishery Area

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

Contributing Stocks

Target stocks for the gillnet fishery are:

- 1) Sockeye salmon from June through early September. The primary stocks originate in Chilkat and Chilkoot lakes (Figure 2). Sockeye salmon originating from the Berners Bay rivers, Chilkat River mainstem, and other relatively minor, local stocks are also harvested in the fishery. Both Chilkat and Chilkoot lakes have two separate stock groups, an early and a late component. Those stock groups are managed separately for escapement goals. The return timing for the Chilkat and Chilkoot lake sockeye salmon stocks in the Lynn Canal drift gillnet fishery is shown in Figure 3.

- 2) Summer chum, predominately from hatchery enhancement programs, and pink salmon from late June through July. The return timing for summer chum and pink salmon stocks to the Lynn Canal drift gillnet fishery is shown in Figure 4.
- 3) Fall chum and coho salmon from September through mid-October. The primary fall chum salmon stocks originate in the Klehini and Chilkat rivers. The primary coho salmon stocks originate in the Chilkat River and Berners Bay rivers. The return timing for fall chum and coho salmon stocks to the Lynn Canal drift gillnet fishery is shown in Figure 4.

Chinook salmon are harvested incidentally in the Lynn Canal drift gillnet fishery. A management concern for this species is to minimize chinook salmon harvests to stay within the board of fisheries allocation of all-gear quota (7,600 chinook for all Southeast gillnet districts [5 AAC 33.367 (a) (2)]). The return timing for chinook stocks to the Lynn Canal drift gillnet fishery is shown in Figure 4.

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 opens by regulation on the third Sunday of June. The 2001 season will open on 12:01 p.m., June 17. Weekly fishing periods are set by emergency order and distributed to the public by department news releases that are typically distributed early in the afternoon on Thursdays.

General Goal

The overall management goal is to achieve desired spawning escapement levels while harvesting the available surplus for long-term maximum sustainable yield of all Lynn Canal salmon stocks. Stock specific escapement objectives have been established for the Chilkoot and Chilkat sockeye salmon stocks. Escapement to Chilkoot Lake is monitored at the enumeration weir located on the outlet of Chilkoot Lake. The sockeye salmon escapement to Chilkat River/Lake is monitored using fish wheels in the lower river. Total escapement is estimated using mark-recapture methodologies. The Chilkat Lake weir will be operated in 2001, as it was in 2000, to monitor escapement and serve as a mark-recapture platform. Spawning objectives for other species have been developed as desired levels for index (peak) escapement counts.

MANAGEMENT GOALS

Specific management goals for the 2001 Lynn Canal drift gillnet fishery are as follows:

1. Obtain escapement counts for early run (through week 28; July 14) and late run Chilkoot Lake sockeye salmon of 16,500 and 34,000 fish, respectively.
2. Obtain an escapement of between 52,000 and 106,000 sockeye salmon to Chilkat Lake. The escapement objective for the early stock is approximately 17,500 fish through week 33 (August 18, Appendix 1) and 47,500 for the late stock.
3. 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.
4. Minimize, to the extent practical, the incidental harvest of chinook salmon.

2001 OUTLOOK

Chilkat Sockeye

The 1995 Chilkat Lake mark-recapture sockeye salmon escapement estimate totaled 184,500 sockeye salmon, including 89,000 early run fish, and 95,500 late run fish, well above the desired upper escapement goals for both stocks (Table 2, Table 3, Figure 6, McPherson 1990). The 1996 Chilkat Lake mark-recapture escapement estimate was 262,900 sockeye salmon, including 172,400 early run fish, and 90,500 late run fish, again exceeding the desired escapement goal range for both stocks. Historically, approximately 51.6% of the Chilkat Lake sockeye salmon escapement are age-2.3 (six-year old) fish, 20.1% are age-2.2 (five-year old) fish, 26.1% are age-1.3 (five-year old) fish, and the remainder are primarily age-1.2 (four-year old) fish (Appendix 2a). The Lynn Canal drift gillnet catches of Chilkat Lake sockeye salmon for return years, 1995 and 1996, were estimated to be 63,400 and 96,400 fish respectively, compared to the 1976 to 2000 historical average of 98,600 fish (Table 4).

The Northern Southeast Regional Aquaculture Association (NSRAA) conducted a smolt abundance estimation project at the outlet of Chilkat Lake from 1995 through 2000 (Table 5). Sockeye salmon smolt production from Chilkat Lake in 1998 and 1999, the dominant smolt years for the 2001 return, were estimated to be 1.39 million fish and 1.81 million fish, respectively. These smolt abundance estimates are 67% and 88%, respectively, of the historical 1989-90 and 1994-00 average. Approximately 25% of the age-1+ smolt and 9% of the age-2+ smolt from the 1998 emigration resulted from the Chilkat Lake enhancement program (based on thermal marks). An estimated 38% of the age 2+ smolt from the 1999 migration resulted from the Chilkat Lake enhancement program. Assuming a 14% marine survival rate and

that 78% (Appendix 2a) of those smolts return at three-years ocean age (combination of age-1.3 and 2.3 fish) there will be approximately 151,400 three-ocean (ages 1.3 and 2.3) Chilkat Lake sockeye salmon returning in 2001. Assuming a 14% marine survival rate and that 22% of those smolts return at two-years ocean age (ages 1.2 and 2.2), there will be approximately 55,700 two-ocean (ages 1.2 and 2.2) Chilkat Lake sockeye returning in 2001. The total expected return of four, five, and six-year-old sockeye to Chilkat Lake is approximately 207,100 fish which is 94% of the 1976 to 2000 historical average of 219,300 fish (Table 6, Figure 6).

Mark-recapture estimates of the Chilkat River mainstem sockeye salmon escapements in 1997 and 1998, the dominant parental brood years, were 14,700 and 13,200 fish, respectively (Table 7). 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, McGregor in press). These estimates of abundance were well below the historical 1994-2000 average of 28,900 fish. Total escapement estimates are not available for Berners Bay sockeye systems. The 1997 commercial harvest was estimated at 11,600 fish. This catch was 86% of the historical 1976-00 average catch of 13,500 fish (Table 8). Based on the information above and age data collected in 2000 indicated close to average age compositions (Appendix 2b), an average to below average run of Chilkat River mainstem sockeye salmon is expected in 2001.

Chilkoot Sockeye

The Chilkoot Lake weir has been in operation since 1976 (Kelley and Bachman, 1999). The Chilkoot Lake sockeye weir count during the dominant parental brood year (1996) for the 2001 return was 50,700 fish (8,400 early run and 42,300 late run, Table 9). The early run was substantially below goals but the late run was within desired management goals (Table 2). The Lynn Canal drift gillnet catch for the dominant brood year, 1996, was estimated to be 18,900 fish, 17% of the 1976 to 2000 historical average of 111,300 fish (Table 10).

Zooplankton abundance and biomass in Chilkoot Lake was very low during 1997, when the majority of fry expected to return as adults in 2001 were rearing in the lake (Table 11, Figure 7, Barto unpublished data). The 1997 fall hydroacoustic estimate of 761,600 fall fry in Chilkoot Lake was improved from 1995 and 1996 but was 20% below the historical average (951,200, range 285,500 to 3,066,100 for years 1987-1991 and 1995-2000), (Barto unpublished data, Barto 1995, Table 11, Figure 7).

The annual total adult return of Chilkoot Lake sockeye salmon has been well below average since 1993, a trend that is expected to continue in 2001 (Table 12, Figure 6).

Chum Salmon

Summer Chum

The majority of the summer chum salmon harvest is comprised of enhanced 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 the other Berners Bay rivers on the eastern side of Lynn Canal and the Endicott, Beardslee, and St. James rivers on the western side of Lynn Canal.

Douglas Island Pink and Chum Salmon Incorporated (DIPAC) has been operating chum salmon remote release sites at Boat Harbor and Amalga Harbor since 1988 and 1991, respectively. Preliminary projections for the Boat Harbor return are approximately 99,100 fish, a decrease from last year. No hatchery cost recovery fishery is planned for the Boat Harbor area so these fish will all be available for common property fishery harvest. The preliminary projection for the Amalga Harbor project is approximately 820,000 fish, again a reduction from last year. DIPAC will conduct a hatchery cost recovery fishery in its Amalga Harbor Special Harvest Area in Section 11-A to harvest chum salmon returning to the Amalga Harbor remote release site.

Peak aerial escapement counts of summer chum salmon in Sawmill Creek in 1996, 1997, and 1998 were 5,700, 1,000, and 1,100 fish respectively. Those peak aerial escapements are at or above the desired peak aerial escapement goal for this index system (Table 2). Cumulative peak counts of chum salmon in western Lynn Canal streams in 1996, 1997, and 1998 were 5,700, 1,000, and 2,300 fish respectively. Goals were exceeded in 1996 but goals were not met in 1997 and 1998. Based on parental-year escapement counts, the wild summer chum return in 2001 should be good to average in run strength but at a much lower scale than the hatchery summer chum return.

Fall Chum

Fall chum salmon returning to Lynn Canal are wild stocks returning primarily to the Klehini River, Chilkat River, and several Chilkat River tributaries. A smaller number of fall chum salmon are produced from the Herman Creek spawning channel and streamside incubation projects carried out by NSRAA. Parental-year escapements for the 2001 return of fall chum salmon were low. Peak aerial counts in the Klehini River in 1996 and 1997 were 3,600 and 200 fish respectively, well below the peak aerial escapement goal for this stock (Table 2). For the Chilkat River the peak aerial survey counts were 5,500 and 4,000 fish (1996, 1997), also well below the peak aerial escapement goal for this stock (Table 2). It is known, however, that aerial escapement counts are not very reliable for this system because of the glacial nature of the Chilkat River and the protracted spawning duration of these stocks. Other information that may be used as an indication of the strength of the fall chum salmon return is the fishery performance (Appendix 4) data from Lynn Canal. The fishery performance in the dominant parental brood years (1996 and 1997) was also poor. Based on this information the return of fall chum salmon stocks is, again, expected to be poor.

Coho Salmon

The coho salmon return in Lynn Canal is comprised of several stocks. The largest coho salmon system in the area is the Chilkat River, followed by the Berners and Chilkoot rivers.

A mark-recapture experiment conducted in 1990 estimated that the total coho salmon escapement to the Chilkat River was 80,500 (95% confidence interval 70,000 to 95,600 fish, Dangel et al. unpublished data). In 1998, Sport Fish Division conducted a mark-recapture experiment to estimate the escapement of Chilkat River coho salmon. The escapement estimate from that project was 37,132 fish (SE = 7,432, Ericksen, 1999). No other detailed harvest or escapement data is available for this stock.

A more detailed, longer-term (1982 to present) stock assessment program has been conducted on the Berners River (Clark et al. 1994, Shaul and Crabtree 1998). Results from that program indicate the average (1982 to 1995) total coho salmon return for that system is approximately 33,000 fish (range 14,000 to 73,800). Total harvest rates on the Berners River stock (1982 to 1995) have averaged 74.3%.

Weir counts for Chilkoot River coho salmon are also available but of limited value. In recent years the weir is operated primarily for sockeye salmon and in most years has been removed prior to the peak of the coho salmon return (Appendix 3). For years in which the Chilkoot River weir was operated through at least the end of October (1987 to 1990) the peak total Chilkoot weir count for coho salmon was 3,800 (in 1989).

Parental-year escapement counts to the Chilkat, Berners, and Chilkoot rivers were generally below the ten-year average for all systems. The District 15 gillnet catch of 15,600 coho in 1997 (Table 1) was approximately 19% of the previous ten-year average. Based on this information the coho return is expected to be average to below average in 2001.

Chinook Salmon

Sport Fish Division has, since 1991, conducted mark-recapture methods to determine the spawning abundance of Chilkat River chinook salmon (Johnson et al. 1993, Johnson 1994, Ericksen 1997, 1998, and 2000, Table 13). The resulting database will be used to refine escapement goals and future run forecasting models for this run. The interim escapement goal is 2,000 mature (?age 1.3) chinook salmon (Table 2). Sport Fish Division is in the process of reviewing this goal. The preliminary preseason forecast for mature (?age 1.3) Chilkat chinook salmon is 3,500 fish, which is 74% of the 1991-2000 average but above last year's estimated escapement of approximately 2,300 fish. There is no directed fishery for chinook salmon in Lynn Canal but management actions have been implemented to reduce the incidental take of Chilkat River chinook salmon. These management actions have been effective in conserving Chilkat River chinook salmon stocks as the interim escapement goal has been met or exceeded each year since 1991.

2001 MANAGEMENT APPROACH

Fishery Openings

In 2001, the department intends to manage the Lynn Canal drift gillnet fishery to obtain the lower ends of the escapement goal ranges for early and late stocks of Chilkoot Lake sockeye salmon. Depressed populations of Chilkoot Lake zooplankton that serve as the forage base for rearing juvenile sockeye salmon are thought to be limiting production from this system. The department believes targeting the low end of the escapement goal ranges is prudent to reduce the possibility of high fry production and resultant heavy predation on the lake's principal food source for sockeye salmon.

Section 15-A

Section 15-A will open for two days south of the latitude of Seduction Point beginning 12:01 p.m., Sunday June 17. If the Chilkoot River weir count through June 13 is less than 4,500 sockeye salmon the eastern side of Section 15-A will be closed. If the weir count is 4,500 sockeye salmon or greater the eastern portion of 15-A may be opened. Chilkat Inlet will remain closed the first two weeks of the season to protect mature chinook salmon returning to the Chilkat River. Chinook salmon return timing data from the Sport Fish chinook salmon tagging program indicates that approximately 90% of the Chilkat River chinook salmon return has passed the inriver drift gillnet capture site at river mile seven by July 15 (Ericksen 1997). Assuming that the travel time from Chilkat Inlet to the Sport Fish Division tagging site is about ten days, the bulk of the Chilkat River chinook salmon return should be in the Chilkat River by about July 4 (week 27 in 2001).

The department has attempted to increase harvest rates on Chilkat Lake sockeye salmon by allowing extended fishing time and area in Chilkat Inlet and adjacent marine waters during years of high abundance. The success of this approach is limited because of terminal area closures designed to protect chinook salmon and Chilkat River mainstem sockeye early in the season and fall chum salmon late in the fishing season. Chilkat River mainstem fish have a return timing that overlaps the Chilkat Lake early sockeye salmon run (Figure 8, 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). There are no formal escapement goals for Chilkat River mainstem sockeye salmon. Data from the Chilkat River fish wheel mark-recapture program will be used to judge run strength inseason and escapement levels post season. The department is hopeful that this data may be used in the future to develop spawning escapement goals for this stock.

Due to this season's low-projected return of Chilkat River chinook salmon, it is anticipated that the northern boundary line will remain at Seduction Point until the third or fourth week of the season. Depending on the strength of the early Chilkat Lake sockeye and the Chilkat River chinook run the northern boundary line may be moved to Glacier Point, or the northernmost tip of Kochu Island, the fourth week of the season. If the run strengths of Chilkat Lake sockeye and Chilkat River chinook warrants it, the northern boundary line in Chilkat Inlet may be moved north to Cannery Point during weeks 29 and 30. The area

from Cannery Point to the Chilkat River mouth will be closed to protect Chilkat River mainstem sockeye salmon (Figure 8) during that time. If the Chilkat Lake sockeye salmon run is stronger than anticipated the northern boundary line may be moved to the mouth of the Chilkat River during weeks 31-34. Section 15-A (west of a line beginning at a point within two nautical miles of the western shoreline of Lynn Canal at the latitude to Point Sherman, to Sullivan Island Rock Light, to Eldred Rock Light, to the southernmost tip of Talsani Island, to the northernmost tip of Talsani Island, to Seduction Point) may be opened for extended periods of time during the summer season, but due to this year's expected smaller run of Chilkat Lake sockeye it is likely that fishing time in this area will be less than during the 1998 and 1999 seasons. Fishing time and area may be adjusted inseason and will be based on inseason fishery performance (Appendix 4) and on stock assessment data, primarily from the fish wheels in the lower Chilkat River.

If the Chilkoot Lake sockeye salmon return is poor as expected (run not forecasted to meet minimum escapement goals), the east side of Section 15-A will be closed for much of the season. Chilkoot Inlet is expected to be closed north of Seduction Point for most, if not all, of the summer season to protect Chilkoot Lake sockeye salmon.

Fall management will begin in late August or early September. Fall chum salmon conservation will drive fishery management in Section 15-A from week 35 until the end of the season. If the late run of Chilkat Lake sockeye salmon is very strong, the department will use a management approach to the early fall fishery in Section 15-A similar to that used in the fall of 1999. In order to target fishing on Chilkat Lake sockeye salmon while limiting the harvest of milling Chilkat River fall chum salmon during weeks 35 and 36 in 1999, Chilkat Inlet was open from the latitude of Point Seduction to the mouth of the Chilkat River and the remainder of Section 15-A was closed. The need to use this management strategy in 2001 will be assessed in season and will be based on the strength of the late run of Chilkat Lake sockeye. The department will assess sockeye and fall chum runs closely by monitoring fishery performance and inriver abundance at the Chilkat River fish wheels to adjust fishing time and area in Section 15-A during this time.

Section 15-B

Section 15-B will not be open in 2001 unless the return of coho salmon to Berners Bay is very strong.

Section 15-C

Section 15-C will open for two days beginning 12:01 p.m., Sunday, June 17. If the Chilkoot River weir count is less than 4,500 sockeye salmon through June 13 the eastern side of Section 15-C will be closed north of the latitude of Bridget Point. If the Chilkoot Lake sockeye salmon return is as poor as expected (based on weir counts), there will be 6-inch minimum mesh size restrictions in Section 15-C (except for the Boat Harbor area). This gear restriction will be implemented to minimize the harvest of Chilkoot Lake sockeye salmon while targeting summer hatchery chum salmon. If the Chilkoot River weir counts continue to be very poor and effort levels are higher than in recent years, it is also possible that additional areas on the eastern side of Section 15-C may be closed. The decision to open the eastern side of this section and whether to implement a gear restriction will be driven by Chilkoot River weir counts, effort levels, and inseason stock assessment data based on site specific scale samples.

The Boat Harbor area (those waters within two nautical miles of the western shoreline of Lynn Canal from the latitude of Lance Point at 58°43'56" N. latitude south to a point 2.4 miles north of Point Whidbey at 58°37'03" N. latitude) is expected to be opened for extended periods beginning in week 28, (July 8). If enhanced chum salmon returns are as strong as projected, the Boat Harbor area will be open continuously beginning the second week of July. The western shoreline of Section 15-C will be closed north of Lance Point to protect wild summer chum salmon returning to the Endicott River during weeks 27 to 31 (July 1 to August 4).

Fall season management will begin in late August or early September in Section 15-C. A conservative management approach will again be implemented to ensure improved fall chum salmon escapement during the early weeks of the fall season. Management of Section 15-C during the fall season will be based on coho and chum overall run strength and fishing effort levels. Fishing effort will be directed at harvesting returns of coho salmon in lower Lynn Canal while conserving fall chum salmon.

Other Comments

To avoid gear conflicts, the District 15 drift gillnet fishery will not be open concurrent with the Juneau Golden North Salmon Derby. Consequently, during statistical week 34, the District 15 gillnet fishery will not open until Monday, August 20.

The Alaska Board of Fisheries adopted a regulation that grants the department authority to implement full retention of harvested fish in net fisheries throughout the state. The draft regulatory text is included below. Department management staff in Southeast Alaska, including Haines and Juneau area managers, are currently considering the implications of this regulation on gillnet fisheries in Region I. Further details regarding the implementation of this new regulation will be announced at a later date. The department intends to solicit input from industry in regards to the ramifications of this regulation on Southeast Alaska fisheries. At this time the department does not plan on implementing this full retention regulation in District 15 during the 2001 season but if the department and Fish and Wildlife Protection obtain information that suggests salmon waste regulations [5 AAC 93.310] are being violated this regulation may be invoked. If this regulation is invoked this will be announced in weekly news releases.

5 AAC 39.325. FULL RETENTION AND UTILIZATION OF SALMON. (a) The Alaska Board of Fisheries (board) recognizes that there are times during a salmon season that it may be necessary to require full retention and utilization of all salmon species.

(b) In a directed salmon net fishery, if the commissioner determines that full retention of all salmon species is necessary for the enforcement of this section, the commissioner may, by emergency order, close and immediately reopen a salmon fishery, requiring that all salmon must be retained and utilized, unless otherwise specified in Title 5, chapters 1 through 77.

INFORMATION NEEDS

The current major weakness in the management of the Lynn Canal drift gillnet fishery is poor production of Chilkoot Lake sockeye salmon. In order to conserve Chilkoot sockeye the department has in recent years had to close the eastern shoreline of Section 15-A during the entire summer fishing season and severely limit fishing along the eastern shoreline of Section 15-C as well. These actions have, as side-effects, limited harvest rates on plentiful returns of Chilkat Lake sockeye and enhanced chum salmon below levels that could otherwise have been realized. The department has had only limited funds to conduct assessment work at Chilkoot Lake but has collected lake productivity data that points to a limited food supply for juvenile sockeye salmon as a possible cause for poor returns of sockeye to this system. More intensive sampling of the lake and an in-depth analysis of available literature may reveal possible methods for enhancing the productivity of Chilkoot Lake. Production of sockeye from Coghill Lake, a glacial system in central Alaska with many physical similarities to Chilkoot Lake, appeared to respond favorably to a nutrient enrichment program in the early 1990s after several years of low productivity that were believed to be caused by a low zooplankton forage base (Edmundson et al. 1997). The department and NSRAA will be collecting additional information at Chilkoot Lake this season to look into the possibility of enhancing the lake with fertilizer. NSRAA currently has plans to study the Chilkoot Lake outmigration of sockeye smolts in 2001 to measure run-timing age structure, size and weight of these fish. The department will continue to collect water quality, zooplankton and start collecting water quality samples at Chilkoot Lake to monitor the productivity of this system. Results from 2000 indicate that Chilkoot Lake may be rebounding from the historical low abundance biomass of zooplankton and rearing sockeye salmon (Figure 7). The department plans to provide a thorough professional review of existing Chilkoot Lake information to make recommendations regarding nutrient enrichment at Chilkoot Lake.

Returns of Chilkat and Klehini River chum salmon stocks have been depressed since the early 1990s. No stock assessment program is currently in place for this stock. A stratified mark-recapture project similar to the Chilkat sockeye salmon program involving the Chilkat River fish wheels would allow for an estimate on the abundance of this species. Additional funding to operate the fish wheels throughout the chum salmon migration period would be necessary.

Very little is known regarding the escapement and harvest of Chilkat River coho salmon. Sport fish division funded a Chilkat River stock assessment program in 1998 utilizing the Chilkat River fish wheels. Due to funding constraints, this project was discontinued in 1999 and will probably not continue again in 2001. Coho salmon were marked at the Chilkat River fish wheels and mark-recovery took place in upriver spawning locations. This program would provide escapement information for Chilkat River coho salmon stocks, which, over time, may be used to develop spawning escapement goals. In 1999 the sport fish division initiated a Chilkat drainage coho and chinook smolt coded wire-tagging program. The purpose of this project is to estimate the number of coho and chinook salmon smolt leaving the Chilkat River. Another goal of this project is to estimate the marine harvest of Chilkat River coho and chinook salmon in sampled fisheries during 2001 through the recovery of coded-wire tags that were applied in the spring of 1999 and 2000. This program will commence again in 2001. The lower Chilkat fish wheels will be utilized this fall to sample and scan for tagged coho salmon to estimate the proportion of one and two ocean age adult coho salmon returning to the Chilkat River this year.

Currently Chilkat sockeye salmon are captured, marked, and released at two fish wheels located in the lower Chilkat River. Recovery of those marked sockeye salmon takes place at upriver spawning locations

in Chilkat Lake and the Chilkat River mainstem. Sockeye salmon are recovered in Chilkat Lake by capturing fish at the weir site located near the outlet of Chilkat Lake. This method is the best for examining the entire sockeye escapement into Chilkat Lake. The Chilkat Lake weir will be operated again this year to serve as a mark recovery and as a collection site for biological samples. In addition, the weir provides run-reconstruction data for sockeye salmon as well as valuable data on the escapement of other salmonid species to Chilkat Lake. The objectives of the program are: 1) Provide precise postseason escapement estimates for Chilkat Lake sockeye salmon using stratified mark-recapture population estimates, and 2) Provide escapement data for other salmonid species to Chilkat Lake. The approximate cost of this program is \$50,900 annually. Like 2000, through cooperative agreement, NSRAA has agreed to run the recovery portion of this project utilizing the weir as a recovery platform. Like previous years, the department's management crews will be on the fishing grounds during the commercial fishing periods to sample sockeye and chinook salmon and monitor the fishery as it progresses. The department asks that commercially caught sockeye and chinook salmon be retained if possible in separate fish holds or totes so department staff could collect scale and length data from these fish while out monitoring the fishery. The scale samples that are collected from sockeye salmon form the basis of our stock separation analysis. Department staff stand by on channel 10 VHF when on the fishing grounds.

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Table 1. Historical catches of chinook, sockeye, coho, pink, and chum salmon in the District 15 (Lynn Canal) drift gillnet fishery, 1960 to 2000.

Year	Chinook				Sockeye				Coho				Pink				Chum				Summer	Fall	
	15-A	15-B	15-C	15 Total	15-A	15-B	15-C	15 Total	15-A	15-B	15-C	15 Total	15-A	15-B	15-C	15 Total	15-A	15-B	15-C	15 Total			
60	1,453	0	0	1,453	59,603	1	0	59,604	9,998	966	0	10,964	1,760	0	0	1,760	58,254	308	0	58,562	1,180	57,382	
61	683	0	0	683	67,839	21	0	67,860	15,499	2,757	0	18,256	25,503	0	0	25,503	122,873	4,477	0	127,350	8,016	119,334	
62	806	0	0	806	103,696	0	0	103,696	24,436	0	0	24,436	2,041	0	0	2,041	115,036	0	0	115,036	3,733	111,303	
63	275	1	0	276	57,517	1	0	57,518	34,628	468	0	35,096	13,689	0	0	13,689	102,183	185	0	102,368	1,554	100,814	
64	771	0	0	771	68,200	0	0	68,200	33,347	0	0	33,347	6,602	0	0	6,602	103,047	0	0	103,047	1,192	101,855	
65	1,735	0	0	1,735	89,045	1	0	89,046	38,418	663	0	39,081	4,222	0	0	4,222	206,292	270	0	206,562	4,108	202,454	
66	865	3	0	868	108,060	26	0	108,086	39,598	1,196	0	40,794	6,004	4	0	6,008	233,759	1,413	0	235,172	3,657	231,515	
67	1,171	0	0	1,171	66,621	0	0	66,621	66,109	0	0	66,109	14,677	0	0	14,677	165,874	0	0	165,874	3,477	162,397	
68	1,488	0	1	1,489	79,937	0	67	80,004	39,606	0	3,656	43,262	7,776	0	27	7,803	159,776	0	9,839	169,615	3,519	166,096	
69	1,599	0	19	1,618	127,628	0	241	127,869	33,828	0	1,199	35,027	5,129	0	3,867	8,996	156,800	0	3,867	160,667	3,554	157,113	
70	1,733	0	38	1,771	78,734	0	381	79,115	38,916	0	9,727	48,643	19,271	0	568	19,839	230,833	0	40,582	271,415	4,555	266,860	
71	2,908	0	21	2,929	74,774	0	373	75,147	39,535	0	9,647	49,182	6,095	0	61	6,156	238,269	0	32,891	271,160	21,395	249,765	
72	923	0	63	986	79,287	0	1,723	81,010	50,834	0	7,137	57,971	13,346	0	1,174	14,520	322,259	0	27,422	349,681	19,050	330,631	
73	2,341	0	131	2,472	192,579	0	1,122	193,701	17,704	0	8,449	26,153	14,099	0	452	14,551	236,899	0	42,432	279,331	16,238	263,093	
74	1,607	0	64	1,671	142,187	0	9,827	152,014	44,745	0	20,064	64,809	4,079	0	924	5,003	372,671	0	71,295	443,966	5,749	438,217	
75	815	0	1	816	18,265	0	73	18,338	43,560	0	13,983	57,543	3,242	0	13	3,255	214,035	0	24,747	238,782	46,199	192,583	
76	2,044	0	24	2,068	122,735	0	3,887	126,622	49,167	0	3,887	71,984	3,866	0	563	4,429	329,974	0	45,052	375,026	5,173	369,853	
77	1,156	0	58	1,214	159,312	0	767	160,079	50,453	0	40,973	91,426	130,644	0	216	130,860	152,923	0	48,711	201,634	5,577	196,057	
78	457	0	79	536	105,491	0	2,989	108,480	26,084	0	27,081	53,165	3,260	0	551	3,811	82,443	0	35,985	118,428	7,845	110,583	
79	3,554	0	18	3,572	192,692	0	282	192,974	23,426	0	3,589	27,015	28,752	0	11	28,763	225,713	0	17,119	242,832	7,006	235,826	
80	434	0	6	440	53,096	0	891	53,987	26,120	0	2,778	28,898	79,441	0	2,902	82,343	157,515	0	11,338	168,853	19,888	148,965	
81	1,083	2	215	1,300	81,740	1,289	10,166	93,195	30,452	109	14,089	44,650	112,471	4,107	20,692	137,270	90,619	508	26,248	117,375	13,215	104,160	
82	5,878	1	66	5,945	268,290	160	5,432	273,882	47,719	78	24,573	72,370	67,415	126	1,509	69,050	271,659	37	34,889	306,585	5,337	301,248	
83	1,993	5	121	2,119	349,884	155	19,791	369,830	53,622	66	15,822	69,510	134,319	452	22,775	157,546	311,510	1,116	28,519	341,145	19,303	321,842	
84	5,822	13	264	6,099	320,277	3,759	10,546	334,582	43,637	58	24,520	68,215	68,611	2,128	7,261	78,000	552,232	10,177	79,829	642,238	59,567	582,671	
85	2,753	177	330	3,260	233,972	7,736	61,533	303,241	64,547	414	33,329	98,290	169,644	6,079	63,357	239,080	582,649	12,377	103,784	698,810	77,806	621,004	
86	2,141	41	590	2,772	248,264	1,100	40,541	289,905	48,046	4	34,071	82,121	31,927	34	6,154	38,115	305,610	1,357	74,415	381,382	18,987	362,395	
87	3,021	2	200	3,223	381,856	1,244	32,236	415,336	31,195	15	22,541	53,751	124,066	430	41,255	165,751	295,663	548	96,727	392,938	26,698	366,240	
88	1,136	27	94	1,257	327,330	17,469	7,000	351,799	50,984	410	30,142	81,536	193,991	10,343	4,070	208,404	284,127	28,664	64,792	377,583	60,206	317,377	
89	1,478	33	444	1,955	351,706	9,249	110,959	471,914	29,484	98	20,725	50,307	61,365	291	48,798	110,454	90,735	3,508	29,388	123,631	28,813	94,818	
90	364	16	290	670	248,878	3,612	104,928	357,418	36,260	48	26,764	63,072	48,645	1,247	51,207	101,099	122,157	2,908	85,477	210,542	84,282	126,260	
91	462	0	283	745	275,428	0	32,383	307,811	23,031	0	105,334	128,365	3,815	0	1,657	5,472	100,121	0	110,068	210,189	100,627	109,562	
92	225	0	385	610	230,229	0	55,806	286,035	30,021	0	78,732	108,753	243,297	0	108,265	351,562	114,157	0	131,090	245,247	132,505	112,742	
93	302	0	439	741	119,754	0	53,359	173,113	7,499	0	52,453	59,952	680	0	10,656	11,336	62,190	0	244,376	306,566	229,284	77,282	
94	253	4	723	980	111,061	80	60,588	171,729	55,925	13,805	71,034	140,764	57,648	2	89,627	147,277	155,172	4,482	525,795	685,449	529,380	156,069	
95	56	0	772	831	41,570	505	34,351	88,572	21,093	11,632	43,696	79,949	883	0	14,641	5,799	62,206	1,332	494,792	568,368	493,279	75,089	
96	106	0	491	642	65,031	0	41,354	149,961	16,525	0	29,885	52,658	1,290	0	958	2,358	55,321	0	337,709	415,547	340,021	75,526	
97	280	0	487	834	52,669	0	42,413	118,348	2,034	0	12,558	15,572	13,601	0	36,864	32,962	28,410	0	425,122	461,614	431,699	29,915	
98	375	0	304	679	114,467	0	20,470	134,937	7,003	0	19,115	26,118	22,260	0	10,091	32,351	29,933	0	130,736	160,669	136,515	24,154	
99	373	0	180	553	145,917	0	17,613	163,530	4,478	0	30,852	35,330	36,989	0	25,748	62,737	46,947	0	303,947	350,894	290,325	60,569	
00	140	0	157	297	76,732	0	32,648	109,380	7,652	0	27,984	35,636	15,938	0	5,070	21,008	66,848	0	686,181	753,029	680,536	72,493	
Averages																							
1989-99	280	2	435	729	140,500	420	46,327	195,145	20,387	2,549	47,042	71,053	42,911	125	34,971	75,295	77,661	872	278,911	361,509	276,792	84,717	
1960-69	1,085	0	2	1,087	82,815	5	31	82,850	33,547	605	486	34,637	8,740	0	389	9,130	142,389	665	1,371	144,425	3,399	141,026	
1970-79	1,754	0	50	1,804	116,606	0	2,142	118,748	38,442	0	16,347	54,789	22,665	0	453	23,119	240,602	0	38,624	279,226	13,879	265,347	
1980-89	2,574	30	233	2,837	261,642	4,216	29,910	295,767	42,581	125	22,259	64,965	104,325	2,399	21,877	128,601	294,232	5,829	54,993	355,054	32,982	322,072	
1960-99	1,423	8	180	1,614	150,391	1,160	19,602	173,128	33,739	820	21,533	56,361	44,660	631	14,423	59,036	188,721	1,842	93,475	285,053	81,763	203,290	

Table 2. Escapement goals for Lynn Canal salmon stocks by species and location.

Species	Stock	Escapement Goal Type	Point Goal	Lower Escapement Goal	Upper Escapement Goal
Sockeye ^a	Chilkoot Lake Early	Weir Count	22,000	16,500	31,500
Sockeye ^a	Chilkoot Lake Late	Weir Count	40,000	34,000	60,000
Sockeye ^a	Chilkoot Lake Total	Weir Count	62,000	52,500	91,500
Sockeye ^a	Chilkat Lake Early	M-R Estimate	17,500	14,000	28,000
Sockeye ^a	Chilkat Lake Late	M-R Estimate	47,500	38,000	78,000
Sockeye ^a	Chilkat Lake Total	M-R Estimate	65,000	52,000	106,000
Sockeye	Chilkat River	Peak Foot Count	N/A	500	2,000
Sockeye	Berners Bay rivers	Peak Aerial Count	N/A	750	1,500
Coho	Berners River	Peak Foot Count	6,300	4,000	9,200
Coho	Tahini River	Peak Foot Count	N/A	400	900
Coho	Takhin River	Peak Aerial Count	N/A	800	1,200
Coho	Chilkat River	Undetermined	N/A	N/A	N/A
Fall Chum	Klehini River	Peak Aerial Count	N/A	20,000	N/A
Fall Chum	Chilkat River	Peak Aerial Count	N/A	70,000	100,000
Wild Summer Chum	Sawmill Creek	Peak Aerial Count	N/A	1,000	2,000
Wild Summer Chum	Western Lynn Canal Systems Combined	Peak Aerial Count	N/A	4,000	8,000
Pink	Sawmill Creek	Peak Aerial Count	N/A	5,000	10,000
Pink	Western Lynn Canal Systems Combined	Peak Aerial Count	N/A	50,000	90,000
Chinook ^b	Chilkat River Combined	M-R Estimate	2,000	N/A	N/A

^a From McPherson 1990.

^b Under review.

Table 3. Annual escapements of Chilkat Lake sockeye salmon by week, 1976 to 2000.

Mid-Week	Stat	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Date	Week													
31-May	23	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jun	24	1	0	22	6	0	0	0	0	0	0	0	0	0
14-Jun	25	0	214	476	44	72	3	0	0	302	0	0	0	0
21-Jun	26	433	305	1,302	698	887	0	31	368	1,441	7	4	88	59
28-Jun	27	944	572	8,622	6,930	1,152	5	532	1,248	5,436	98	2	1,777	2,015
5-Jul	28	2,437	773	2,751	2,081	3,560	141	605	11,144	623	1,317	602	2,197	496
12-Jul	29	1,140	207	11,816	8,576	4,355	549	461	15,284	3,280	1,141	139	5,601	9
19-Jul	30	2,055	542	1,310	4,068	4,575	1,071	2,515	8,935	6,011	334	20	2,542	722
26-Jul	31	2,816	711	1,814	1,413	2,100	1,002	1,743	10,750	929	812	24	1	1,969
2-Aug	32	310	1,184	40	2,056	2,100	266	3,496	6,865	141	2,029	1	123	1,965
9-Aug	33	2,740	725	1,078	5,895	2,100	729	509	4,254	2,971	157	3	1,776	200
16-Aug	34	9,810	968	1,634	7,288	5,666	1,450	4,073	5,589	1,417	1,555	138	1,875	566
23-Aug	35	4,283	1,269	1,246	11,212	6,910	767	5,151	1,433	14,899	4,434	736	6,193	280
30-Aug	36	6,799	18,711	5,670	3,639	10,351	4,967	1,575	5,475	18,015	3,271	1,006	1,618	469
6-Sep	37	17,483	8,664	6,106	19,464	29,613	18,652	6,091	10,526	18,512	3,372	5,364	27	7,973
13-Sep	38	9,655	144	7,747	12	10,739	1,113	20,378	21,097	21,106	12,639	6,943	259	2,254
20-Sep	39	5,584	5,821	9,469	2,353	7,015	6,134	25,516	9,455	17,510	17,688	3,796	18,033	2,747
27-Sep	40	0	234	6,334	1,413	3,374	32,516	7,467	9,398	2,252	5,258	3,762	6,165	4,551
4-Oct	41	3,001	0	91	2,125	778	10,222	78	7,305	424	2,009	831	0	655
11-Oct	42	238			1,316		4,502		5,081		1,603	576	318	663
Yearly Total		69,729	41,044	67,528	80,589	95,347	84,089	80,221	134,207	115,269	57,724	23,947	48,593	27,593
Weekly Mean		3,486	2,160	3,554	4,029	5,609	4,672	5,014	7,895	6,067	3,396	1,330	2,700	1,533
Early Stock		17,582	9,437	17,924	30,433	10,253	10,617	9,640	47,885	28,193	7,449	2,536	13,345	7,512
Late Stock		52,147	31,607	49,604	50,156	85,094	73,472	70,581	86,322	87,076	50,275	21,411	35,248	20,081

Mid-Week	Stat	1989	1990	1991	1992	1993	1994 ^a	1995 ^a	1996 ^a	1997 ^a	1998 ^a	1999 ^a	2000 ^a	1976-00 Mean
Date	Week													
31-May	23	62	0	1	0	0				0	0	0		3
7-Jun	24	689	202	44	10	0	0	57	0	476	592	258	53	96
14-Jun	25	5,802	639	305	53	75	0	2,232	0	1,857	4,308	1,127	3,861	855
21-Jun	26	10,690	3,615	901	1,016	1,745	1,510	5,323	2,720	3,618	11,793	5,894	14,933	2,775
28-Jun	27	7,845	1,660	1,600	1,653	3,557	3,456	8,471	11,051	11,759	21,916	13,592	13,238	5,165
5-Jul	28	2,295	4,353	1,971	1,762	4,240	8,223	9,674	32,814	5,951	17,070	30,984	10,034	6,324
12-Jul	29	8,126	9,566	503	6,529	3,552	5,125	9,387	28,393	5,713	19,816	18,262	9,594	7,085
19-Jul	30	15,810	2,380	2,812	5,034	7,615	8,025	18,775	28,308	13,187	17,500	24,671	8,399	7,489
26-Jul	31	3,161	1,449	2,234	2,263	5,336	8,184	17,172	26,778	16,044	18,900	16,683	7,176	6,059
2-Aug	32	4,340	1,925	3,724	3,579	6,490	9,375	17,973	42,335	22,138	23,154	19,872	8,886	7,375
9-Aug	33	11	380	1,821	1,197	14,537	34,085	15,054	22,358	11,283	23,962	21,901	9,347	7,163
16-Aug	34	3,207	2,948	4,295	5,768	6,643	17,559	25,643	17,767	9,617	22,024	21,064	11,167	7,589
23-Aug	35	7,582	7,167	10,732	10,357	23,593	16,367	21,007	21,848	14,521	26,655	19,389	7,145	9,807
30-Aug	36	8,379	9,647	5,380	13,172	19,677	19,346	13,394	13,942	18,044	16,962	9,501	9,647	9,546
6-Sep	37	15,019	259	2,260	6,014	1,251	18,274	20,377	14,112	27,518	25,524	9,727	5,595	11,911
13-Sep	38	34,155	664	3,264	8,779	61,222	4,012		425	42,800	16,854	13,302	6,492	12,752
20-Sep	39	2,713	4,465	1,873	22,150	32,323				9,474	23,854	9,920	3,009	10,950
27-Sep	40	2,936	3,552	1,091	6,171	297				21,328	13,893	10,210	1,742	6,543
4-Oct	41	3,053	4,456	1,427	1,891	2,947				3,475	4,146	2,770	1,003	2,395
11-Oct	42	4,600	904	6,651	342	14,630				0	538	0	0	2,468
Yearly Total		140,475	60,231	52,889	97,740	209,730	153,540	184,541	262,852	238,803	309,462	249,125	131,322	120,664
Weekly Mean		7,024	3,170	2,644	5,144	10,487	10,236	13,182	17,523	11,940	15,473	12,456	7,296	6,721
Early Stock		54,090	25,792	15,916	23,096	47,147	43,897	89,065	172,400	80,744	135,050	131,342	76,175	44,301
Late Stock		86,385	34,439	36,973	74,644	162,583	109,643	95,476	90,451	158,059	174,412	117,783	55,147	76,363

^a Total escapement estimates from mark-recapture program, weekly escapement numbers are derived from fish wheel CPUE data.

Table 4. Annual harvests of Chilkat Lake sockeye salmon by week, 1976 to 2000.

Mid-Week Date	Stat Week	1976-00														
		1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1976-00 Mean	
14-Jun	25	384		4,385	1,512	603	1,539	469		2,248	408	88				
21-Jun	26	4,605	5,041	1,343	3,243	166	1,960	2,139	1,084	4,907	1,725	357	1,880	2,379		
28-Jun	27	4,624	9,089		25		1,821	3,529	1,868	5,696	1,633	1,302	3,530	3,482		
5-Jul	28	4,146	1,577	1,048	4,936		1,494	2,919	5,603	4,790	5,139	625	1,516	4,920		
12-Jul	29	897	2,205	1,832	5,512		2,504	2,626	4,457	9,051	4,318	1,858	6,810	7,598		
19-Jul	30	1,740	1,044	3,218	13,220	2,110	5,100	1,103	7,382	8,136	3,137	2,209	5,038	3,405		
26-Jul	31	1,459	1,130	20,294	18,107	1,301	2,121	11,392	8,243	8,366	9,150	2,242	6,072	8,507		
2-Aug	32	9,420	3,318	18,939	28,212	3,450	5,668	27,126	17,604	12,062	9,676	10,774	15,278	6,497		
9-Aug	33	11,682	4,625	22,490	15,870	8,237	1,017	30,199	18,777	18,396	11,336	30,803	9,454	13,369		
16-Aug	34	11,496	5,217	11,334	16,101	6,844	1,980	14,475	11,718	6,390	26,250	45,502	8,166	6,771		
23-Aug	35	7,997	6,123	3,138	6,339	6,889	18,720	16,202	20,923	6,528	35,316	14,617	6,456	6,728		
30-Aug	36	497	1,482	1,233	1,471	681	3,130	10,675	19,799	4,898	16,834	44,362	2,494	6,637		
6-Sep	37	257	318	256	685	207	1,000	1,913	5,148	3,997	7,808	7,719	1,825	3,518		
13-Sep	38-42	124	220	48	761	193	406	2,269	1,282	2,766	2,773	5,903	1,550	2,662		
Yearly Total		59,328	41,389	89,558	115,994	30,681	48,460	127,036	123,888	98,231	135,503	168,361	70,069	76,473		
Weekly Mean		4,238	3,184	6,889	8,285	2,789	3,461	9,074	9,530	7,017	9,679	12,026	5,390	5,883		
Early Stock Catch		9,514	13,064	8,023	29,065	1,984	12,885	26,257	32,908	43,208	23,540	15,333	24,571	25,500		
Late Stock Catch		49,814	28,325	81,535	86,929	28,697	35,575	100,779	90,980	55,023	111,963	153,028	45,498	50,973		

Mid-Week Date	Stat Week	1976-00													
		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Mean	
14-Jun	25	7,596	1,719	1,211		2,283	0	2,283	987	3,146				1,815	
21-Jun	26	8,490	2,406	1,826	2,436	1,141	4,752	1,698	3,234	2,950	2,841	4,398	3,463	2,819	
28-Jun	27	10,439	6,306	1,557	4,627	2,563	6,768	2,002	929	3,398	7,888	6,643	7,770	4,239	
5-Jul	28	11,161	4,405	1,931	3,548	5,547	7,677	4,884	1,597	2,387	14,463	15,656	8,301	5,011	
12-Jul	29	12,833	3,688	2,389	5,687	5,865	11,756	1,971	2,512	2,756	16,274	17,622	6,444	5,811	
19-Jul	30	9,805	10,257	2,116	5,647	2,926	6,452	2,082	2,869	2,588	14,006	14,618	7,003	5,488	
26-Jul	31	12,833	9,923	4,060	5,562	3,981	9,597	2,611	8,008	7,596	13,211	11,890	9,097	7,870	
2-Aug	32	30,913	25,025	6,478	11,688	7,123	11,775	4,543	16,233	9,590	18,128	16,818	12,451	13,552	
9-Aug	33	18,492	35,214	6,049	24,426	11,967	12,141	5,764	17,426	6,066	12,852	11,762	9,030	14,698	
16-Aug	34	18,034		10,037	9,648	26,518	11,760	18,943	19,743	11,031	9,738	14,708	7,443	13,744	
23-Aug	35	13,465	29,780	8,691	26,558	14,515	18,913	7,195	9,872	11,544	4,875	15,698	3,992	12,843	
30-Aug	36	3,833	14,282	6,056	9,517	10,273	12,759	4,375	6,742	4,627	2,687	9,653	3,198	8,088	
6-Sep	37	1,231	3,761	5,466	2,220	4,650	7,863	2,996	3,977	2,378	2,197	5,969	449	3,112	
13-Sep	38-42	321	290	1,939	323	1,365	0	2,048	2,251	0	1,485	4,261	228	1,419	
Yearly Total		159,446	147,056	59,806	111,887	100,717	122,212	63,396	96,380	70,056	120,644	149,697	78,868	98,605	
Weekly Mean		11,389	11,312	4,272	8,607	7,194	8,729	4,528	6,884	5,004	9,280	11,515	6,067	7,289	
Early Stock Catch		60,963	2,972	11,030	21,945	20,325	37,404	14,920	12,129	17,225	55,472	58,938	54,528	25,348	
Late Stock Catch		98,483	144,084	48,776	89,942	80,392	84,808	48,476	84,251	52,831	65,172	90,759	24,340	73,257	

Table 5. Chilkat Lake sockeye smolt age, weight, and length compositions (wild and enhanced components), 1989-1990, 1994-2000.

Year	Total Outmigration	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	1,890,876	2,393,558	1,210,977	686,436	36.0%	23.1%	403,217	686,436	801,223	n/a	6,537	
1996	2,869,690	2,691,311	2,269,741	599,419	21.0%	27.7%	939,393	269,365	1,325,183	330,054	5,165	
1997	1,514,194	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	0	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	0	1,362,342	446,931	24.7%		620,377	n/a	716,718	446,931	25,247	
2000	1,629,883	0	1,629,883	0	0		115,214	n/a	1,509,020	n/a	5,649	0
2001 ^a		2,600,000										
Avg	2,054,755	2,048,621	1,745,786	413,238	26.4%	19.9%	698,583	318,870	1,016,632	297,027	26,538	15,843

Year	Age %			AVG Length			AVG Weight		
	age-1.0	age-2.0	age-3.0	mm. age-1.0	mm. age-2.0	mm. age-3.0	g. age-1.0	g. age-2.0	g. age-3.0
1989	76.00%	24.00%		100.2	121.0		8.9	14.6	
1990	27.00%	73.00%		103.9	118.9		10.0	14.8	
1994	51.00%	49.00%		102.3	119.5		9.9	14.8	
1995	62.00%	37.00%	4.00%	92.5	115.4	147.4	7.1	13.2	27.2
1996	42.00%	58.00%	2.00%	86.3	107.2	185.0	5.7	10.3	56.0
1997	13.00%	86.00%	1.00%	95.2	101.2	154.5	7.0	8.8	34.4
1998	64.00%	27.00%	9.00%	92.7	109.4	138.3	7.3	11.2	22.7
1999	34.00%	64.00%	2.00%	88.1	107.6	155.8	5.3	9.5	37.7
2000	7.10%	92.60%	0.30%	93.8	104.8	120.4	7.1	9.4	14.3
Avg	41.8%	56.7%	3.1%	95.2	112.5	156.2	7.7	12.1	35.6

^aEstimated release

Table 6. Annual total return of Chilkat Lake sockeye salmon by week, 1976 to 2000.

Mid-Week	Stat														
Date	Week	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	
31-May	23	0	0	0	0	0	0	0	0	0	0	0	0	0	
7-Jun	24	1	0	22	6	0	0	0	0	0	0	0	0	0	
14-Jun	25	384	214	4,861	1,556	675	1,542	469	0	2,550	408	88	0	0	
21-Jun	26	5,038	5,346	2,645	3,941	1,053	1,960	2,170	1,452	6,348	1,732	361	1,968	2,438	
28-Jun	27	5,568	9,661	8,622	6,955	1,152	1,826	4,061	3,116	11,132	1,731	1,304	5,307	5,497	
5-Jul	28	6,583	2,350	3,799	7,017	3,560	1,635	3,524	16,747	5,413	6,456	1,227	3,713	5,416	
12-Jul	29	2,037	2,412	13,648	14,088	4,355	3,053	3,087	19,741	12,331	5,459	1,997	12,411	7,607	
19-Jul	30	3,795	1,586	4,528	17,288	6,685	6,171	3,618	16,317	14,147	3,471	2,229	7,580	4,127	
26-Jul	31	4,275	1,841	22,108	19,520	3,401	3,123	13,135	18,993	9,295	9,962	2,266	6,073	10,476	
2-Aug	32	9,730	4,502	18,979	30,268	5,550	5,934	30,622	24,469	12,203	11,705	10,775	15,401	8,462	
9-Aug	33	14,422	5,350	23,568	21,765	10,337	1,746	30,708	23,031	21,367	11,493	30,806	11,230	13,569	
16-Aug	34	21,306	6,185	12,968	23,389	12,510	3,430	18,548	17,307	7,807	27,805	45,640	10,041	7,337	
23-Aug	35	12,280	7,392	4,384	17,551	13,799	19,487	21,353	22,356	21,427	39,750	15,353	12,649	7,008	
30-Aug	36	7,296	20,193	6,903	5,110	11,032	8,097	12,250	25,274	22,913	20,105	45,368	4,112	7,106	
6-Sep	37	17,740	8,982	6,362	20,149	29,820	19,652	8,004	15,674	22,509	11,180	13,083	1,852	11,491	
13-Sep	38-42	18,602	6,419	23,689	7,980	22,099	54,893	55,708	53,618	44,058	41,970	21,811	26,325	13,532	
Yearly Total		129,057	82,433	157,086	196,583	126,028	132,549	207,257	258,095	213,500	193,227	192,308	118,662	104,066	
Weekly Mean		8,066	5,152	9,818	12,286	7,877	8,284	12,954	16,131	13,344	12,077	12,019	7,416	6,504	
Early Stock Catch		37,411	27,912	79,212	100,639	26,431	25,244	60,686	100,835	73,419	40,924	20,247	52,453	44,023	
Late Stock Catch		91,646	54,521	77,874	95,944	99,597	107,305	146,571	157,260	140,081	152,303	172,061	66,209	60,043	

Mid-Week	Stat														1976-2000
Date	Week	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
31-May	23	62	0	1	0	0	0	0	0	0	0	0	0	3	
7-Jun	24	689	202	44	10	0	0	57	0	476	592	258	53	96	
14-Jun	25	13,398	2,358	1,516	53	2,358	0	4,516	987	5,003	4,308	1,127	3,861	2,089	
21-Jun	26	19,180	6,021	2,727	3,452	2,886	6,261	7,021	5,954	6,569	14,634	10,292	18,395	5,594	
28-Jun	27	18,284	7,966	3,157	6,280	6,120	10,224	10,474	11,981	15,157	29,804	20,235	21,008	9,065	
5-Jul	28	13,456	8,758	3,902	5,310	9,787	15,900	14,557	34,411	8,338	31,533	46,640	18,335	11,135	
12-Jul	29	20,959	13,254	2,892	12,216	9,417	16,880	11,359	30,905	8,469	36,090	35,884	16,039	12,664	
19-Jul	30	25,615	12,637	4,928	10,681	10,541	14,476	20,856	31,177	15,775	31,506	39,289	15,403	12,977	
26-Jul	31	15,994	11,372	6,294	7,825	9,317	17,780	19,782	34,786	23,640	32,112	28,573	16,273	13,929	
2-Aug	32	35,253	26,950	10,202	15,267	13,613	21,151	22,516	58,568	31,728	41,282	36,690	21,336	20,926	
9-Aug	33	18,503	35,594	7,870	25,623	26,504	46,225	20,818	39,784	17,349	36,814	33,663	18,377	21,861	
16-Aug	34	21,241	2,948	14,332	15,416	33,161	29,319	44,587	37,510	20,648	31,761	35,772	18,609	20,783	
23-Aug	35	21,047	36,947	19,423	36,915	38,108	35,280	28,202	31,720	26,064	31,529	35,087	11,137	22,650	
30-Aug	36	12,212	23,929	11,436	22,689	29,950	32,105	17,769	20,683	22,670	19,649	19,154	12,845	17,634	
6-Sep	37	16,250	4,020	7,726	8,234	5,901	26,137	23,374	18,089	29,896	27,720	15,695	6,044	15,023	
13-Sep	38-42	47,778	14,331	16,245	39,656	112,784	4,012	2,048	2,676	77,078	60,771	40,462	12,474	32,841	
Yearly Total		299,921	207,287	112,695	209,627	310,447	275,752	247,937	359,232	308,859	430,106	398,822	210,190	219,269	
Weekly Mean		18,745	12,955	7,043	13,102	19,403	17,235	15,496	22,452	19,304	26,882	24,926	14,013	13,739	
Early Stock Catch		162,890	89,518	35,663	61,094	64,039	102,673	111,138	208,770	115,155	221,860	218,988	130,703	88,477	
Late Stock Catch		137,031	117,769	77,032	148,533	246,408	173,079	136,798	150,462	193,705	208,246	179,834	79,487	130,792	

Table 7. Weekly and annual escapement of Chilkat River mainstem sockeye salmon, 1994-2000.

Mid-Week Date	Stat Week	1994-00									
		1994	1995	1996	1997	1998	1999	2000	Mean	Minimum	Maximum
3-Jun	23									0	0
10-Jun	24		27		69	35	0	53	37	0	69
17-Jun	25		1,410		270	610	24	309	524	24	1,410
24-Jun	26	137	2,867	585	162	2,020	254	2,222	1,178	137	2,867
1-Jul	27	1,061	3,700	4,428	1,189	1,503	932	5,817	2,661	932	5,817
8-Jul	28	3,427	3,529	12,508	1,059	1,530	3,289	8,440	4,826	1,059	12,508
15-Jul	29	1,434	3,116	10,239	1,433	1,751	1,593	13,472	4,720	1,433	13,472
22-Jul	30	2,242	4,283	11,416	3,277	1,763	2,964	7,805	4,822	1,763	11,416
29-Jul	31	2,720	3,140	6,615	2,845	2,258	1,521	8,025	3,875	1,521	8,025
5-Aug	32	3,170	1,588	5,207	2,222	662	1,675	4,944	2,781	662	5,207
12-Aug	33	8,431	1,229	1,036	613	635	997	2,318	2,180	613	8,431
19-Aug	34	1,882	449	661	371	129	623	657	682	129	1,882
26-Aug	35	886	740	398	430	254	150	139	428	139	886
2-Sep	36	691		217	140	0	224	65	223	0	691
9-Sep	37	105		59	377	48	0		118	0	377
16-Sep	38				180		77		128	77	180
23-Sep	39										
30-Sep	40-42										
Yearly Total		26,186	26,080	53,369	14,699	13,196	14,324	54,266	28,874	13,196	54,266
Weekly Mean		2,182	2,173	4,447	976	943	955	4,174	2,264		

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 8. Annual harvests of Chilkat River mainstem and Berners Bay rivers, and other non-Chilkat or Chilkoot lakes, sockeye salmon by week, 1976 to 2000.

Mid-Week	Stat														
Date	Week	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	
14-Jun	25	60	0	548	504	381	143	44	0	355	134	16	0	0	
21-Jun	26	694	2,653	1,759	1,328	56	101	210	49	514	1,688	599	734	968	
28-Jun	27	963	1,330	207	0	725	145	145	255	491	5,173	1,233	6,958	6,611	
5-Jul	28	1,194	332	386	494	158	150	155	294	383	6,691	4,365	983	4,889	
12-Jul	29	375	848	316	501	73	181	175	105	309	273	738	872	5,100	
19-Jul	30	735	116	577	1,414	0	116	172	268	561	522	897	263	1,057	
26-Jul	31	204	0	486	1,942	76	154	549	1,204	706	746	597	330	1,316	
2-Aug	32	227	0	0	0	75	67	128	740	536	448	903	350	442	
9-Aug	33	151	0	269	165	8	0	329	663	244	377	948	111	348	
16-Aug	34	132	98	74	492	3	14	0	256	73	68	825	121	101	
23-Aug	35	76	0	29	195	3	0	0	78	130	48	206	22	100	
30-Aug	36	8	0	6	35		0	0	42	48	0	87	0	122	
6-Sep	37	0	0	1	14		0	0	1	0	10	0	7	23	
13-Sep	38-42	23	0		32		0	1	0	0	0	0	0	33	
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	
Weekly Mean		346	384	333	508	111	77	136	283	311	1,156	815	768	1,508	

Mid-Week	Stat														1976-00
Date	Week	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Mean	
14-Jun	25	3,214	1,823	2,213	0	0		1,282	1,828	1,466				667	
21-Jun	26	3,381	1,783	6,782	4,926	2,321	1,178	1,165	3,309	1,441	0	0	204	1,514	
28-Jun	27	2,440	6,998	4,097	8,241	4,258	2,418	976	1,245	2,070	0	0	2,007	2,359	
5-Jul	28	1,742	2,221	2,470	5,650	3,296	2,135	1,696	1,743	1,046	1,309	1,818	14,631	2,409	
12-Jul	29	2,030	1,054	3,451	4,275	3,012	2,619	744	2,311	1,133	820	535	4,572	1,457	
19-Jul	30	1,725	4,601	1,012	3,327	2,757	1,323	799	2,660	1,447	1,050	937	3,016	1,254	
26-Jul	31	2,922	4,669	1,729	2,488	1,738	2,400	457	5,535	1,495	4,122	2,444	1,594	1,596	
2-Aug	32	1,956	4,251	1,138	2,356	879	2,236	385	5,695	769	1,509	1,124	581	1,072	
9-Aug	33	366	3,088	224	1,422	433	2,291	250	2,916	168	1,520	1,093	209	704	
16-Aug	34	494	0	151	280	246	1,623	396	1,051	278	921	949	61	348	
23-Aug	35	233	297	635	280	33	723	100	333	210	293	417	29	179	
30-Aug	36	98	216	0	184	12	263	90	145	95	102	108	0	69	
6-Sep	37	19	40	38	0	0	32	61	87	24	31	59	0	19	
13-Sep	38-42	5	3	24	0	0	11	29	34	0	6	85		13	
Yearly Total		20,625	31,044	23,964	33,429	18,985	19,252	8,430	28,893	11,642	11,683	9,570	26,903	13,548	
Weekly Mean		1,473	2,217	1,712	2,388	1,356	1,481	602	2,064	832	899	736	2,242	989	

Table 9. Annual escapements of Chilkoot Lake sockeye salmon by week, 1976 to 2000.

Stat.															1976-00
Date	Week	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	Average
31-May	23	124	14	844	3	0	0	0	0	333	8	25	11	0	155
7-Jun	24	623	9,572	1,957	8,738	0	25	252	467	3,349	6	101	176	95	1,717
14-Jun	25	241	35,751	1,368	2,730	391	1,108	12,220	2,764	11,100	104	163	198	1,082	4,786
21-Jun	26	3,579	11,150	274	469	1,157	2,177	9,440	8,860	7,444	4,681	224	16,583	1,506	4,266
28-Jun	27	735	3,361	6,677	407	1,824	559	2,623	4,062	4,406	783	857	6,879	22,846	3,387
5-Jul	28	397	6,970	1,311	309	2,241	606	1,981	3,304	9,993	463	3,650	3,365	5,872	2,757
12-Jul	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	2,936
19-Jul	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	7,168
26-Jul	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	9,488
2-Aug	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	8,518
9-Aug	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	6,978
16-Aug	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	6,509
23-Aug	35	346	372	155	3,880	10,669	5,028	2,655	3,016	3,435	4,432	6,348	6,018	6,650	6,359
30-Aug	36	49	403	56	933	1,077	4,519	1,518	4,366	4,474	2,817	5,416	3,918	4,544	8,518
6-Sep	37	118	103	106	427	479	794	1,404	2,604	2,891	1,546	5,071	738	2,646	1,210
13-Sep	38	410	2	83	8	45		822	1,070		480	762	217	759	367
20-Sep	39	142		12	70	36			502		145	409	112	381	200
27-Sep	40-42	10		28	10	5			102		26	87	17	176	82
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	65,977
Weekly Mean		3,961	6,066	1,970	5,330	6,032	5,955	6,436	4,464	6,694	3,835	4,890	5,288	4,781	3,891
Early Stock Esc.		6,737	69,268	10,349	13,026	14,196	8,144	29,127	21,545	37,489	9,424	17,210	29,141	30,765	18,590
Late Stock Esc.		64,560	27,783	25,105	82,920	82,316	75,228	73,846	58,798	62,928	59,602	70,814	66,044	50,509	47,498

Stat.															1976-00
Date	Week	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
31-May	23	571	328	1	31	65	309	185	0	873	0	1		155	
7-Jun	24	4,266	2,060	471	4,744	249	2,687	295	129	2,317	117	59	174	1,717	
14-Jun	25	21,300	2,778	5,599	8,775	2,592	1,117	243	459	6,677	327	143	413	4,786	
21-Jun	26	2,466	12,190	3,083	2,310	5,431	4,752	342	1,418	3,433	664	521	2,494	4,266	
28-Jun	27	1,009	1,893	2,097	8,450	2,306	4,170	317	1,956	1,407	857	1,980	2,208	3,387	
5-Jul	28	913	1,980	2,528	975	5,883	4,241	298	4,393	3,143	676	884	2,558	2,757	
12-Jul	29	2,122	0	5,436	1,222	3,488	1,141	325	2,482	2,440	791	668	3,385	2,936	
19-Jul	30	2,942	4,989	21,990	2,902	5,021	2,123	1,517	12,040	4,805	1,534	1,734	5,154	7,168	
26-Jul	31	3,614	1,853	17,870	9,488	5,864	5,158	1,731	9,163	3,919	1,687	2,706	4,756	9,488	
2-Aug	32	4,313	1,995	7,317	7,173	6,807	1,342	417	6,743	3,524	1,924	1,864	6,359	8,518	
9-Aug	33	2,157	4,255	8,229	10,572	4,298	2,140	545	3,867	2,606	1,352	1,041	6,344	6,978	
16-Aug	34	2,793	13,553	4,115	2,530	4,857	3,220	237	2,655	4,246	1,217	1,108	2,699	5,809	
23-Aug	35	3,067	13,734	5,077	3,531	2,222	2,736	270	2,919	2,880	678	3,058	3,067	3,850	
30-Aug	36	1,840	9,147	3,988	2,549	899	1,656	472	1,081	1,540	261	2,262	3,246	2,521	
6-Sep	37	876	2,128	1,879	1,200	1,427	624	15	969	444	216	990	559	1,210	
13-Sep	38	232	365	416	346	418			465		34	265	139	367	
20-Sep	39	216	5	294	273									200	
27-Sep	40-42	203	71	248										82	
Yearly Total		54,900	73,324	90,638	67,071	51,827	37,416	7,209	50,739	44,254	12,335	19,284	43,555	65,977	
Weekly Mean		3,050	4,074	5,035	3,726	2,879	2,459	401	2,819	2,459	685	1,071	2,904	3,891	
Early Stock Esc.		29,561	21,229	16,497	25,285	16,526	17,276	1,680	8,355	17,850	2,641	3,588	7,847	18,590	
Late Stock Esc.		25,339	54,870	74,141	41,786	35,301	20,140	5,529	42,384	26,404	9,694	15,696	35,708	47,498	

Table 10. Annual harvests of Chilkoot Lake sockeye salmon by week, 1976 to 2000.

Mid-Week Date	Stat Week	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
14-Jun	25	242		2,428	2,072	921	2,286	2,217		2,173	526	251		
21-Jun	26	2,891	22,024	733	1,719	322	2,078	3,832	1,315	6,760	2,294	423	4,838	4,591
28-Jun	27	2,457	17,624		2,425		1,750	4,349	2,574	7,686	2,589	2,135	16,332	5,961
5-Jul	28	2,953	13,860	1,093	11,723		2,740	5,325	3,882	8,885	6,463	1,035	4,660	14,662
12-Jul	29	3,087	16,535	2,458	1,002		9,464	5,585	3,839	21,330	2,046	1,697	44,328	25,161
19-Jul	30	6,006	8,698	1,523	5,193	945	8,159	11,347	19,770	49,673	4,595	2,342	46,056	22,721
26-Jul	31	2,422	11,583	2,883	7,114	1,931	11,679	36,013	49,231	47,278	17,492	2,068	42,042	48,921
2-Aug	32	23,153	11,734	971	25,146	6,974	2,165	28,481	40,832	37,997	23,836	7,901	85,999	40,664
9-Aug	33	2,424	6,773	1,133	5,786	6,955	1,578	21,656	41,120	20,685	19,764	21,361	41,439	43,995
16-Aug	34	2,381	3,803	738	4,879	1,293	952	16,192	22,533	15,902	48,615	37,864	32,383	14,181
23-Aug	35	13,008	511	204	1,921	1,302	539	8,310	28,181	9,903	12,833	20,961	13,503	21,734
30-Aug	36	808	124	80	446	128	232	754	21,668	2,980	9,550	9,762	2,537	8,951
6-Sep	37	419	26	17	207	39	121	461	5,190	367	1,271	2,206	728	1,931
13-Sep	38-42	201	18	3	231	36	49	70	1,334	173	451	424	150	495
Yearly Total		62,452	113,313	14,264	69,864	20,846	43,792	144,592	241,469	231,792	152,325	110,430	334,995	253,968
Weekly Mean		4,461	8,716	1,097	4,990	1,895	3,128	10,328	18,575	16,557	10,880	7,888	25,769	19,536
Early Stock Catch		8,543	53,508	4,254	17,939	1,243	8,854	15,723	7,771	25,504	11,872	3,844	25,830	25,214
Late Stock Catch		53,909	59,805	10,010	51,925	19,603	34,938	128,869	233,698	206,288	140,453	106,586	309,165	228,754

Mid-Week Date	Stat Week	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1976-00 Average
14-Jun	25	5,673	2,284	2,701				1,504	1,403	6,934				2,241
21-Jun	26	12,640	2,546	4,103	7,116	7,692	3,879	1,165	3,971	5,352	160	338	143	4,117
28-Jun	27	12,466	8,019	2,933	12,867	9,424	4,682	1,015	1,618	4,492	112	201	592	5,404
5-Jul	28	27,293	7,958	6,536	9,143	6,134	2,763	1,866	1,594	1,682	233	386	2,138	6,042
12-Jul	29	43,692	13,233	8,095	14,276	5,786	2,619	744	578	2,322	450	658	2,772	9,657
19-Jul	30	34,439	41,331	8,141	13,654	3,724	1,228	237	779	3,061	330	450	2,392	11,872
26-Jul	31	61,509	29,768	35,267	13,496	4,510	2,400	213	3,355	4,293	380	342	3,810	17,600
2-Aug	32	43,957	34,731	49,985	18,479	2,502	2,609	144	2,983	251	167	769	799	19,729
9-Aug	33	33,639	28,539	36,144	19,574	3,500	2,291	250	1,346	180	117	288	913	14,458
16-Aug	34	8,205		37,354	12,852	3,089	1,298	396	525	159	76	270	323	11,094
23-Aug	35	5,245	4,758	19,334	12,929	2,214	904	232	444	117	140	0	129	7,174
30-Aug	36	2,497	3,068	7,322	4,612	2,131	526	90	145	48	19	255	48	3,151
6-Sep	37	369	2,440	5,089	1,503	583	97	61	87	24	21	235	42	941
13-Sep	38-42	239	189	1,037	218	135	119	29	34	0		66	32	239
Yearly Total		291,863	178,864	224,041	140,719	51,424	25,414	7,946	18,861	28,913	2,206	4,258	14,133	111,310
Weekly Mean		20,847	13,759	16,003	10,825	3,956	1,955	568	1,347	2,065	184	328	1,087	8,270
Early Stock Catch		58,072	20,807	16,273	29,126	23,250	11,323	5,550	8,586	18,459	505	925	2,873	16,234
Late Stock Catch		233,791	158,057	207,768	111,593	28,174	14,091	2,396	10,275	10,454	1,701	3,333	11,260	95,076

Table 11. Selected data for Chilkoot Lake smolt for years 1996-2000, annual autumn hydroacoustic, total adult return, and average annual zooplankton densities for years 1987-2000.

Chilkoot Lake Smolt

Year	Sample Size	Average Weight	Average Length	% Age 1.0	% Age 2.0
1996	25	2.7	66.6	91	9
1997	5	3.0	68.0	N/A	N/A
1998	30	2.2	65.4	84	16
1999	39	1.3	51.0	100	0
2000	39	2.95	67.9	72	28
Average	27.6	2.43	63.78	85.5	14.5

Chilkoot Lake Fall Hydroacoustic surveys

Year	Last survey Date	Sockeye Juveniles	Total Adult Return	Zooplankton Density (no./m ²)	Zooplankton Biomass (mg/m ²)
1987	10/30	1,344,951	430,180	172,295	207.00
1988	10/2	3,066,118	335,242	131,446	147.50
1989	10/16	874,794	346,763	46,872	135.50
1990	10/25	607,892	252,188	53,987	145.50
1991	10/22	475,404	314,679	9,751	25.00
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	11/6	285,477	15,155	26,579	84.75
1996	10/24	420,569	69,600	44,081	143.75
1997	10/22	761,569	73,167	15,063	46.00
1998	10/6	1,302,000	14,552	46,678	91.50
1999	10/14	373,000	23,542	14,329	46.25
2000	10/13	1,288,887	58,229	62,156	247.00
Average		951,177	189,171	56,108	120.00

Source: Barto, unpublished data

Table 12. Annual total return of Chilkoot Lake sockeye salmon by week, 1976 to 2000.

Mid-Week Date	Stat Week	1976-1988													1976-00 Mean
		1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	
31-May	23	124	14	844	3	0	0	0	333	8	25	11	0		
7-Jun	24	623	9,572	1,957	8,738	0	25	252	467	3,349	6	101	176	95	
14-Jun	25	483	35,751	3,796	4,802	1,312	3,394	14,437	2,764	13,273	630	414	198	1,082	
21-Jun	26	6,470	33,174	1,007	2,188	1,479	4,255	13,272	10,175	14,204	6,975	647	21,421	6,097	
28-Jun	27	3,192	20,985	6,677	2,832	1,824	2,309	6,972	6,636	12,092	3,372	2,992	23,211	28,807	
5-Jul	28	3,350	20,830	2,404	12,032	2,241	3,346	7,306	7,186	18,878	6,926	4,685	8,025	20,534	
12-Jul	29	4,839	18,379	4,984	1,097	5,894	16,810	10,680	7,929	28,068	2,856	4,025	51,328	29,550	
19-Jul	30	10,097	10,552	9,173	8,064	10,184	24,110	28,921	41,318	61,590	8,196	7,809	54,190	25,275	
26-Jul	31	30,483	20,599	6,348	29,879	10,225	20,685	56,819	61,978	56,888	37,270	13,506	51,040	54,337	
2-Aug	32	36,740	21,295	6,128	56,146	27,834	12,128	41,839	45,339	46,017	33,668	29,464	95,943	46,488	
9-Aug	33	14,251	12,832	3,449	21,877	28,288	17,209	29,943	44,734	26,207	32,265	33,637	47,338	49,678	
16-Aug	34	7,586	4,822	2,207	10,019	14,261	11,611	21,130	25,253	27,087	55,628	49,703	49,361	25,032	
23-Aug	35	13,354	883	359	5,801	11,971	5,567	10,965	31,197	13,338	17,265	27,309	19,521	28,384	
30-Aug	36	857	527	136	1,379	1,205	4,751	2,272	26,034	7,454	12,367	15,178	6,455	13,495	
6-Sep	37	537	129	123	634	518	915	1,865	7,794	3,258	2,817	7,277	1,466	4,577	
13-Sep	38-42	763	20	126	319	122	49	892	3,008	173	1,102	1,682	496	1,811	
Yearly Total		133,749	210,364	49,718	165,810	117,358	127,164	247,565	321,812	332,209	221,351	198,454	430,180	335,242	

Mid-Week Date	Stat Week	1989-2000													1976-00 Mean
		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000		
31-May	23	571	328	1	31	65	309	185	0	873	0	1	0	149	
7-Jun	24	4,266	2,060	471	4,744	249	2,687	295	129	2,317	117	59	174	1,717	
14-Jun	25	26,973	5,062	8,300	8,775	2,592	1,117	1,747	1,862	13,611	327	143	413	6,130	
21-Jun	26	15,106	14,736	7,186	9,426	13,123	8,630	1,507	5,389	8,785	824	859	2,637	8,383	
28-Jun	27	13,475	9,912	5,030	21,317	11,730	8,852	1,332	3,574	5,899	969	2,181	2,800	8,359	
5-Jul	28	28,206	9,938	9,064	10,118	12,017	7,004	2,164	5,987	4,825	909	1,270	4,696	8,558	
12-Jul	29	45,814	13,233	13,531	15,498	9,274	3,760	1,069	3,060	4,762	1,241	1,326	6,157	12,207	
19-Jul	30	37,381	46,320	30,131	16,556	8,745	3,351	1,754	12,819	7,866	1,864	2,184	7,546	19,040	
26-Jul	31	65,123	31,621	53,137	22,984	10,374	7,558	1,944	12,518	8,212	2,067	3,048	8,566	27,088	
2-Aug	32	48,270	36,726	57,302	25,652	9,309	3,951	561	9,726	3,775	2,091	2,633	7,696	28,269	
9-Aug	33	35,796	32,794	44,373	30,146	7,798	4,431	795	5,213	2,786	1,469	1,329	7,272	21,436	
16-Aug	34	10,998	13,553	41,469	15,382	7,946	4,518	633	3,180	4,405	1,293	1,378	3,033	16,460	
23-Aug	35	8,312	18,492	24,411	16,460	4,436	3,640	502	3,363	2,997	818	3,058	3,201	11,024	
30-Aug	36	4,337	12,215	11,310	7,161	3,030	2,182	562	1,226	1,588	280	2,517	3,297	5,673	
6-Sep	37	1,245	4,568	6,968	2,703	2,010	721	76	1,056	468	237	1,225	602	2,152	
13-Sep	38-42	890	630	1,995	837	553	119	29	499	0	34	331	139	665	
Yearly Total		346,763	252,188	314,679	207,790	103,251	62,830	15,155	69,600	73,167	14,541	23,542	58,229	177,308	

Table 13. Estimated annual age compositions and brood year returns of large (?age 1.3) chinook salmon immigrating into the Chilkat River, 1991-2000^a.

Year	AGE CLASS							
	1.3		1.4		1.5		Total	SE
Abundance	SE	Abundance	SE	Abundance	SE			
1991	2,714	489	2,995	541	187	23	5,897	1,005
1992	1,689	309	3,595	662	-	-	5,284	949
1993	2,217	432	2,180	425	75	10	4,472	851
1994	2,405	382	4,276	681	115	15	6,795	1,057
1995	450	93	3,077	664	263	52	3,790	805
1996	4,077	632	788	120	54	6	4,920	751
1997	1,943	354	6,157	930	-	-	8,100	1,193
1998	1,016	169	2,440	381	219	48	3,675	565
1999	534	109	1,656	302	80	27	2,271	408
2000	1,350	227	653	118	32	14	2,035	334
Percent	38.94%		58.89%		2.71%			
Average	1,840		2,782		128		4,724	

^a Ericksen 2000 data is preliminary.

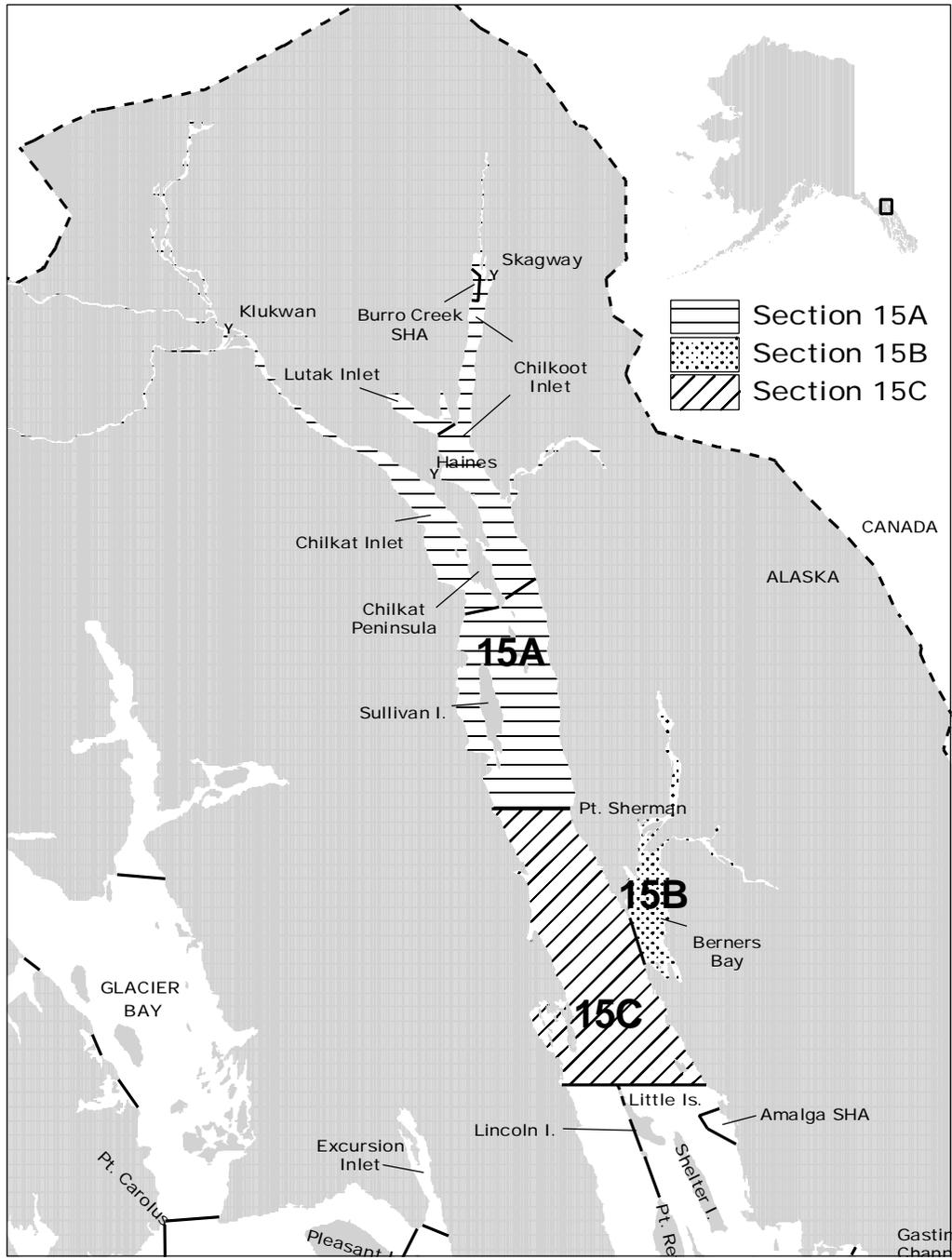


Figure 1. Lynn Canal district and section boundaries.

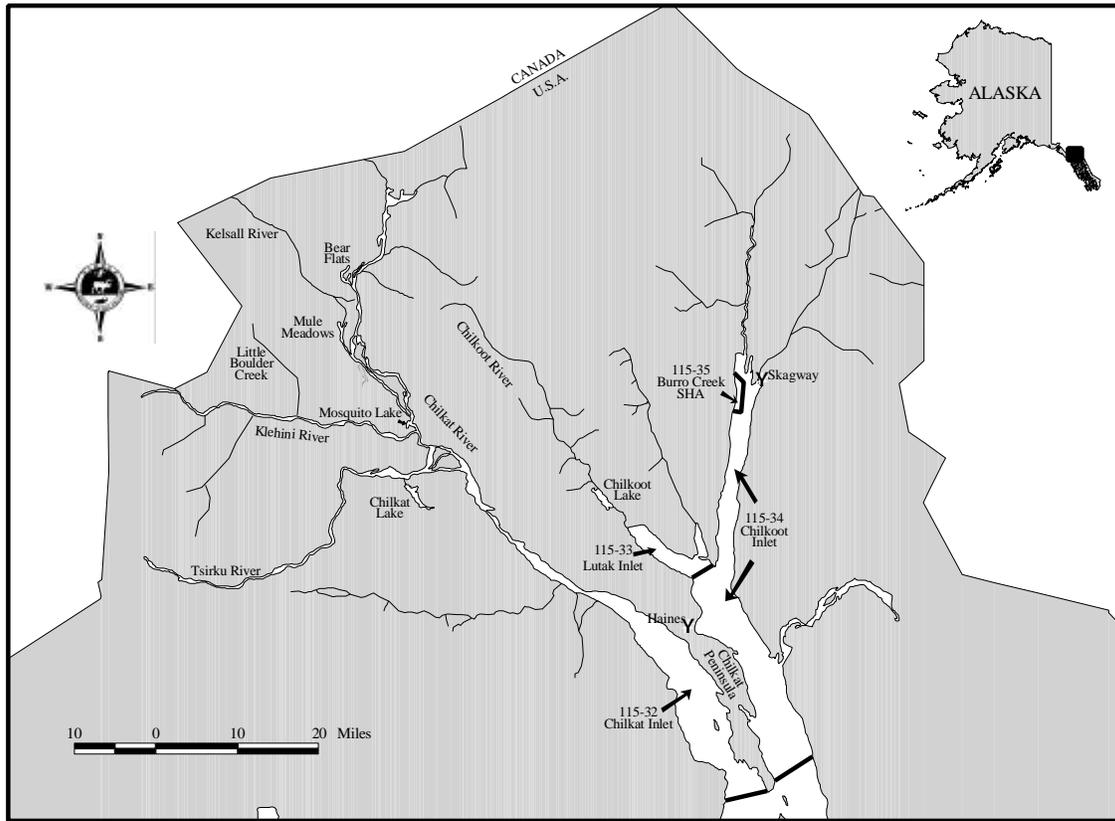


Figure 2. Upper Lynn Canal showing Chilkat and Chilkoot lakes.

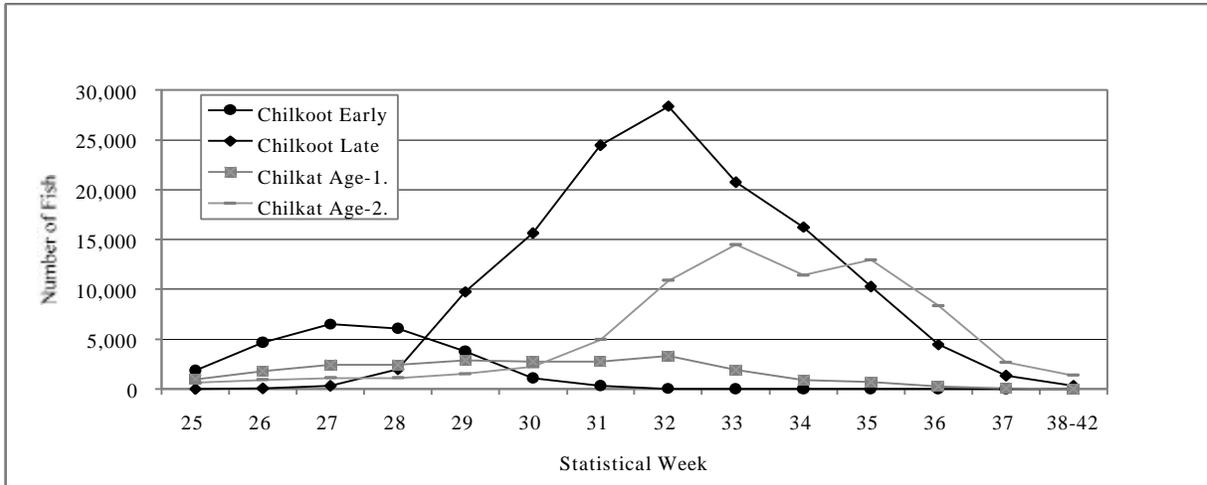


Figure 3. Lynn Canal sockeye salmon weekly abundance by stock. Data for period 1976 to 1992.

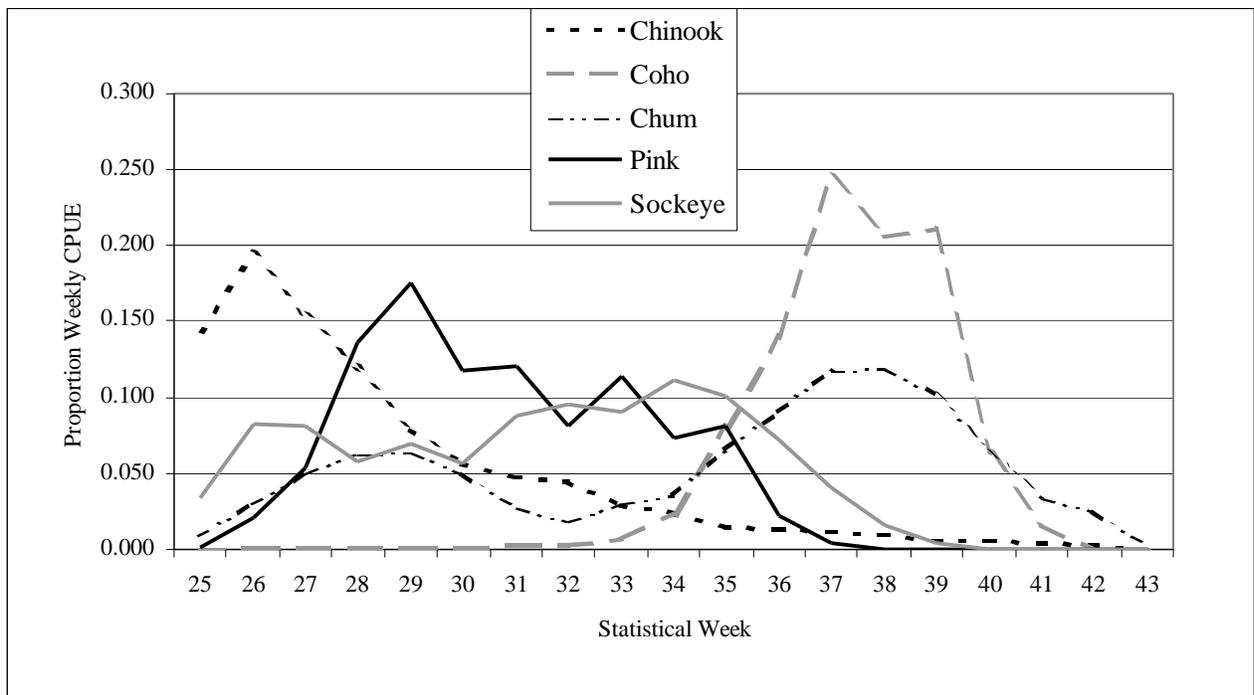


Figure 4. Run timing of chinook, sockeye, coho, summer and fall chum, and pink salmon in the Lynn Canal drift gillnet fishery. Data for period 1976 to 2000.

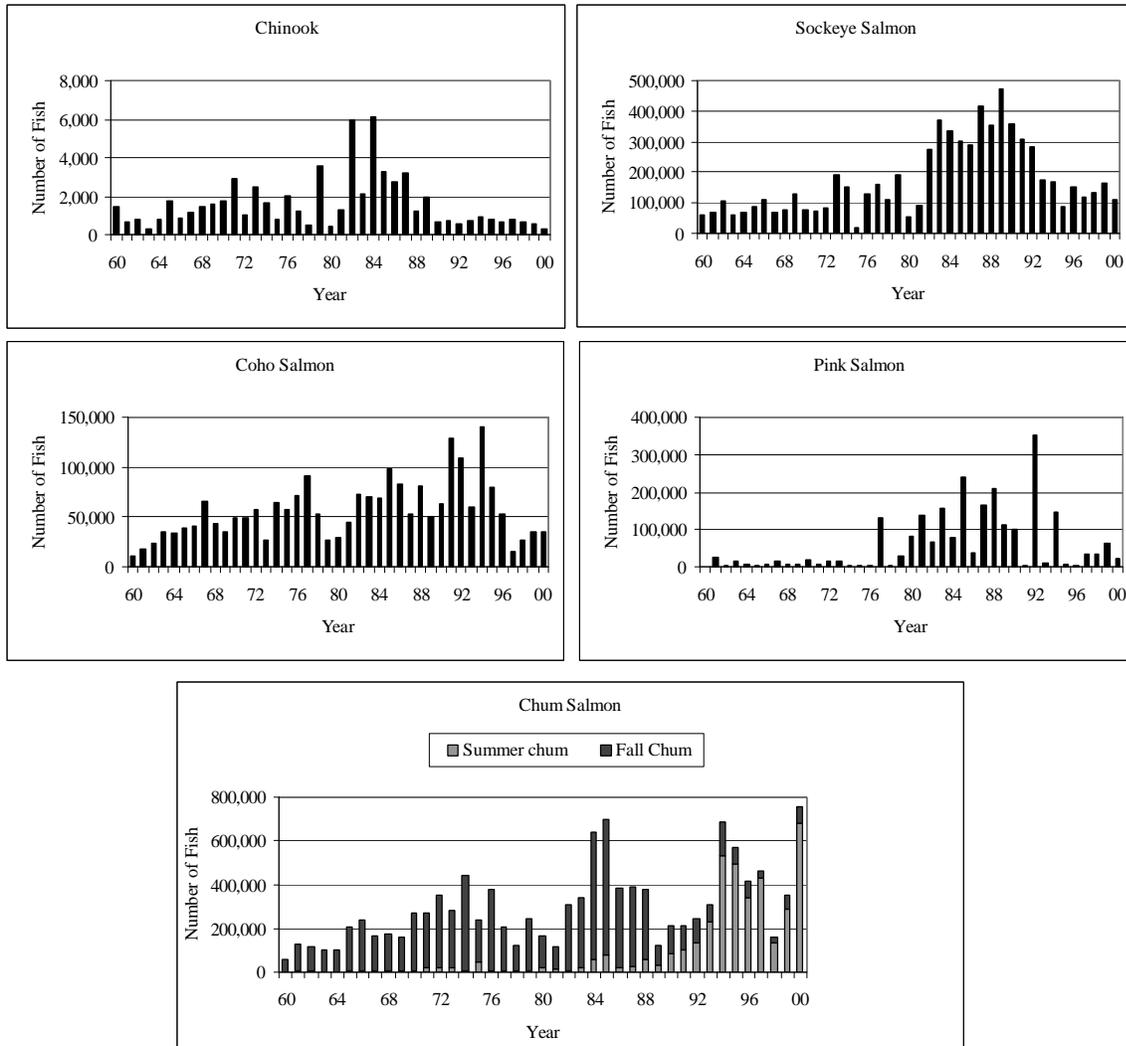


Figure 5. Historical catches of chinook, sockeye, coho, pink, and chum salmon in the District 15 (Lynn Canal) drift gillnet fishery, 1960 to 2000.

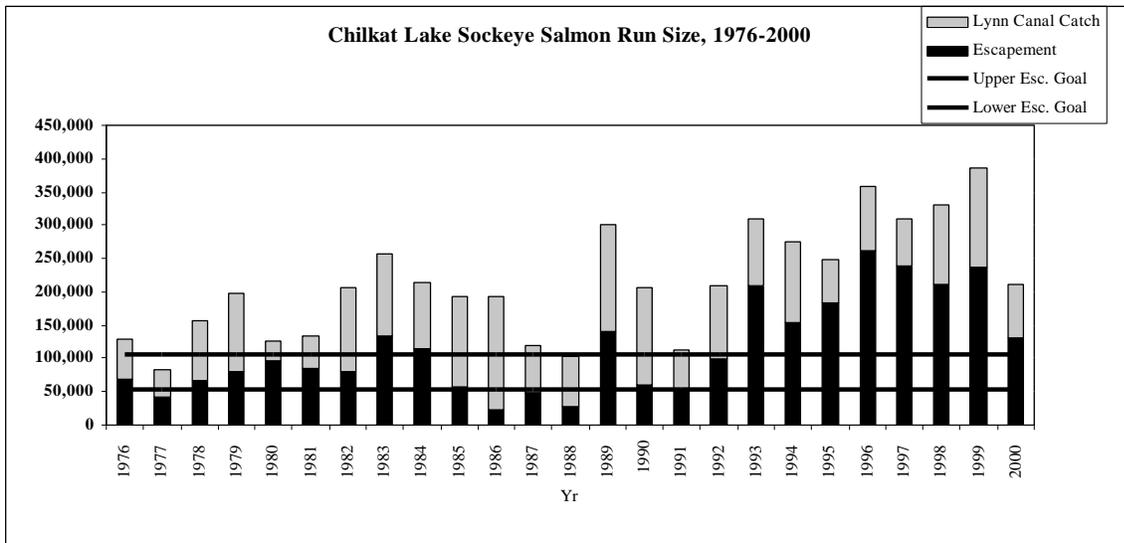
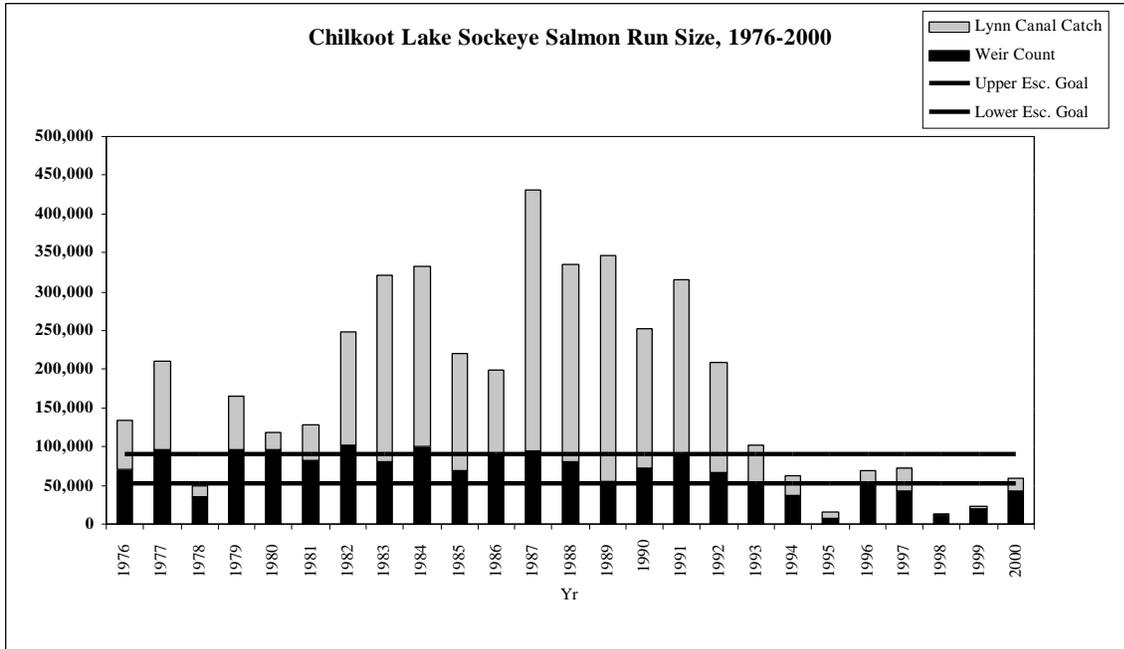


Figure 6. Historical escapement and harvest of Chilkoot and Chilkat Lake sockeye salmon, 1976 to 2000. Note: Escapements estimates in 1994-2000 in Chilkat Lake were based on mark-recapture estimates. Marine harvest of sockeye salmon for Chilkoot Lake in 1998 and 1999 was estimated to be 2,200 and 4,258 fish, respectively.

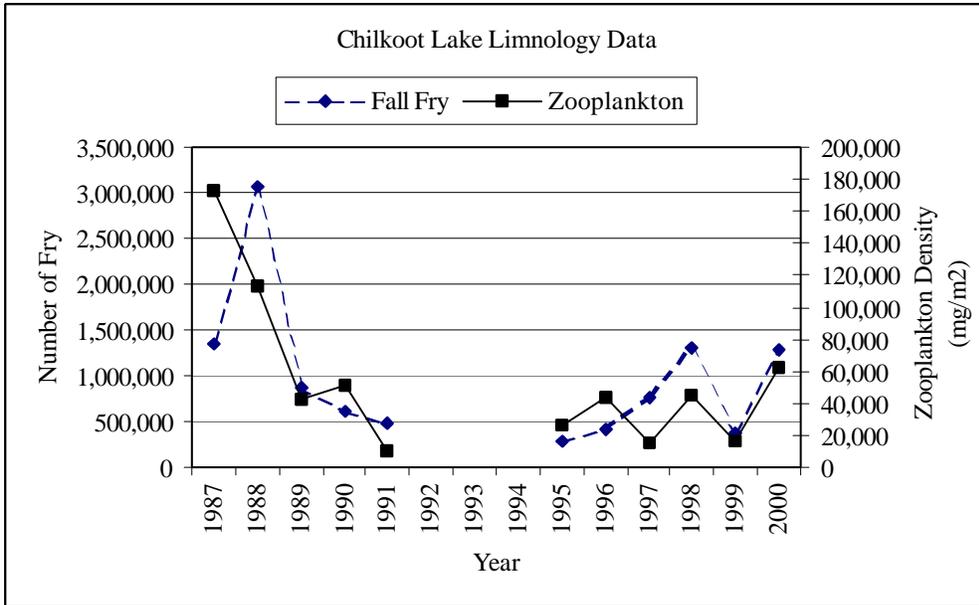


Figure 7. Yearly comparisons of Chilkoot Lake autumn hydroacoustic counts of juvenile sockeye salmon and average zooplankton densities, 1987-91, 1995-2000. Source: Barto, unpublished data.

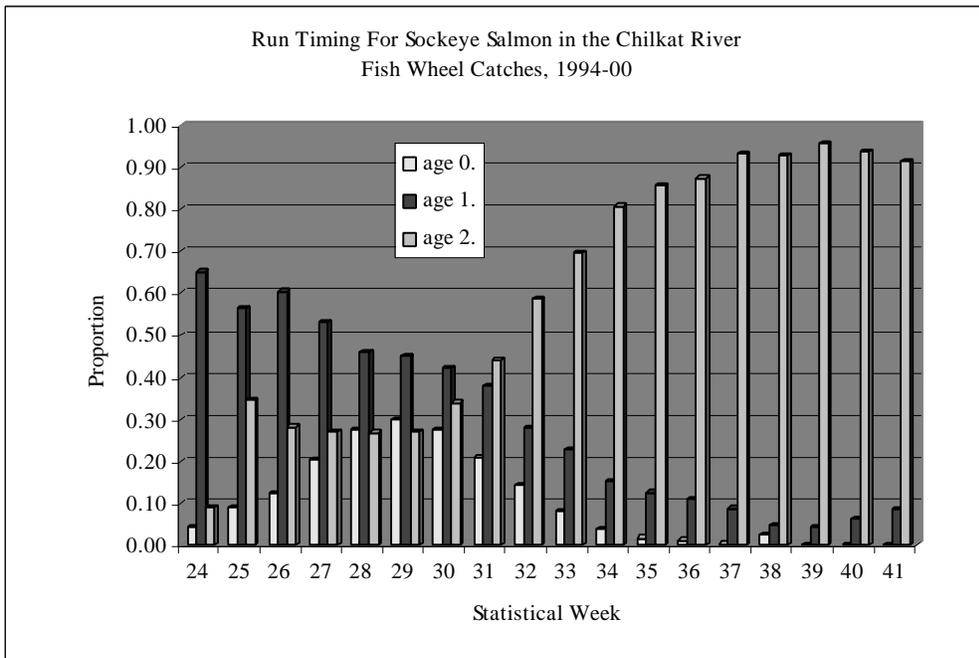


Figure 8. Average 1994-2000 run timing for Chilkat River sockeye salmon stocks at the Chilkat River fish wheels.

APPENDICES

Appendix 1. Calendar dates for statistical weeks in 2001.

2001 Calendar Weeks					
Week	Beginning Date	Ending Date	Week	Beginning Date	Ending Date
1	1-Jan	6-Jan	28	8-Jul	14-Jul
2	7-Jan	13-Jan	29	15-Jul	21-Jul
3	14-Jan	20-Jan	30	22-Jul	28-Jul
4	21-Jan	27-Jan	31	29-Jul	4-Aug
5	28-Jan	3-Feb	32	5-Aug	11-Aug
6	4-Feb	10-Feb	33	12-Aug	18-Aug
7	11-Feb	17-Feb	34	19-Aug	25-Aug
8	18-Feb	24-Feb	35	26-Aug	1-Sep
9	25-Feb	3-Mar	36	2-Sep	8-Sep
10	4-Mar	10-Mar	37	9-Sep	15-Sep
11	11-Mar	17-Mar	38	16-Sep	22-Sep
12	18-Mar	24-Mar	39	23-Sep	29-Sep
13	25-Mar	31-Mar	40	30-Sep	6-Oct
14	1-Apr	7-Apr	41	7-Oct	13-Oct
15	8-Apr	14-Apr	42	14-Oct	20-Oct
16	15-Apr	21-Apr	43	21-Oct	27-Oct
17	22-Apr	28-Apr	44	28-Oct	3-Nov
18	29-Apr	5-May	45	4-Nov	10-Nov
19	6-May	12-May	46	11-Nov	17-Nov
20	13-May	19-May	47	18-Nov	24-Nov
21	20-May	26-May	48	25-Nov	1-Dec
22	27-May	2-Jun	49	2-Dec	8-Dec
23	3-Jun	9-Jun	50	9-Dec	15-Dec
24	10-Jun	16-Jun	51	16-Dec	22-Dec
25	17-Jun	23-Jun	52	23-Dec	29-Dec
26	24-Jun	30-Jun	53	30-Dec	31-Dec
27	1-Jul	7-Jul			

Appendix 2a. Historical age composition of sockeye salmon escapements to Chilkat and Chilkoot lakes, 1982 to 2000.

Chilkat Lake

AGE	Year																	AVG	SE
	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00		
0.2	0.1	0.1	0.2	0.6	0.2	0	0	0.3	0.1	0.1	0	0	0	0	0	0	0	0.1	0
0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0.0	0
1.1	0	0	0	0	0	0.1	0	0	0	0	0.1	0	0	0	0	0	0	0.0	0
1.2	0.3	0.5	2	0.9	1.8	0.3	1.2	1.8	0.7	1.8	1.4	5.2	2.9	4.1	1.3	0.8	2.4	1.7	0.1
1.3	37.8	21.1	9.7	28.6	23.7	30.3	11.5	23.3	25.8	14.9	43.9	29.6	35.4	25.1	46.5	30.9	5.1	26.1	0.2
1.4	0	0.5	0	0	0.1	0	0.1	0.1	0.1	0.2	0	0.4	0.1	0.1	0.4	0	0.3	0.1	0
2.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
2.2	24.6	14.7	29.2	25.2	17.1	33	34.1	14.1	20.1	19.9	11.6	16.5	20.6	15.4	15.6	22.2	7.8	20.1	0.1
2.3	37	62.7	56.9	43.4	56.2	36.1	52.3	59.8	53	60.6	41.2	48	40.8	55.2	36.3	57.0	81.4	51.6	0.2
2.4	0	0.1	0.1	0.1	0.1	0	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	0
3.2	0.1	0.2	1.7	0.6	0.4	0	0.6	0	0.1	2.3	0.1	0	0.1	0	0.1	0	2.8	0.5	0
3.3	0.1	0	0.2	0.6	0.3	0.1	0	0.4	0.1	0.2	1.6	0.2	0.1	0.1	0.1	0	0	0.2	0

38

Chilkoot Lake

AGE	Year																	AVG	SE
	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00		
0.2	0.1	0.2	0.5	0	0	0	0.1	0	0	0.2	1.7	2.2	1.3	1.8	0	0	0	0.5	0
0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
1.1	0	0.1	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0.0	0
1.2	2.3	4.3	7.5	5.3	6.7	3.4	4	6.2	1.9	2	1.2	31.4	9	3.6	5.2	16.5	13.2	7.3	0.1
1.3	90.2	78.5	76.8	68.6	78.3	53.2	47	65.7	63.5	48.3	72.2	41.2	80.7	85.6	75.3	50.5	58.6	66.7	0.2
1.4	0.3	2	0.6	0.1	0.5	0.3	0.4	0.3	0.6	0.3	0.6	1.4	0.1	0.2	0	1.0	0.1	0.5	0
2.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
2.2	0.1	0.8	1.2	0.7	3.3	4.2	2	1.3	2.8	1.1	0.6	2.7	2.1	0.5	3.9	8.7	1.9	2.2	0.2
2.3	6.8	13.9	13	25.1	11	38.1	45.9	26.4	30.9	47.7	23.5	20.9	6.8	8.4	15.6	23.3	26.1	22.6	0.3
2.4	0.2	0.1	0.3	0.1	0.2	0.1	0.6	0.1	0.1	0.2	0.1	0.1	0	0	0	0	0	0.1	0
3.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
3.3	0	0.1	0.1	0	0	0.7	0.1	0.1	0.1	0.1	0	0.1	0	0	0	0	0	0.1	0

Appendix 2b. Historical age composition of sockeye salmon escapements to Chilkat mainstem areas, 1984 to 2000.

Chilkat Mainstem AGE	Year																	AVG	SE
	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00		
0.1	0	0	0	0	1.1	0	0	0.7	0.5	0	2.4	0	0	0.2	1.2	7.2	0	0.8	0.1
0.2	6.7	14.7	6.1	9.8	36.6	8	36.4	21.5	18.8	1.5	31.5	29.7	11.6	18.3	28	65.8	28.4	21.6	0.6
0.3	28.1	42.6	49.1	9.8	32.3	56.8	31.8	54.2	26.1	85.1	26.5	36.1	62.4	62.9	42	20.3	62.6	41.6	0.7
0.4	0	0	0.9	0	0	0	0	0	0.5	0	0	0.2	0	0	0	0	0	0.1	0.0
1.1	0.7	0	0	0	1.1	0	0	1	2.3	0	2.4	0	0.2	0	1.9	2.1	0.4	0.7	0.1
1.2	1.5	0	14.9	3.9	23.7	2.3	4.5	9.1	3	0	20.4	12.4	5.6	3.2	7.5	4.2	4.5	7.3	0.4
1.3	63	39.7	26.3	74.5	5.4	31.8	27.3	13.5	48.9	13.4	16	21.5	20.2	15.3	19.6	0	4.1	27.3	0.6
1.4	0	0.7	0.9	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0.1	0.0
2.2	0	1.5	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0.4	0	0.2	0.1
2.3	0	0.7	0.9	2	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0.3	0.0
2.4	0	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.0

Appendix 3. Inclusive dates of operation for Chilkoot and Chilkat weirs and Chilkat River fish wheels, 1967 to 2000.

Year	Chilkoot Lake Dates of Weir Operation	Chilkat Lake Dates of Weir Operation	Chilkat River Dates of Fish Wheel Operation
1967	None	6/13-9/02	
1968	None	6/8-9/12	
1969	None	6/4-9/16	
1970	None	5/29-9/17	
1971	None	5/31-10/28	
1972	None	6/3-10/12	
1973	None	6/11-10/15	
1974	None	5/30-9/28	
1975	None	6/4-11/06	
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	10/5-26
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 used	6/22-9/16
1997	6/4-9/9	Weir not used	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

Appendix 4. Data collected from the inseason information system to determine fishery performance by species.

Sockeye Salmon

- a. In-season 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 in-season assessment as fish pass that weir within one week of fishery. Chilkat Lake/River sockeye escapements will be monitored using two fish wheels in the lower Chilkat River. Fish wheel catch alone is not a definitive index of abundance but current year data will be compared to historic data. The Chilkat weir will be operated to provide a site for mark-recovery, biological sampling and an estimate of escapement into Chilkat Lake.
- c. In-season 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 subsample of deliveries is expanded to total effort to estimate weekly catch.
- d. Stock contributions: In-season 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.

Fall and Summer Chum and Pink Salmon

- a. In-season 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 subsample 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 levels to estimate escapement rates.
- 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. In-season catch figures: from the ADF&G fish ticket system.

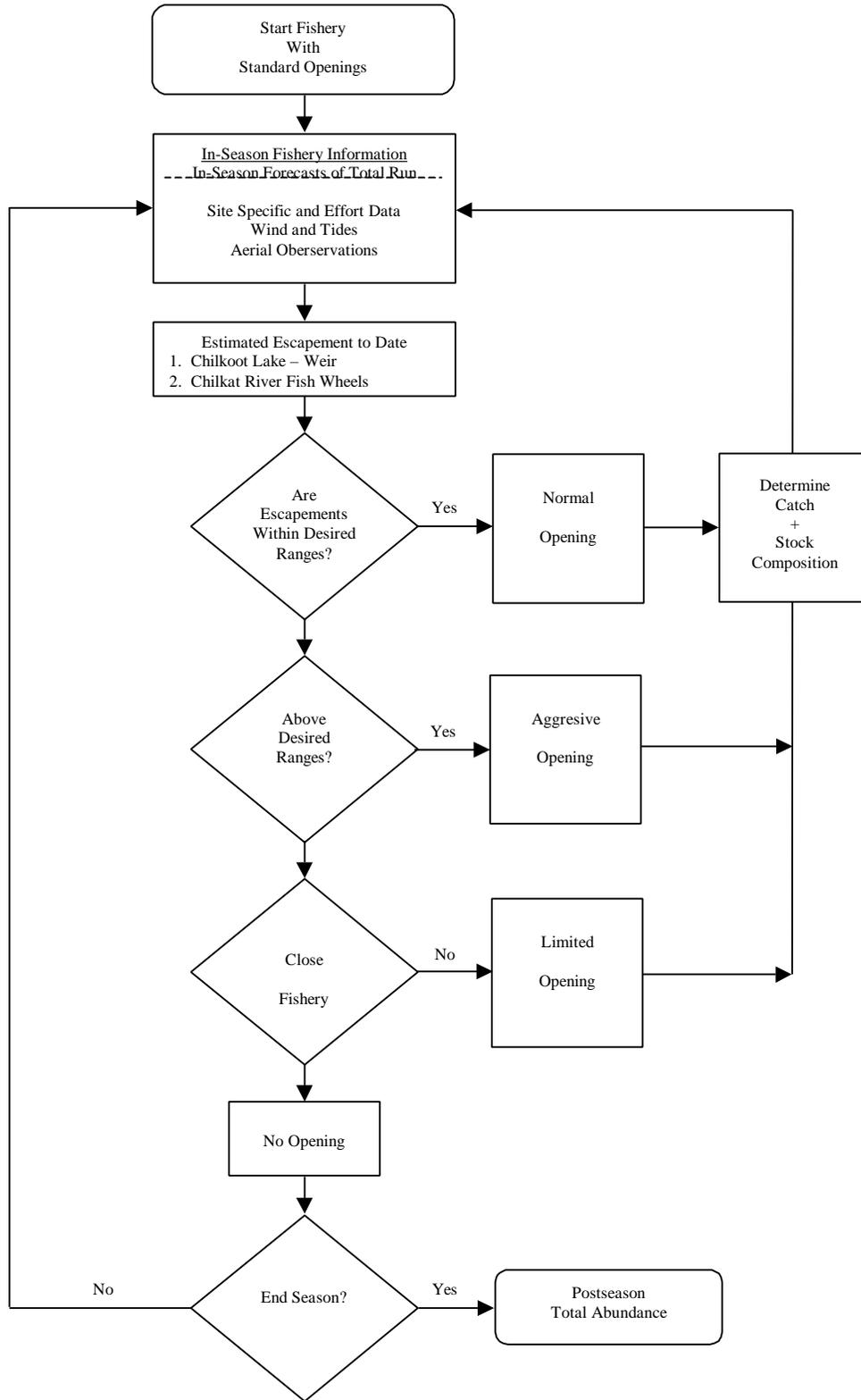
b. Aerial and Foot Surveys: Peak spawner counts are not obtained until postseason. However, in some index systems, Berners River and Chilkoot Lake, early season surveys provide an indication of escapement rates when water levels and conditions allow.

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 coho salmon are monitored inseason by CFMD staff. Data collected from this program will be used to project the total return of Berners River coho salmon. This system is assumed to be an index for other Lynn Canal coho salmon stocks.

The following schematic diagram generally summarizes how the information collected from the inseason information system is used to determine fishery openings.



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