

**PACIFIC SALMON COMMISSION  
JOINT TRANSBOUNDARY  
TECHNICAL COMMITTEE REPORT**

**ESTIMATES OF TRANSBOUNDARY RIVER SALMON  
PRODUCTION, HARVEST AND ESCAPEMENT  
AND A REVIEW OF JOINT ENHANCEMENT  
ACTIVITIES IN 1998  
TCTR (2000)-1**

February 5, 2000

## ACRONYMS

ADF&G	Alaska Department of Fish and Game
AF	Aboriginal Fishery
CAFN	Champagne Aishihik First Nation
CPUE	Catch Per Unit Effort
CWT	Coded Wire Tag
DFO	Department of Fisheries and Oceans (Canada)
DIPAC	Douglas Island Pink and Chum (Private Hatchery)
ESSR	Excess Salmon to Spawning Requirement (surplus fishery license)
IHN	Infectious Hematopoietic Necrosis (a virus which infects sockeye salmon)
LCM	Latent Class Model
MEF	Mid-Eye-Fork (fish length measurement)
POH	Post-Obital-Hyperal (fish length measurement)
PSC	Pacific Salmon Commission
SMM	Stikine Management Model
SPA	Scale Pattern Analysis
TAC	Total Allowable Catch
TRTFN	Taku River Tlingit First Nation
TBR	Transboundary River
TTC	Transboundary Technical Committee
YSC	Yukon Salmon Committee

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## EXECUTIVE SUMMARY

Estimates of catches and escapements of Pacific salmon returning to the transboundary Stikine, Taku, and Alsek Rivers for 1998 are presented and compared with historical patterns. Relevant information pertaining to the management of appropriate U.S. and Canadian fisheries is presented and the use of inseason management models is discussed. Results from transboundary river sockeye fry planting projects are also reviewed.

### Stikine

The 1998 Stikine sockeye run is estimated at 121,448 fish. An estimated 81,085 fish were harvested in various fisheries including test fisheries, 390 fish were taken at the Tahltan Lake weir for otolith samples, 3,099 fish were used for brood stock, 28,344 fish escaped to spawn, and 8,531 fish returned to the Tuya system and were not harvested. The catch and run were both below the 1988-1997 averages and spawning escapements were below goals. The estimated U.S. commercial catch of Stikine sockeye salmon in Districts 106 and 108 was 27,848 fish and the Canadian inriver commercial, aboriginal, and ESSR fishery catches were 38,217, 5,586, and 6,103 fish, respectively. A U.S. test fishery in District 108 harvested 3,141 Stikine sockeye salmon and the Canadian inriver test fishery catch included 190 sockeye salmon. Sockeye salmon originating from outplants into Tahltan and Tuya Lakes contributed an estimated 14,774 (11% of the catch) and 17,656 (40% of the catch) fish to the U.S. and Canadian catches, respectively. The postseason run size estimate of 121,448 Stikine sockeye salmon was below the preseason forecast of 218,500 fish. The Stikine Management Model consistently predicted a run less than the preseason forecast, but did not predict a run as low as the postseason estimate. Weekly inseason model forecasts ranged from 197,000 to 209,000 sockeye salmon; the final inseason model prediction was 208,737 fish (both U.S. and Canada), with a total allowable catch (TAC) of 130,260 fish. Based on the inseason model estimates, both Parties harvested below their 50% target of the TAC (65,130 Stikine fish). However, using the postseason estimate of run size and TAC, both countries exceeded their 50% portion of the TAC; Canada harvested 125% and the U.S. harvested 80% of the TAC. The broodstock collection and otolith sampling removed 3,099 and 390 sockeye salmon, respectively, from the escapement to Tahltan Lake leaving a spawning escapement of 9,169 fish, falling below both the acceptable goal range of 18,000 to 30,000 fish and the warning level of 13,000 fish. The estimated escapement of 19,175 mainstem Stikine sockeye salmon was also below the objective of 20,000 to 40,000 spawners for this stock group.

The chinook catch in Canadian commercial and aboriginal fisheries in the Stikine River was 2,164 large fish and 423 jacks, 95% and 88% of the respective 1988-1997 averages. An additional 25 large and 11 jack chinook salmon were taken in the Canadian inriver test fishery. The U.S. marine chinook catch (all stocks) in the District 106 and 108 mixed stock gillnet fisheries was 978 fish, below the 1988-1997 average catch. No chinook salmon were taken in the U.S. District 108 test fishery. The chinook spawning escapement of 4,873 large adults through the Little Tahltan River weir in 1998 was 92% of the joint U.S./Canada escapement goal of 5,300 fish and 83% of the 1988-1997 average. Surveys of other Stikine tributaries showed below average escapements. The total Stikine spawning escapement estimated from a mark-recapture program was 25,456 fish.

As with chinook salmon, the U.S. marine harvest of Stikine coho salmon is unknown since there is no stock identification program for this species. Coho catches in Districts 106 and 108 were 273,197 and 19,206 fish, respectively, and were above the 1988-1997 averages. Alaskan hatchery fish comprised approximately 36% (104,172 fish) of the coho harvest from the two districts. The Canadian inriver coho catch of 726 fish was 26% of the 1988-1997 average. Aerial surveys of six coho spawning index sites indicated below average spawning escapement.

### **Taku**

The estimated 1998 Taku sockeye run is 145,559 fish, including an estimated catch of 71,106 fish and an above-border-spawning escapement of 74,453 sockeye salmon. The run size and catch were below the respective 1988-1997 averages and the escapement was below average but within the escapement goal range of 71,000 to 80,000 fish. An estimated 49,493 Taku sockeye salmon were harvested in the District 111 commercial fishery, 58% of the 1988-1997 average, and an estimated 2,338 sockeye salmon were harvested in the U.S. inriver personal use fishery. Canadian inriver commercial and aboriginal fishery catches included 19,038 and 237 sockeye salmon, respectively. The commercial catch was 71% of the 1988-1997 average, whereas the aboriginal catch was 17% above average. Since the escapement goal is expressed as a range, the resulting total allowable catch is also expressed as a range. In 1998, Canada harvested an estimated 26% to 29%, and the U.S. took 70% to 79% of the TAC. Sockeye salmon originating from fry plants into Trapper and Tatsamenie Lakes contributed 820 fish to the U.S. commercial catch and 589 fish to the Canadian commercial catch.

The catch of large chinook salmon in the Canadian commercial fishery in the Taku River was 1,107 fish, 67% of the 1988-1997 average; in addition, 227 jack chinook salmon were caught compared to an average of 196 fish. The Canadian aboriginal fishery in the Taku River harvested 60 large chinook salmon. The chinook catch in the District 111 mixed stock gillnet fishery was 794 fish, the lowest on record and 23% of the 1988-1997 average. Approximately 37% of the catch was estimated to be of Alaska hatchery origin. The escapement of 6,295 chinook salmon counted in Taku River index areas was 54% of the 1988-1997 average and 48% of the index escapement goal of 13,200 fish.

The estimated above border run size of Taku River coho salmon in 1998 is 66,472 fish, 87% of the 1988-1997 average. The Canadian inriver commercial catch included 5,090 coho salmon, 92% of the 1988-1997 average. The above-border-spawning escapement is estimated at 61,382 coho salmon, which exceeds the interim escapement goal range of 27,500 to 35,000 fish. The U.S. harvest of 28,713 coho salmon in the District 111 mixed stock fishery was 34% of the 1988-1997 average. Alaskan hatcheries contributed an estimated 21% of the District 111 harvest, or 5,931 fish.

The catch of pink salmon in District 111 was 168,283 fish, 20% above the 1988-1997 average catch of 140,407 fish. Pink salmon were not retained in the Canadian commercial inriver fishery in 1998. The escapement of pink salmon to the Taku River was likely above average as evidenced by the fish wheel catch and release of 23,347 pink salmon, 69% above the 1988-1997 average.

The catch of chum salmon in the District 111 fishery was 296,306 fish, composed of 291,416 summer run fish (prior to mid-August) and 4,695 fall run fish. The catch of summer chum salmon, primarily Alaskan hatchery stocks, was 75% above the 1988-1997 average and was the third highest on record. The Taku River does not have a summer chum run. The catch of fall chum salmon, composed of wild Taku River and Port Snettisham stocks, was 25% of the 1988-1997 average. As with pink salmon, there was non-retention of chum salmon in the Canadian inriver fishery and the reported catch was 2 fish in 1998. Spawning escapement appeared to be poor; the Canyon Island fish wheel catch of 179 chum salmon was 32% of the 1988-1997 average and the second lowest on records dating back to 1984.

### **Alsek**

The Alsek River sockeye harvest of 15,007 fish in the U.S. commercial fishery was 80% of the 1988-1997 average. The Canadian inriver catch of 585 sockeye salmon was the second lowest on record, following 1997 and was 27% of the 1988-1997 average. The aboriginal fishery harvested 567 sockeye salmon, 32% of the 1988-1997 average. The catch of 18 sockeye salmon in the sport fishery was the lowest on record and 5% of the 1988-1997 average. The low catches were the result of extensive closures in the sport and aboriginal fisheries due to conservation concerns. The escapement to the Klukshu River weir of 13,580 fish was 86% of the 1988-1997 average. The Klukshu weir count of 597 early run sockeye (count through August 15) was 16% of the 1988-1997 average, whereas the count of 12,994 late run fish was 98% of average for the same period. Counts in other index areas were less than 20% of average.

The chinook run to the Alsek River seemed below average. The U.S. Dry Bay catch of 550 chinook salmon was 36% above the 1988-1997 average. The combined Canadian sport and aboriginal fishery catch of 329 chinook salmon was 48% of the 1988-1997 average. The 1,364 chinook salmon counted through the Klukshu River weir was the second lowest on record and was 46% of the 1988-1997 average. Of the total count, 1,347 chinook salmon were estimated to have spawned, thus achieving the minimum spawning escapement goal of >1,100 chinook salmon, established by the TTC for 1998. Aerial survey index counts of other spawning systems were below average.

The coho run to the Alsek River was about average although current stock assessment programs prevent an accurate comparison with historical runs. The U.S. Dry Bay catch of 4,925 coho salmon was 85% of the 1988-1997 average, while the combined Canadian inriver aboriginal and sport fishery catch of 112 fish was 65% of the 1988-1997 average. The low catch was due to closures in the fisheries because of sockeye conservation concerns. The operation of the Klukshu weir does not provide a complete enumeration of coho salmon into this system since it is removed before the run is over; however, it does provide a suitable annual index. The count of 1,961 coho salmon was 80% of the 1988-1997 average.

### Enhancement

Eggs and milt were collected from the 1998 sockeye escapements at Tahltan and Tatsamenie Lakes. A total of 4.3 million eggs were collected at Tahltan Lake, 72% of the 6.0 million egg-take goal; the goal was not attained due to poor escapement to the lake in 1998. At Tatsamenie Lake, approximately 2.6 million eggs were taken, thus achieving the goal to take between 2.5 and 5.0 million eggs from this system in 1998.

Outplants of 1997 brood-year sockeye fry in June 1998 included 1.9 million fry into Tahltan Lake, 0.4 million fry of Tahltan Lake origin into Tuya Lake, and 3.6 million fry into Tatsamenie Lake. Green-egg to planted-fry survivals were 82%, 91%, and 77% for these outplants, respectively. Survival to emergence was generally at, or below, expected levels, partially due to a loss of approximately 178,577 fry due to Infectious Hematopoietic Necrosis (IHN).

Sampling of outmigrating smolts was conducted at Tahltan, Tuya, and Tatsamenie Lakes, systems that had been stocked with sockeye fry in previous years. Sockeye smolts were captured at all lakes. Total emigration from Tahltan Lake in 1998 was an estimated 540,866 smolts, with an estimated 214,446 smolts from fry plants. The sampling program at Tuya Lake provided age and size composition of the smolts but no estimate of total outmigration. At Tatsamenie Lake, an estimated 2,291,000 smolt outmigrated from the lake; this estimate was derived from mark-recapture data and is the highest on record.

The egg incubation and thermal-marking program at Snettisham Hatchery were continued in 1998. Snettisham hatchery is operated by DIPAC (Douglas Island Pink and Chum, Inc.), a private aquaculture organization in Juneau. A co-operative agreement between ADF&G and DIPAC provides for Snettisham to serve the needs of the joint TBR fry planting projects.

Adult sockeye salmon otoliths were processed inseason by the ADF&G otolith lab to estimate the weekly contribution of fish from U.S./Canada fry planting programs to the District 106, 108, and 111 gillnet fisheries and to Canadian commercial fisheries in the Stikine and Taku Rivers

## INTRODUCTION

This report presents estimates of the 1998 catch and escapement data for Pacific salmon runs to the transboundary Stikine, Taku, and Alsek Rivers and discusses management actions taken during the season. Catch and effort data are presented by management week (U.S. statistical week) for each river for both U.S. and Canadian fisheries. Spawning escapement data for most species are reported from weir counts or other escapement monitoring techniques. Joint fry planting activities on the Stikine and Taku Rivers are also summarized.

The Transboundary Technical Committee (TTC) met prior to the season to update joint management, stock assessment and enhancement plans and determine forecasts for run strengths and initial TAC estimates for the various species and rivers. The results of this meeting are summarized in: **Pacific Salmon Commission Transboundary Technical Committee. 1999. *Salmon Management and Enhancement Plans for the Stikine, Taku and Alsek rivers, 1998. Report TCTR(99)-1.***

Run reconstruction analyses are conducted on the sockeye runs to the three rivers for the purpose of evaluating the stocks and the fisheries managed for these stocks. No estimates of marine catch are made for U.S. fisheries outside of Districts 106 and 108 for Stikine stocks, District 111 for Taku stocks and Subdistricts 182-30 & 31 for Alsek stocks.

## STIKINE RIVER

Stikine River salmon are harvested by U.S. gillnet fisheries in Alaskan Districts 106 and 108, by Canadian commercial gillnet fisheries located in the lower and upper Stikine River, and by a Canadian aboriginal fishery in the upper portion of the river. When escapements are estimated to be surplus to spawning requirements (ESSR) Canadian terminal area fisheries are opened on the lower Tuya River and/or at Tahltan Lake (Figure 1). A small sport fishery also exists in the Canadian sections of the Stikine drainage. In 1995, a United States personal use fishery was established in the lower Stikine River; no catches were reported in this fishery in 1995 through 1998. Additional catches of unknown quantity are taken in U.S. troll and seine fisheries and in sport fisheries near Wrangell and Petersburg. In 1996, the spring experimental troll area in the District 9 portion of Frederick Sound was expanded to target hatchery chinook salmon; four previous areas were combined into one large area that also included previously unopened waters. This area was the same in 1998.

### Harvest Regulations and the Joint Management Model

Harvest arrangements for Stikine salmon were not negotiated by the Pacific Salmon Commission or Canadian and United States governments or stakeholder groups prior to the 1998 season. As a result, the Parties unilaterally developed the following management plans for the 1998 season:



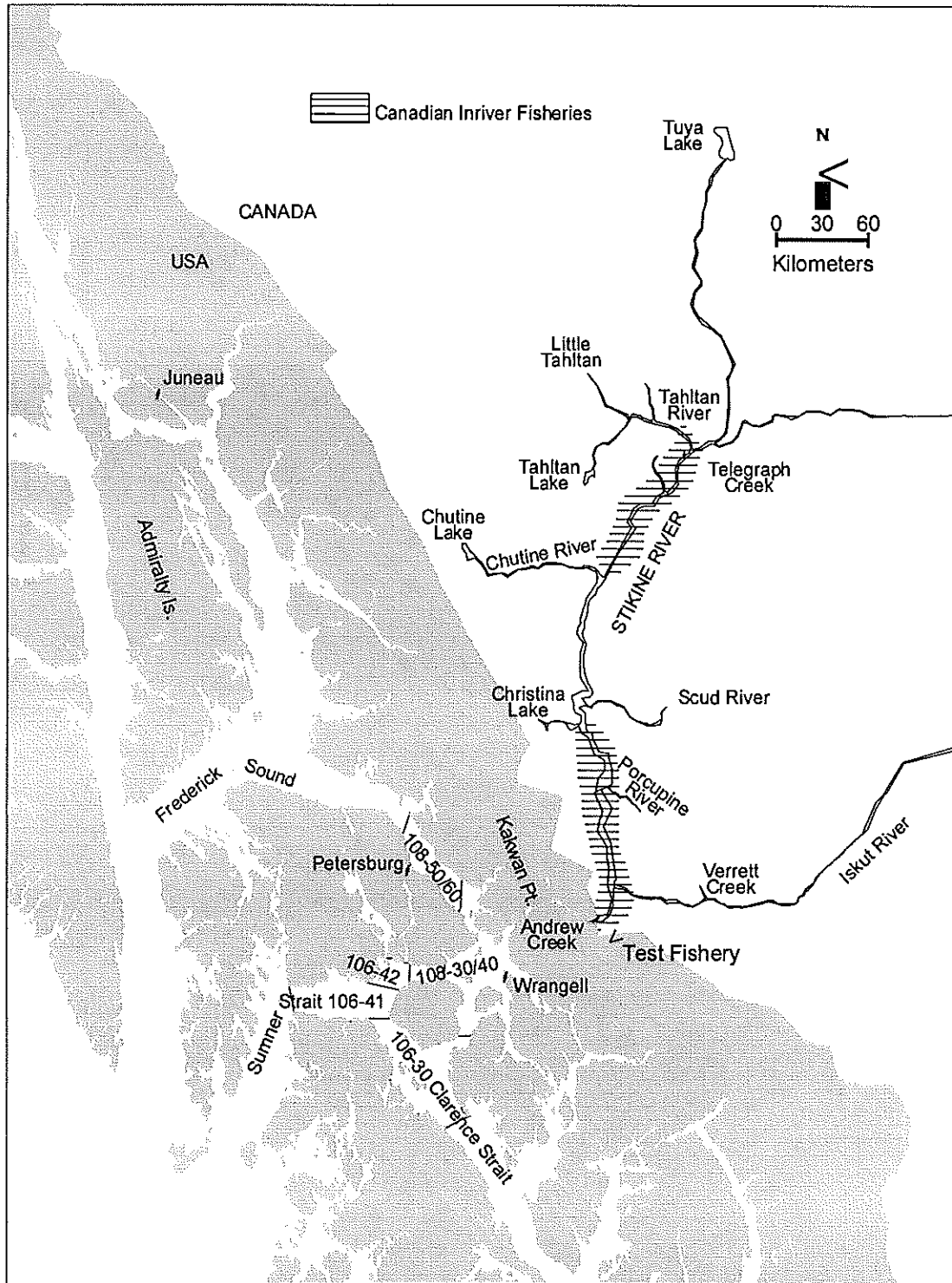


Figure 1. The Stikine River and principal U.S. and Canadian fishing areas.

1. Canada developed a fishing plan for the Stikine River which adopted the PSC arrangements for sockeye salmon (50:50 sharing which had not expired) but excluded the catch ceiling for coho salmon which had expired in 1992 (4,000 pieces). The harvest-sharing objective for the sockeye season was to share the total allowable catch (TAC) of Stikine River sockeye salmon 50% to Canada and 50% to the United States. In the event that there was sockeye surplus to spawning requirements at Tahltan Lake and/or in the Tuya River, attempts would be made to harvest some of the surplus. The plan did not permit targeting on chinook salmon since both Parties had previously agreed to rebuild chinook salmon by 1995 and the joint assessment of the status of rebuilding efforts has not yet been completed.
2. The United States management plan was to abide by the harvest sharing provisions that were in effect in 1993; namely to harvest 50% of the TAC of Stikine sockeye salmon (wild plus planted), to incidentally harvest chinook salmon and to provide for a Canadian harvest of 4,000 coho salmon.

As in most previous years, the Transboundary Technical Committee (TTC) met prior to the season to update joint management and enhancement plans, develop run forecasts and determine new parameters for input into the inseason run forecast model, referred to as the Stikine Management Model (SMM). The model was upgraded to provide inseason forecasts of the total Stikine sockeye run as well as the following components of the run: the Tahltan stock (wild and planted combined); the planted Tuya stock; and the wild mainstem stocks.

In 1998, the preseason forecasts were used during statistical week 25 (June 14 to June 20) through statistical week 27 (June 28 to July 04). After week 27, inseason forecasts of total run size and TAC, produced by the SMM and based on catch-per-unit-effort (CPUE) data, were used to assist in determining weekly fishing plans (Table 1). The weekly inputs to the model included: the catch, effort and stock composition (proportion Tahltan/Tuya from egg diameters, proportion planted Tuya from thermal mark analyses of otoliths) in the Canadian lower river test and commercial fisheries; the upper river catch in the aboriginal fishery (AF) and upper river commercial fishery; the catch, effort and assumed stock composition in Subdistrict 106-41; and, the catch and assumed stock composition in District 108 and Subdistrict 106-30. Unlike previous years, preliminary results of thermal mark analyses were available inseason for the lower inriver fisheries to account for Tuya production in the model and reduce the risk of over-estimating the TAC of the Tahltan sockeye stock, which was expected to be below average in 1998.

Initially, average stock proportions in District 106 and 108 catches, from historical postseason scale pattern analysis (SPA), were assumed for weekly catches. The averages used each week depended upon whether the run was judged to be below average, average, or above average. The Tahltan/Tuya stock proportions were subsequently adjusted inseason based on the analysis of otolith samples collected from District 106 and 108 catches. Inseason otolith sampling was conducted to estimate the contribution of planted Tahltan and Tuya Lake fish to catches in these areas. The weekly estimate of Tuya fish in District 106-41 was added to the historical proportion of Tahltan fish in the SMM since this stock was not present in the historical database. No adjustments were made in District 108. Because different proportions of Tahltan fish were observed in subdistricts of District 108, the overall contribution estimates for District 108 were weighted according to catches in the subdistricts.

The preseason forecast of the Stikine sockeye run was 218,500 fish, which indicated a run size above the 1988-1997 average run size of approximately 191,000 fish (Appendix B.28). Canadian inseason predictions of total run ranged from 196,746 to 208,755 sockeye salmon; U.S. forecasts ranged from

196,746 to 219,938 fish (Table 1). All forecasts indicated an above average run, although all were below the preseason estimate. U.S. and Canadian weekly predictions differed only slightly this year; differences were due to different catch data input used for the updates.

Table 1. Weekly forecasts of run size and total allowable catch for Stikine River sockeye salmon as determined inseason by the Stikine Management Model, 1998.

Statistical Week	Start Date	Forecast Run Size	TAC	TAC		Cumulative Catch <sup>a</sup>	
				U.S.	Canada	U.S.	Canada
Model Runs Generated by Canada							
25	14-Jun	218,500	122,500	61,250	61,250		61
26	21-Jun	218,500	122,500	61,250	61,250	8,038	2,478
27	28-Jun	218,500	122,500	61,250	61,250	18,259	8,930
28	5-Jul	218,500	122,500	61,250	61,250	22,319	14,643
29	12-Jul	196,746	113,765	56,883	56,883	29,417	24,961
30	19-Jul	205,453	125,272	62,636	62,636	31,319	28,037
31	26-Jul	197,234	118,679	59,340	59,340	35,859	40,605
32	2-Aug	207,431	128,168	64,084	64,084	37,055	42,977
33	9-Aug	208,755	130,025	65,013	65,013	38,684	43,787
34	16-Aug	208,737	130,261	65,130	65,130		
Model Runs Generated by the U.S.							
25	14-Jun	218,500	122,500	61,250	61,250		282
26	21-Jun	218,500	122,500	61,250	61,250	5,652	2,200
27	28-Jun	219,938	120,500	60,250	60,250	10,973	6,327
28	5-Jul	212,171	117,396	58,698	58,698	22,319	14,643
29	12-Jul	196,746	113,765	56,883	56,883	27,190	21,020
30	19-Jul	196,899	117,970	58,985	58,985	31,352	25,487
31	26-Jul	200,189	120,738	60,369	60,369	35,593	33,676
32	2-Aug	206,675	127,248	63,624	63,624	36,741	42,817
33	9-Aug	209,393	130,520	65,260	65,260	38,684	43,787
34	16-Aug	208,737	130,261	65,130	65,130		
Postseason Estimate (from Table 2)							
		121,448				27,848	43,803

<sup>a</sup> Does not include test or ESSR fishery catches.

## U.S. Fisheries

The 1998 harvest in the District 106 commercial gillnet fishery included 518 chinook, 113,435 sockeye, 273,197 coho, 502,655 pink, and 332,022 chum salmon (Appendix B.5). In the District 108 fishery, 460 chinook, 22,031 sockeye, 19,206 coho, 39,246 pink and 41,057 chum salmon were harvested (Appendix B.7). District 106 catches of chinook and sockeye salmon were 41% and 59% of the 1988-1997 respective averages. The coho catch was the second highest on record and 57% above average, the chum catch was a record and 2.1 times the average, and the pink catch was 30% above average (Figure 2). The District 108 chinook and sockeye catches were 35%, and 37% of their respective 1988-1997 averages. The coho catch was 29% above average, the pink catch was 17% above average, and the chum catch was 28% above average and the third highest on record. Weekly commercial and test fishery catches and stock composition estimates for these fisheries are provided in Appendices A.1-A.9 and annual catches from 1960 to 1998 are provided in Appendices B.1-B.11. Catches of each species in Districts 106 and 108 consist of fish of mixed stock origin; the contribution of Stikine River stocks is estimated only for sockeye salmon.

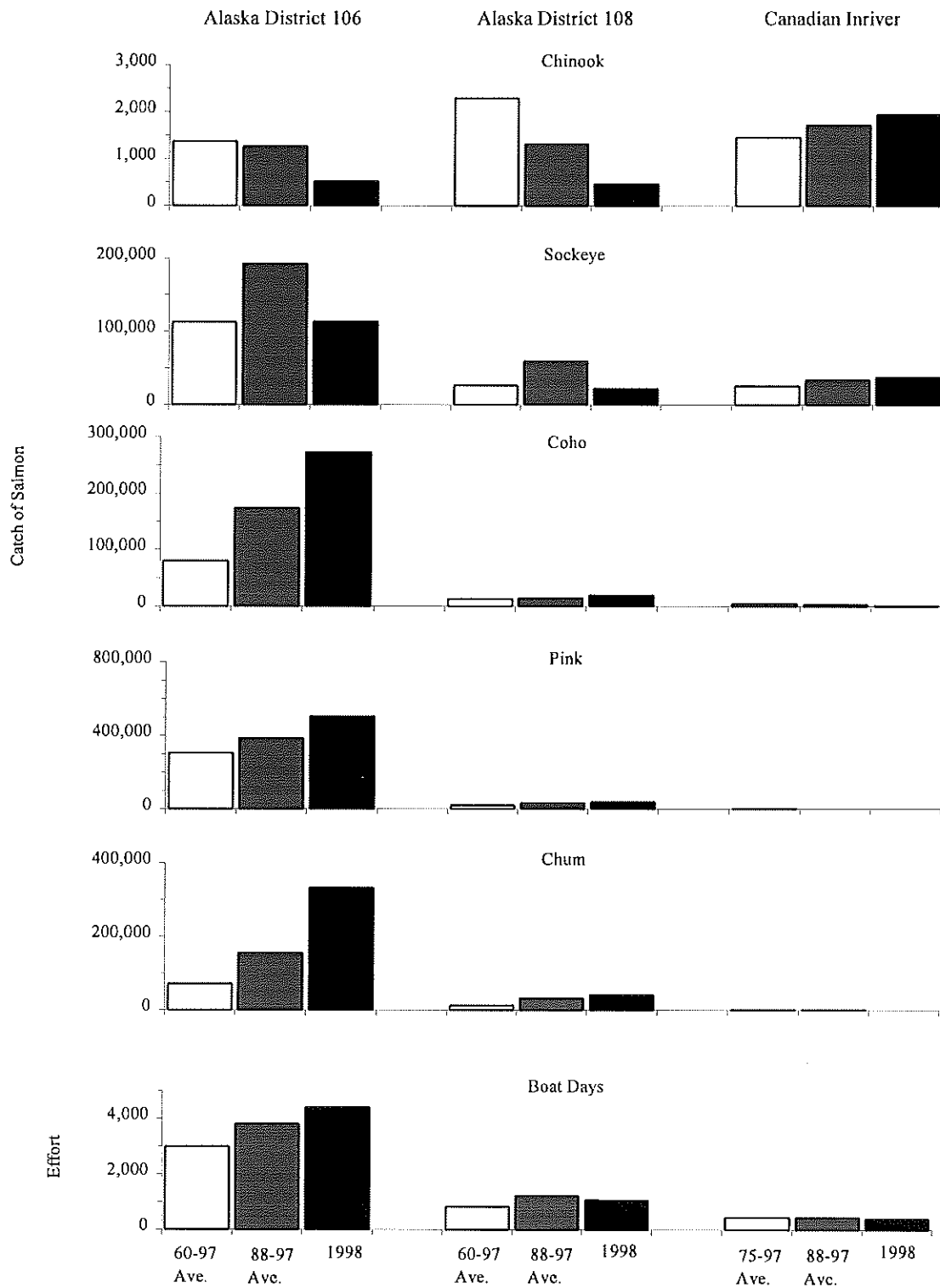


Figure 2. Average catches and fishing efforts compared with 1998 for the Alaska Districts 106 and 108 and for the Canadian inriver fisheries in the Stikine River.

The estimated of the contribution of Stikine sockeye salmon to the District 106 and 108 catch is 27,848 fish or 21% of the total sockeye catch of 135,466 fish. The Sumner Strait fishery (Subdistricts 106-41 & 106-42) harvested 8,912 Stikine sockeye salmon (Appendix A.2), 11% of the total sockeye harvest in that subdistrict, and the Clarence Strait fishery (Subdistrict 106-30) harvested 1,822 Stikine fish (Appendix A.4), 5% of the total sockeye catch in that subdistrict. The District 108 fishery harvested 17,114 Stikine sockeye salmon (Appendix A.8), 78% of the District 108 sockeye catch (Figure 3).

The Districts 106 and 108 fishing seasons began on June 21 (statistical week 26) and continued through October 6 (statistical week 41). The initial week 26 opening was two days in both districts. The initial opening in District 106 is normally two days and any decision to extend fishing is based on fishery catch rates estimated by management biologists on site in the fishery. The sockeye CPUE in both districts was above the 1988-1997 average for this week and the otolith analysis in the District 108 test fishery showed a Tuya:Tahltan ratio of approximately 57:43. Based on the catch and otolith information and the preseason forecast of 65,000 Tahltan fish, a 24-hour extension was allowed in both districts to harvest the apparent surplus of Tahltan sockeye salmon. During statistical week 27 the fishery was open for two days. The sockeye catch in District 108 was well above the 1988-1997 average, but the catches in District 106 were roughly half of the average. Stock identification analyses indicated a higher percentage of Tahltan fish in Frederick Sound test fishery than was present in the Stikine Strait test fishery. The inriver and District 108 commercial fisheries also showed a lower percentage of Tahltan fish than Tuya fish in the catches. The Sumner Strait commercial catch showed no Tahltan stock present. No extension or midweek openings were allowed during week 27. During statistical week 28, Districts 106 and 108 were initially open for two days. The CPUE in District 108 (74 sockeye/boat/day) and Sumner Strait (70 sockeye/boat/day) were below average, while Clarence Strait CPUE of 105 sockeye/boat/day was slightly above average. Based on the District 106 sockeye catches, no extension was warranted in that district. However, otolith analysis and the SMM predicted the Tahltan run strength to be near the 64,000 fish preseason forecast, which would allow a U.S. TAC of 20,000. The estimated Tahltan harvest in Districts 106 and 108 was 6,000 fish through week 27, which would leave 14,000 additional Tahltan fish to catch. Based on the available information, a mid-week opening in District 108 was considered. However, samples from Frederick Sound indicated that portion of District 108 had a higher abundance of Tahltan than Tuya fish. In order to target effort on predominately Tuya fish, a 48-hour midweek opening was allowed from 12:00 noon Wednesday, July 8 through 12:00 noon, Friday, July 10 in the Stikine Strait portion of District 108 (Section 8B) only. During statistical week 29 Districts 106 and 108 were open for two days. Sockeye CPUE was poor in District 108, slightly above average in Clarence Strait, and approximately half the average in Sumner Strait. Although the SMM predicted the Tahltan run to be 56,224 fish, the catch rates in District 106 didn't support this. Therefore, based on the District 106 catch and the poor catches in the week 28 District 108 midweek opening, no extensions or mid-week openings were warranted. During statistical week 30 Districts 106 and 108 were open for two days. The sockeye catch in Clarence Strait after the first day of fishing was 63/boat, which was only half the 1988-1997 average. The Sumner Strait sockeye catch after nearly two days of fishing was 115 sockeye/boat, which was the lowest catch/boat in the past 10 years. Due to the low sockeye catches no extensions or midweek openings were warranted. During statistical week 31 both districts were initially open for two days. The sockeye catch after the first day of fishing in Clarence Strait was 70/boat (1988-1997 average of 55) and the catch after nearly two days of fishing in Sumner strait was 149/boat, equal to the 1988-1997 average. Fishing effort was lower in District 106 this week than in past weeks. Due to the above average sockeye catches, the fisheries in Districts 106 and 108 were extended for 24 hours until 12:00 noon, Wednesday, 29 July.

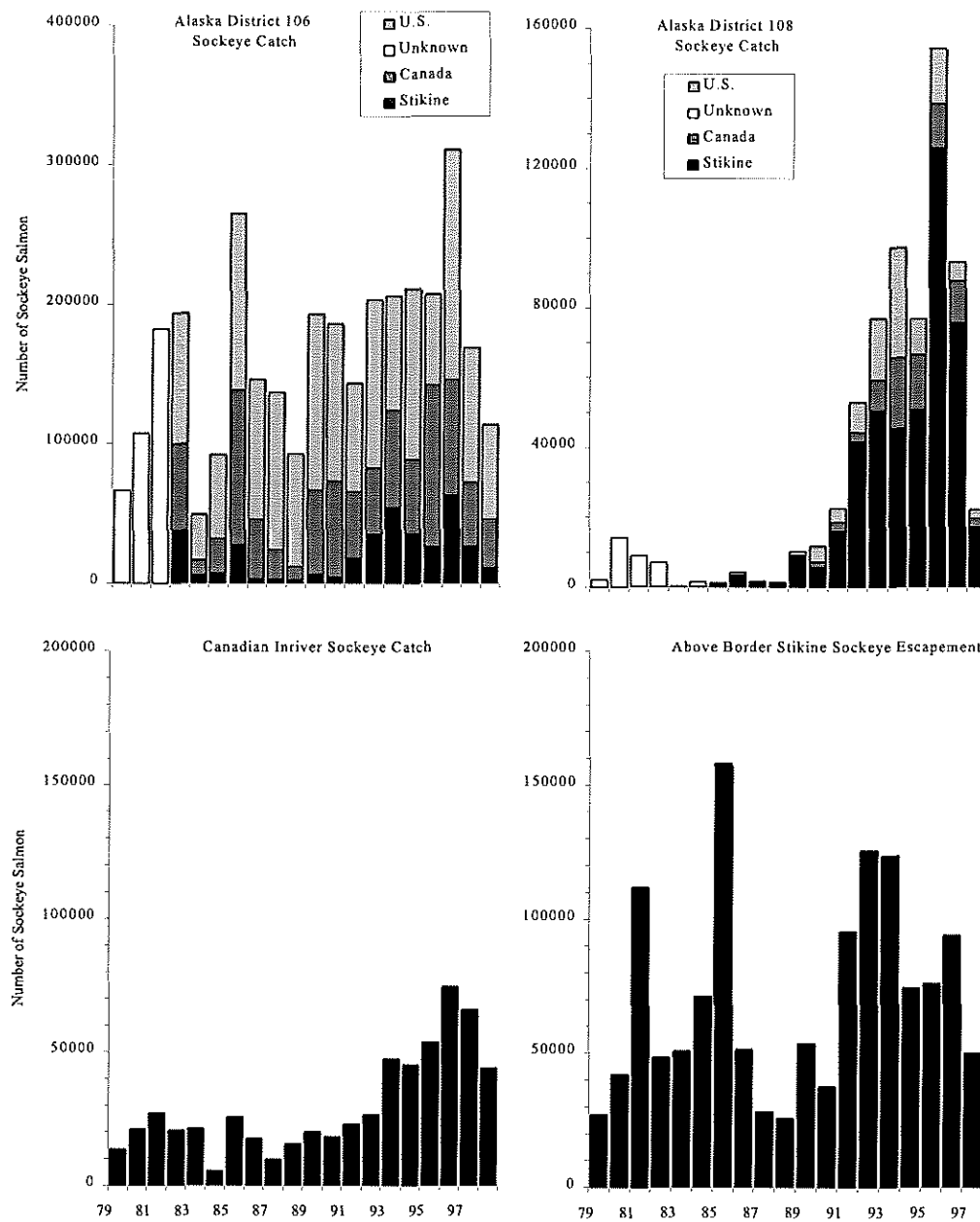


Figure 3. Sockeye catches for the Alaska District 106 and 108 and the combined Canadian fisheries in the Stikine River and Stikine sockeye escapements, 1979-1998.

A test fishery was conducted in District 108 during 1998 to determine if catchability of Tuya sockeye salmon varied with changing mesh size of gillnet gear. Since 25% or more of the Tuya run may be comprised of fish which spend two years in the ocean and generally few Tahltan fish spend less than three years in the ocean, it was hypothesized that Tuya fish would be more susceptible than Tahltan fish to capture in small mesh gillnets. If the two stocks could be harvested at different rates then it might be possible to institute mesh size restrictions during years of low Tahltan runs in order to minimize harvest of the Tahltan stock while fishing for the Tuya stock. Six gillnet vessels (three in Frederick Sound and three in the Sumner Strait portion of District 108) were contracted to fish for up to three days for three consecutive weeks at specific locations of their choosing beginning on Tuesday, 16 June. Each of the vessels at each location fished different mesh sizes. The three mesh sizes fished were 4.625 to 4.875 inches (11.81 cm to 12.38 cm); 5.00 to 5.25 inches (12.7 cm to 13.65 cm); and 5.375 to 5.625 inches (13.65 cm to 14.29 cm). Preliminary results after the first season showed a slight difference in the catch of 2-ocean age sockeye salmon between mesh sizes, with the smallest mesh size catching a higher percentage than either of the other mesh sizes. However, the gillnet hang ratios were not standardized, therefore, the different amounts of web hung could have accounted for the differences. Preliminary results also indicate Tuya sockeye salmon may migrate at a slightly higher rate through Sumner Strait and the southern entrance to the Stikine River than through the northern entrance, Frederick Sound. The test fishery is being scheduled again for 1999 and the hanging ratios will be standardized.

Area restrictions were used around the mouth of the Stikine River for the first three openings (statistical weeks 26 through 28) and in portions of Frederick Sound each week during the sockeye and pink fisheries to protect adult chinook salmon returning to the Stikine River. From July 12 through 29, the closure line for District 108 was at the Point Rothsay to Indian Point line.

The management emphasis changed from sockeye to pink salmon during statistical week 32 (August 2 to 8). Pink salmon management normally begins near week 33 but the very large expected run of pink salmon to District 106 and the lack of Stikine bound sockeye salmon in the week 31 catch prompted an early switch to directed pink management effort in both Districts 106 and 108. Pink salmon catches in both districts are not always a true reflection of the pink salmon abundance in the area because the low pink salmon price, along with a high abundance of other species, affect the fishing patterns and methods. Three-day fishing periods were allowed during the first two weeks (statistical week 32 and 33, Aug 2-15) of pink salmon management in both districts and a four-day fishery was allowed during the third week (statistical weeks 34, Aug 16-22). The pink salmon escapements throughout Districts 106 and 108 were above average.

Coho salmon management in both the District 106 and 108 gillnet fisheries usually commences during late August or early September. During statistical week 35 (Aug 23-29) the management emphasis changed from pink to coho salmon. The coho catches prior to week 35 had been above average, in part due to the large run of fish to Whale Pass (from fry planted into Neck Lake) in Clarence Strait. Three-day/week openings were allowed in both districts from week 35 through week 39 (Aug 23 - Sept 26) and two-day fisheries were allowed during weeks 40 and 41 (Sept 27 - Oct 6). The District 106 fishery was closed after week 41. Prior to the change to coho management, the sockeye and pink salmon fisheries harvested 135,799 coho salmon, or approximately 50% of the total District 106 coho catch with approximately 37% of the early coho catch from Alaska hatcheries.

During the 1998 season, the gillnet fishery in District 106 was open for a total of 43 days (Appendix A.5), and in District 108 for 45 days (Appendix A.7). These were above the 1988-1997 averages of 36.6 and 42.5

days, respectively. District 106 fishing effort in numbers of vessels (or permits) was below the average for the first two openings, near or above the average for the next twelve statistical weeks (weeks 28 to 39) and below average for the final two openings (Appendix B.5). The number of vessels fishing in District 108 was below average for the first 5 general openings (not including midweek openings), near or above the average for the next 9 openings (weeks 31 to 39) and below average for week 40. In District 106, both the greatest number of boats fishing (132) and the greatest number of boat-days (528) was in statistical week 34. The high number of boat-days fished during week 34 was due to the district being open for four consecutive days. The total season effort of 4,398 boat-days in District 106 was 15% higher than the 1988-1997 average of 3,798 boat-days. The 1,073 boat-days fished in District 108 was 88% of the 1988-1997 average of 1,222 boat-days (Appendix B.7). District 108 effort was lower than average due to the reduced fishing time allowed (from past years) in order to minimize the harvest of Tahltan sockeye salmon.

### **Canadian Fisheries**

Catches from the combined Canadian commercial and aboriginal gillnet fisheries in the Stikine River in 1998 included: 2,164 large chinook, 423 jack chinook, 43,803 sockeye, 726 coho, 55 pink, 13 chum salmon, and 209 steelhead trout (Appendix A.10, A.12, & A.13, Figure 4). In addition to these catches, 6,103 sockeye salmon were taken in an ESSR harvest in the Tuya River. The sockeye catch was 13% above the 1988-1997 average of 38,799 fish, and the steelhead catch was 47% above average. However, catches of all other species were below average: the catch of large chinook salmon was 95% of average; jack chinook salmon, 88% of average; coho salmon, 26% of average; pink salmon, 20% of average; and chum salmon, 4% of average. Weekly commercial and test fishery catches and stock composition estimates for these fisheries are provided in Appendices A.10-A.16 and annual catches from 1972 to 1998 are provided in Appendices B.13-B.21.

A test fishery was conducted again in the lower Stikine River, just upstream from the Canada/U.S. border. Test fishery catches included: 25 large chinook, 11 jack chinook, 190 sockeye, 207 coho, 20 pink, and 40 chum salmon, and 24 steelhead (Appendix A.15). The test fishery was conducted only on days when the commercial fishery was closed and included ten drifts per day, five in the morning and five in the afternoon. The objectives of the test fishery during the sockeye season were similar to those in previous years: to provide inseason catch, stock ID and effort data for input into the SMM to forecast the inriver run size and to determine migratory timing and stock composition of the sockeye run for use in the postseason estimations of the inriver sockeye and coho run sizes. In addition, the 1998 test fishery was expanded to test the feasibility of live-capturing coho salmon for the purposes of mark-recapture studies.

### **Lower Stikine Commercial Fishery**

Canadian commercial fishers in the lower Stikine harvested 1,614 large chinook, 328 jack chinook, 37,310 sockeye, 726 coho, 55 pink, 13 chum salmon, and 209 steelhead in 1998 (Appendix A.10). The sockeye catch was 13% above the 1988-1997 average of 32,887 fish and the catches of large and jack chinook salmon were 19% and 18% above their respective averages of 1,353 and 277 chinook salmon (Appendix B.12). Catches of coho, pink, and chum salmon were below average while the steelhead catch was 60% above the 1988-1997 average of 131 fish.



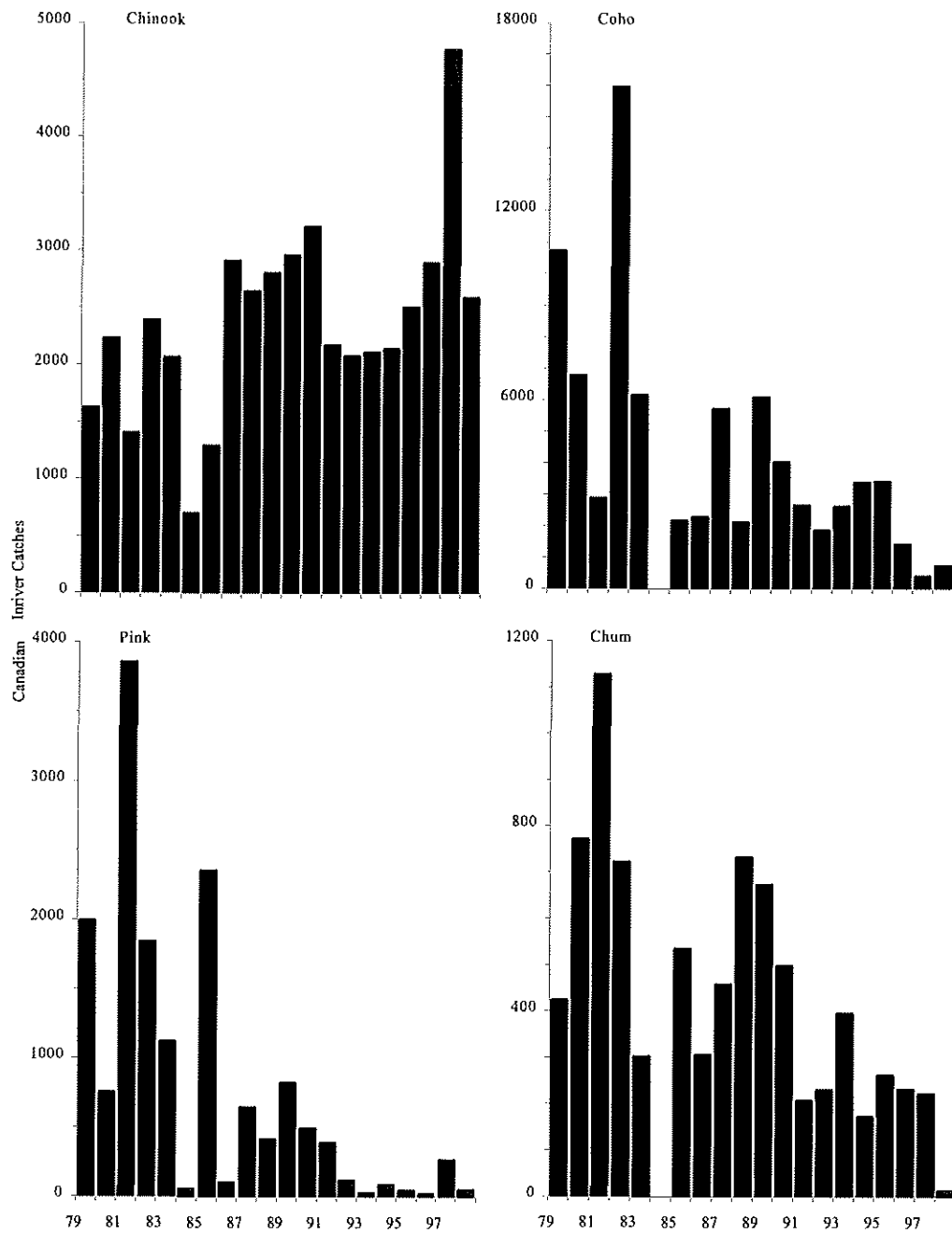


Figure 4. Catches of chinook, coho, pink, and chum salmon in the combined Canadian fisheries in the Stikine River, 1979-1998.

Weekly guideline harvests, based on forecasts of the total allowable catch (TAC) apportioned by average run timing and domestic and international allocation agreements, were developed each week to guide management decisions during the sockeye season. Management through statistical week 30 was focused primarily on Tahltan sockeye salmon after which it switched to mainstem sockeye stocks through the end of August, and then to coho salmon. The Tahltan sockeye stock was of particular concern given the preseason expectation of a below average run in 1998.

The fishery commenced at noon on Sunday, June 14 (statistical week 25) for a scheduled opening of one day. Fishing time was kept to 24 hours due to low numbers of sockeye salmon and a chinook-to-sockeye ratio of approximately 7:1. Sockeye abundance increased markedly the following week and the chinook-to-sockeye ratio dropped to 0.2:1. Average to above average commercial sockeye catch per unit of effort (CPUE) measured in sockeye/fisher/day and a shortfall in the sockeye catch relative to the weekly guideline harvest prompted a one-day extension over the initial two-day opening posted in week 26. High water conditions persisted throughout the opening making fishing conditions less than ideal due to increased debris loads.

In statistical week 27, the fishery was scheduled to open for three days commencing Sunday, June 28. Test fishery catches just prior to the opening were at least 22% above average. After three days of fishing, the overall commercial sockeye CPUE was 23% above average. Final revisions to the SMM had not yet been made; however, a projection of the inriver run of the Tahltan stock was made based on the historical relationship between the cumulative commercial CPUE and the inriver run of Tahltan sockeye salmon. The projection, based on catch hails for the first 24 hours, indicated a guideline cumulative catch of 3,600 Tahltan sockeye salmon through week 27. Although it was calculated that a fishery opening of five days would be required to meet this target, the fishery was extended for one 24-hour period. By the end of this week, the catch of Tahltan sockeye salmon in the lower river fishery was approximately 3,400 fish, 9% below the guideline. At this point in the season, based on inseason data from egg diameter measurements and preliminary otolith analyses, the stock composition of the commercial sockeye catch was approximately 25% Tahltan stock, 67% Tuya stock and 8% mainstem stock.

The fishery opened for three days in week 28 from July 5-8. Sockeye run indicators from the fishery were above average for the first two days of fishing. The overall sockeye CPUE was 155 sockeye/fisher/day, 25% above the 1988-1997 weekly average; and the CPUE of the Tahltan/Tuya stock grouping, i.e. small egg diameter fish, was 67% above average. Projections of the inriver run size of the Tahltan stock, based on data collected for the first two days of this week, indicated the cumulative catch of Tahltan fish in the lower river was less than one half what it could have been. The cumulative catch of Tahltan sockeye salmon was approximately 4,900 fish compared to the guideline harvest of 10,400 fish. Similar numbers were generated by the SMM, which became available this week. Although the data indicated an extension was justified, the fishery was not extended due to below average CPUE of Tahltan stock (25% below average) and a sense that the harvestable surplus of Tahltan fish might not be as high as the data suggested.

On July 13, early in week 29, the SMM projections were reviewed and updated by DFO and ADF&G. The model indicated a balance, i.e. surplus, of 5,100 Tahltan sockeye salmon in the lower river fishery for week 29. With the CPUE of Tahltan sockeye salmon close to average, and a significant shortfall in the total catch relative to guidelines after three days, the fishery was extended by 48 hours over the initial 3-day opening. The catch for the week of 9,137 sockeye salmon was the peak catch of the season and the third highest on record for this week. The overall sockeye CPUE of 163 sockeye/fisher/day was 43%

above average. The cumulative catch through week 29 was 23,776 sockeye salmon, which was 13% below the guideline developed by the SMM (from the final model run in week 28). And, the catch of Tahltan fish was 33% below the guideline for that stock.

The fishery in week 30 was initially opened for three days. Data from the first two days of fishing were used to update the Tahltan sockeye run forecast in the SMM and, as in previous weeks, it indicated the catch and fishing effort were well below guideline levels. For example, the inriver run forecast for the Tahltan stock at this time was 46,700 fish, which translated into a projected inriver harvest of 22,700 fish for the season. Accounting for run timing and projected catches in upper river fisheries, the model indicated there was room for a catch of up to 8,325 Tahltan fish in the lower river for the remainder of the week. Surpluses were also indicated for all other sockeye stocks. These factors lead to an extension of 24 hours in week 30. The overall sockeye CPUE for this week was 33% above average, but more importantly, the CPUE of the Tahltan stock was approximately 64% above average suggesting the Tahltan run timing might be delayed somewhat. According to egg diameter measurements, approximately 60% of the lower river catch this week was estimated to be of Tahltan/Tuya origin. Late run timing was also indicated by the sockeye catches in the aboriginal fishery near Telegraph Creek, which had continued to increase through week 30. Normally the sockeye catch peaks in this fishery in week 29.

The contribution of mainstem sockeye salmon in the lower river catches predominated after week 30 (July 26 on) and the overall sockeye CPUE values in the lower river were slightly above average levels for weeks 31 through 34. A one-day extension was provided over the initial three-day opening in week 31, again due to predictions of a growing inriver surplus of sockeye salmon. By the end of week 31, i.e. end of July, it was apparent that the Tahltan weir count was well below target levels, even if the run was late. In response to this concern, the lower river fishery was cut back to two days in week 32. However, the contribution of Tahltan/Tuya stocks dropped to less than 15% in week 32 and the reduction in fishing effort could do little to increase the escapement of Tahltan sockeye salmon.

The lower river fishery was open for three days per week through the remainder of the sockeye season, i.e. the end of August, and into early September. According to the SMM, weekly fishing times could have been much longer than this to target mainstem sockeye stocks. However, it was felt the model had over-estimated the Tahltan run and there was concern that it might do the same for the mainstem stock. In addition, opportunities to target mainstem sockeye salmon progressively weakened after week 32 when they had peaked.

Declining sockeye catches precipitated the number of fishers dropping from eleven in week 32 to six in weeks 33 through 37. From September 06 (week 37) on, the fishery was left open to provide flexibility for the remaining fishers to harvest coho salmon. Although the fishery was open continuously during weeks 37 to 39, fishers chose to fish only for three days each week due to low catches of coho salmon. Week 39 was the final week fished. Normally, catches of coho salmon peak during week 36 and/or week 37, i.e. early to mid-September. However, in 1998, there was no apparent strength to the coho run during September. The peak commercial coho catch occurred in week 34 (week ending August 22)

Based on sockeye CPUE in the lower river, the overall sockeye run timing appeared to be normal. The run peaked in week 28, similar to the average peak in timing over the previous ten years. The timing of the Tahltan/Tuya and mainstem run components was also similar to respective average timing curves. The Tahltan and Tuya stocks peaked over weeks 27 through 30 with the highest CPUE occurring in week 28. Mainstem sockeye CPUE peaked over weeks 29 through 32; the highest CPUE of this stock occurred in week 32. The lower river sockeye catch the lower river sockeye catch was comprised of

12,897 Tahltan fish (accounting for 35% of the total catch), 13,296 Tuya fish (36% of the catch), and 11,117 mainstem sockeye salmon (30% of the catch) (Table 2).

It became evident by early August that the number of sockeye salmon reaching the Tahltan Lake weir would be less than required for escapement. As a result there was no terminal sockeye harvest at Tahltan Lake in 1998 under an Excess Salmon to Spawning Requirements (ESSR) license. Instead, ESSR fishing activities again focused on the lower Tuya River to harvest sockeye salmon originating from fry plants to Tuya Lake. A total of 6,103 sockeye salmon was harvested in this area.

Thirteen licensed fishers participated in the fishery throughout the season with a maximum of 12 licenses being active in any one week. The total effort in terms of boat-days was 374, 95% of the 1988-1997 average of 395 boat-days. As in 1997, each fisher was allowed the use of two gillnets of which one could be a drift net. A maximum mesh size restriction of 150 mm through July 11 was implemented to reduce the incidental catch of chinook salmon. In 1997, the upstream fishing boundary for the lower river fishery was moved approximately 25 km upstream to Flood River to increase the fishing area over previous years. The same area was fished in 1998.

### **Upper Stikine Commercial Fishery**

A small commercial fishery has existed near Telegraph Creek on the upper Stikine River since 1975. The catch recorded in 1998 included: 12 large chinook salmon, which was 18% of the 1988-1997 average of 67 large fish, and 907 sockeye salmon, which was 71% of the 1988-1997 average (Appendices A.12, B.14). The fishing effort was 50% of average with an average of only one fisher fishing one to five days per week. A total of 19 days was fished and the total effort amounted to 19 boat-days. For comparison, the 1988-1997 average fishing time was 22.5 days with an average effort of 37.9 boat-days.

### **Aboriginal Fishery**

The Stikine aboriginal fishery, which is located near Telegraph Creek, harvested 538 large chinook, 95 jack chinook, and 5,586 sockeye salmon (Appendix A.13). The sockeye catch was 20% above the 1988-1997 average of 4,641 fish. However, the harvest of large chinook salmon was 62% of the 1988-1997 average of 863 fish and the catch of jack chinook was 52% of average (Appendix B.15). As in past years, fishing times were not restricted in this fishery.

## **Escapement**

### **Sockeye**

A total of 12,658 sockeye salmon was counted through the Tahltan Lake weir in 1998, 37% of the 1988-1997 average of 34,285 fish but about the same number as in 1997 (Appendices A.17, B.22). An estimated 850 fish (7%) originated from the fry planting program, down from 13% in 1997. The proportion of planted Tahltan sockeye salmon this year is estimated from analysis of otoliths from a random sampling of 390 fish collected at the weir and 500 samples collected from broodstock. Broodstock collected for the fry planting program totaled 3,099 sockeye salmon. This leaves a natural spawning escapement of 9,169 sockeye salmon (Table 2). The escapement is below the escapement goal range of 18,000 to 30,000 fish.

The spawning escapements for the mainstem and the Tuya stock groups are estimated indirectly by computing the ratio of Tahltan fish to mainstem and Tuya components in the total inriver sockeye run. Stock identification data are collected in the lower river commercial and test fisheries. The ratios of Tahltan:mainstem and Tahltan:Tuya are applied to the estimated inriver Tahltan run size to develop an estimate of the total inriver sockeye run. The escapements are estimated by subtracting the inriver catches from the inriver run estimate. The escapement estimates are 19,175 mainstem and 14,634 Tuya sockeye salmon. The mainstem fish spawn in tributaries, lakes, and the mainstem of the Stikine River. The mainstem spawning escapement is below the escapement goal range of 20,000 to 40,000 fish. The Tuya fish are blocked from entering potential spawning grounds of the Tuya tributary by natural barriers and are targeted in the ESSR fishery which caught 6,103 fish in 1998 (Appendix B. 18). The fate of the remaining 8,531 Tuya fish is unknown. Aerial survey counts of sockeye salmon spawning the mainstem index areas totaled 892 fish compared to an average of 911 fish (Appendix B.23).

The Tahltan Lake sockeye smolt outmigration was 540,866 fish in 1998 (Appendix A.18). This represents 53% of the 1984-1997 average of 1,025,735 smolt (Appendix B.24).

### **Chinook**

The chinook escapement was enumerated at the Little Tahltan weir; 4,879 large and 37 jack chinook salmon were counted between June 19 and August 12 with 6 of the large chinook salmon collected for broodstock (Appendices A.19, B.25). The escapement for large chinook salmon was 92% of the goal of 5,300 fish. Aerial survey index counts of spawning chinook salmon were all below average (Appendix B.26, Figure 5). A chinook salmon mark recapture experiment was conducted in 1998. A total of 403 chinook salmon caught near the mouth of the Stikine River were tagged. Tagged fish were recovered from the Little Tahltan River weir, Verrett Creek, and the Canadian commercial fishery. The total estimated spawning escapement was 25,456 fish. Little Tahltan River chinook salmon accounted for approximately 19% of the total Stikine River escapement.

### **Coho**

Test fishery CPUE of coho salmon indicated the inriver run was approximately 73% lower than the inriver sockeye run. This suggests the total coho escapement was below the interim escapement goal range of 30,000 to 50,000 fish. Aerial surveys of six coho spawning index sites indicated below average spawning escapement with a total count of 1,093 fish compared to an average of 2,771 fish (Appendix B.27).

### **Sockeye Run Reconstruction**

The estimated Stikine sockeye run is 121,448 fish, of which 35,027 are of Tahltan Lake origin (wild & planted), 47,383 are of Tuya origin (Tahltan stock planted in Tuya Lake), and 39,039 are mainstem stocks (Table 2). These estimates are based on; scale and otolith recovery and analysis in the U.S. Districts 106 and 108 catches; egg-diameter stock-composition estimates and otolith analysis for inriver catches; Canadian commercial, aboriginal, ESSR, and test fishery catches; and escapement data. The 1998 total run is 64% of the 1988-1997 average run size and is also below the preseason forecast of 218,500 sockeye salmon.

Table 2. Run reconstruction for Stikine sockeye salmon, 1998.

	Tahltan	Tuya	Mainstem	Total	Tahltan	
					Wild	Planted
Escapement <sup>a</sup>	12,658	14,634	19,175	46,466	11,808	850
ESSR Catch <sup>b</sup>		6,103		6,103		
Biological Samples	390			390	364	26
Broodstock	3,099			3,099	3,024	75
Natural Spawning	9,169		19,175	28,344	8,420	749
Excess <sup>c</sup>		8,531		8,531		
Canadian Harvest						
Indian Food	2,352	3,103	131	5,586	2,227	125
Upper Commercial	363	517	27	907	336	27
Lower Commercial	12,498	13,137	11,675	37,310	11,751	747
Total	15,213	16,757	11,833	43,803	14,314	899
% Harvest	72.2%	53.8%	60.9%	61.1%		
Test Fishery Catch	70	51	69	190	66	4
Inriver Run	27,941	31,442	31,077	90,459	26,188	1,753
U.S. Harvest <sup>a</sup>						
106-41&42	1,326	7,555	31	8,912	1,125	201
106-30	352	1,465	5	1,822	352	0
108	4,170	5,383	7,561	17,114	4,000	170
Total	5,848	14,403	7,597	27,848	5,477	371
% Harvest	27.8%	46.2%	39.1%	38.9%		
Test Fishery Catch	1,238	1,538	365	3,141	1,181	57
Total Run	35,027	47,383	39,039	121,448	32,846	2,181
Escapement Goal <sup>a</sup>	24,000		30,000	54,000		
Terminal Excess <sup>d</sup>		32,466		32,466		
Total TAC	11,027	14,917	9,039	34,982		
Total Harvest <sup>e</sup>	22,369	38,852	19,864	81,085		
Canada TAC	5,514	7,458	4,519	17,491		
Actual Catch <sup>f</sup>	15,213	16,757	11,833	43,803		
% of TAC	138.0%	112.3%	130.9%	125.2%		
U.S. TAC	5,514	7,458	4,519	17,491		
Actual Catch <sup>g</sup>	5,848	14,403	7,597	27,848		
% of TAC	53.0%	96.6%	84.1%	79.6%		

<sup>a</sup> Escapement into terminal and spawning areas from traditional fisheries.<sup>b</sup> Catch allowed in terminal areas under the Excess Salmon to Spawning Requirement license.<sup>c</sup> Fish returning to the Tuya system are not able to access the lake where they originated due to velocity barriers.<sup>d</sup> The number of Tuya fish that should be pass through traditional fisheries in order to harvest the Tuya stock at the same rate as the Tahltan stock to ensure adequate spawning escapement for Tahltan fish.<sup>e</sup> Includes traditional, ESSR, and test fishery catches.<sup>f</sup> Does not include ESSR or test fishery catches.<sup>g</sup> U.S. harvest estimate differs from Joint Interception Committee estimate because no estimates are made for catches other than in the listed fisheries.

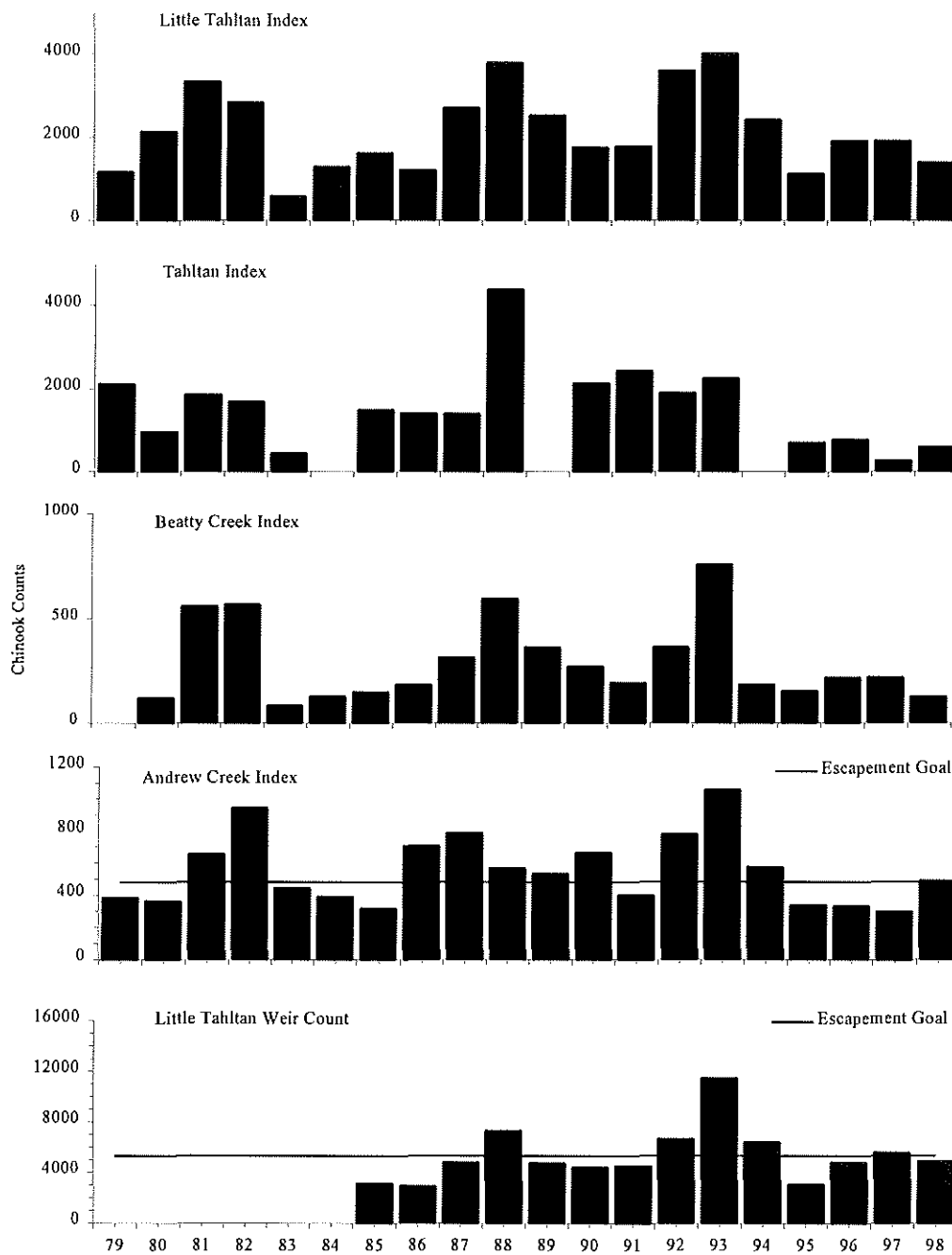


Figure 5. Chinook salmon weir counts and index escapement estimates for major spawning areas and for the entire Stikine River, 1979-1998.

## **TAKU RIVER**

Taku River salmon are harvested in the U.S. gillnet fishery in the Alaskan District 111, in northern Southeast Alaska seine and troll fisheries, and in the Juneau area sport fishery and inriver personal use fishery (Figure 6). Canadian fisheries for Taku River salmon include a commercial gillnet fishery located in the river near the Canada/U.S. border, an aboriginal fishery, and a sport fishery.

### **Harvest Regulations**

As with Stikine River issues, efforts to renegotiate harvest shares of Taku River salmon during the Pacific Salmon Commission, government-to-government, and stakeholder negotiations were not successful. As a result, the Parties unilaterally developed the following management plans for the 1998 season:

1. As in 1997, the Canadian management plan did not numerically constrain Canadian harvests of sockeye and coho salmon since provisions to do so had expired in 1992. The basic objective of the management plan for each species was to manage according to the conservation requirements, i.e. escapement goals, for each species. The plan did not permit targeting on chinook salmon in the Taku River since both Parties had previously agreed to rebuild chinook runs by 1995 and the joint assessment of the status of rebuilding efforts has not yet been completed.
2. The U.S. management plan reflected provisions that were in effect for 1993, namely to provide for a U.S. harvest of 82% of the wild TAC and 50% of the planted TAC of Taku River sockeye salmon, and for a Canadian inriver harvest of 3,000 coho salmon. Directed drift gillnet fishing on Taku River chinook stocks was not permitted.

### **U.S. Fisheries**

The 1998 commercial salmon harvests in the District 111 fishery totaled 794 chinook, 69,677 sockeye, 28,713 coho, 168,283 pink, and 296,111 chum salmon (Figure 7). The chinook harvest was the lowest on record and 23% of the 1988-1997 average. Alaskan hatchery fish contributed approximately 37% of the harvest or 292 fish as estimated by coded wire tag (CWT) analysis. The sockeye harvest was 60% of the 1988-1997 average catch of 115,907 fish. The coho catch was 34% of the 1988-1997 average with an estimated 5,931 hatchery fish harvested or 21% of the District 111 harvest. The District 111 pink salmon harvest was 20% above the 1988-1997 average. The summer chum catch of 291,416 fish was 75% above the 1988-1997 average, and was the third highest on record. The catch of 4,695 fall chum salmon was 25% of the 1988-1997 average. Weekly commercial fishery catches and stock composition estimates for these fisheries are provided in Appendices C.1-C.3 and annual catches from 1960 to 1998 are provided in Appendices D.1-D.3. Catches of each species in District 111 consist of fish of mixed stock origin; the contribution of Taku River stocks is estimated only for sockeye salmon.



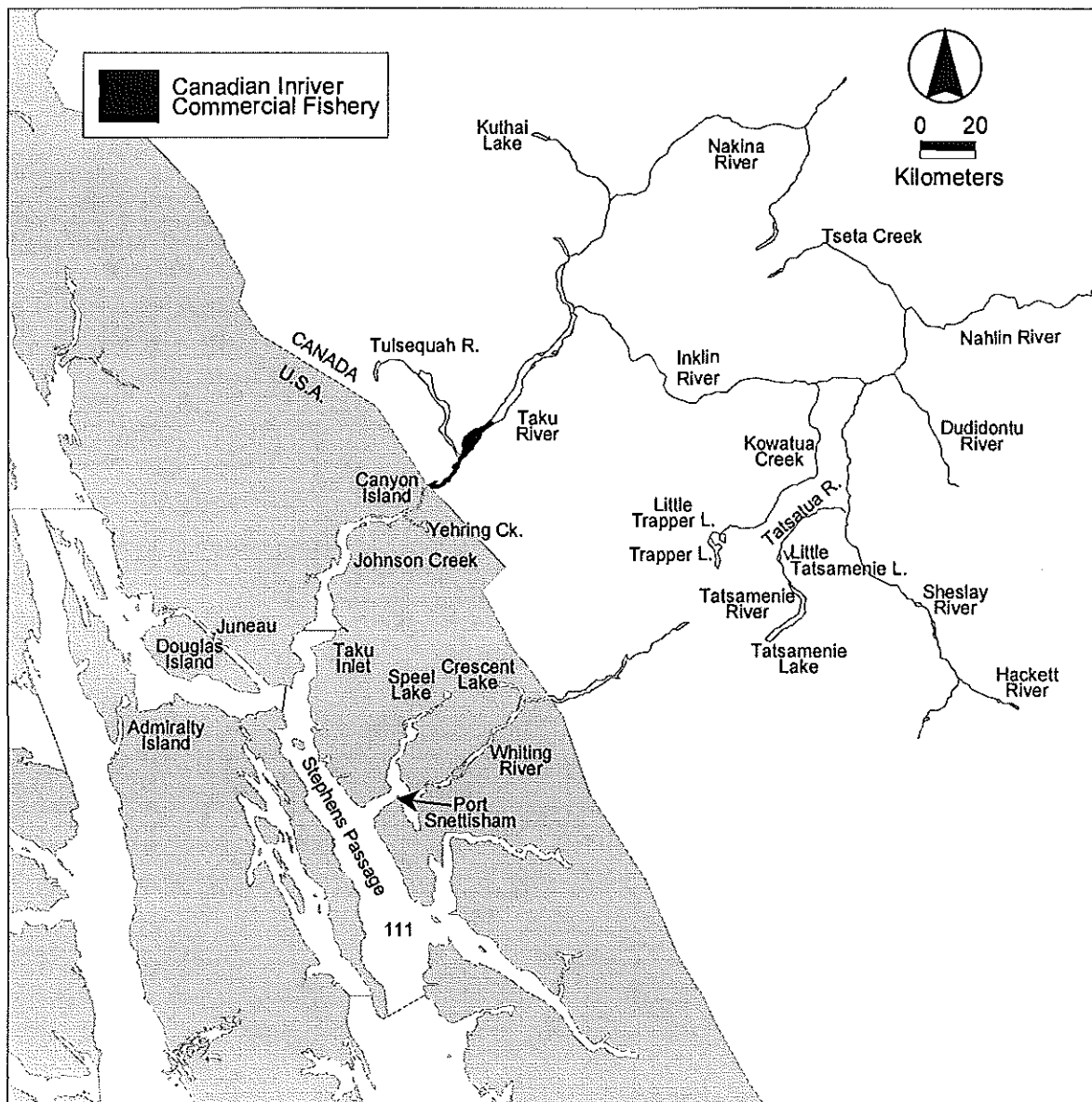


Figure 6. The Taku River and principal U.S. and Canadian fishing areas.

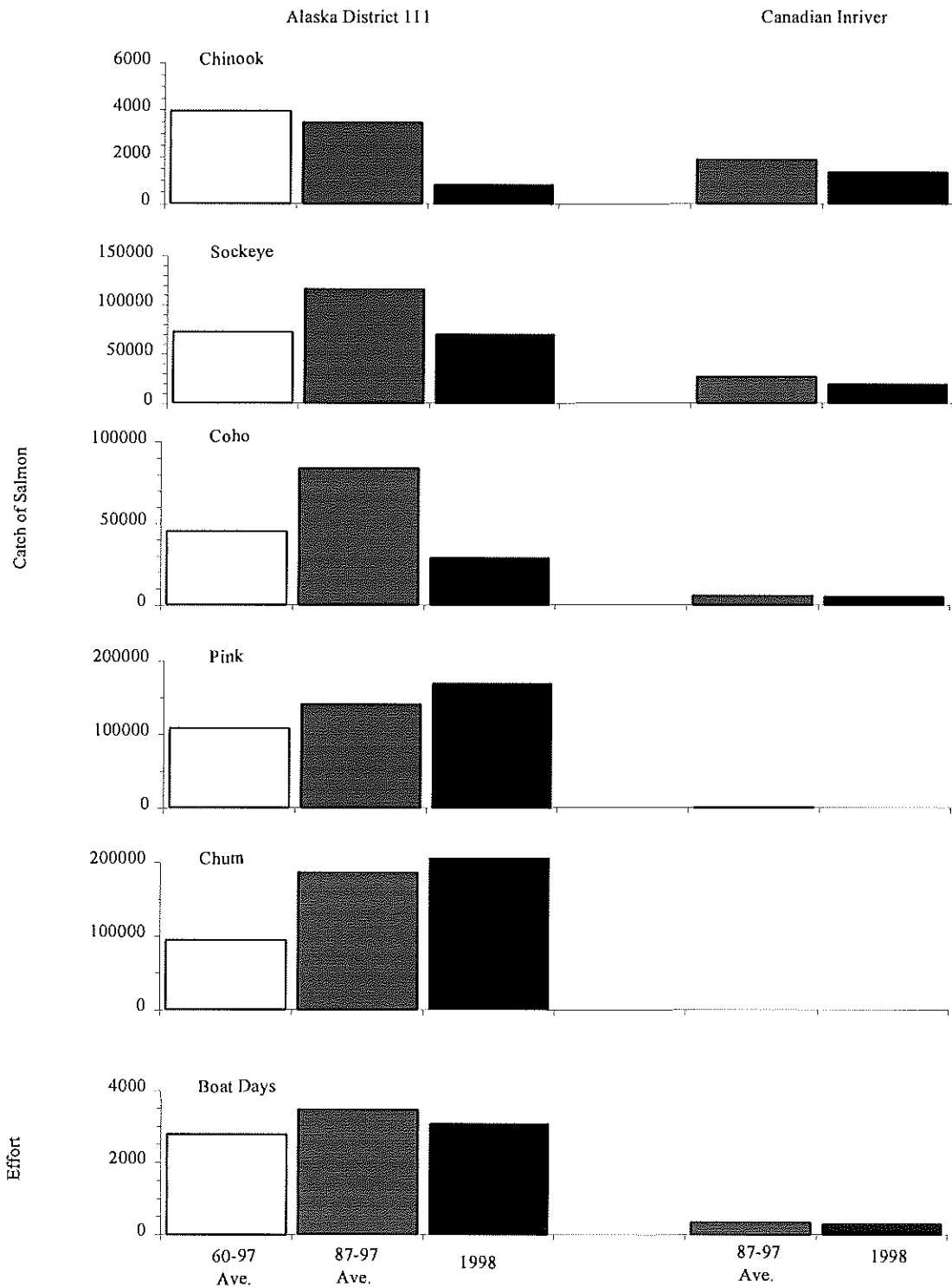


Figure 7. Average catches and fishing efforts compared with 1998 values for the Alaska District 111 commercial fishery and the Canadian commercial fishery in the Taku River.

The District 111 sockeye harvest included and estimated 6,055 Kuthai (9%), 11,018 Trapper (16%), 14,560 Mainstem (21%), and 17,040 Tatsamenie (25%) wild fish and 570 Trapper (0.8%) and 250 Tatsamenie (0.4%) planted fish for a total Taku River contribution of 49,493 sockeye salmon (71%) (Figure 8). The remainder of the U.S. gillnet harvest included 1,784 Crescent (3%) and 500 Speel (0.7%) wild fish and 17,900 Port Snettisham hatchery fish (26%). Weekly sockeye catches were below average throughout the season. The percentage of the harvest that occurred in Taku Inlet (Subdistrict 111-32) was 68% of the total catch, compared to the 1988-1997 average of 83%. This was a reflection of the below average Taku sockeye run and the contribution of Snettisham hatchery sockeye salmon to catches in Stephens Passage.

Coho stocks harvested in District 111 include runs to the Taku River, Port Snettisham, Stephens Passage, and local Juneau area streams as well as Alaska hatchery fish. Runs of pink salmon to the Taku River and streams in Taku Inlet and Stephens Passage were good in 1998, but escapements to District 111 streams to the north of the Taku River were poor. Approximately 51% of the District 111 pink catch was made in Taku Inlet, followed by 46% in Stephens Passage (Subdistricts 111-31 and 111-20) and 4% in Port Snettisham. The catch of 296,111 chum salmon was composed almost entirely (98%) of summer chum salmon. The summer chum run is considered to last through mid-August (statistical week 33) and is composed of domestic hatchery and wild stocks. Chum salmon returning to DIPAC hatcheries in Gastineau Channel and to the Limestone Inlet remote release site contributed a major portion of the catch but quantitative contribution estimates are not available. Fall chum salmon caught in District 111 are wild fish from the Taku and Whiting Rivers.

The District 111 drift gillnet fishery was open for a total of 48 days from June 21 through September 22, 1998 (Appendix C.1). Fishing time was 5% above the 1988-1997 average. Fishing effort, as measured by the total number of boats delivering fish each week times the number of days open to fishing, totaled 3,070 boat-days, and was 89% of the 1988-1997 average.

Three days of fishing were allowed in Taku Inlet during the first three weeks of the season. Catches during these weeks were well below average. Fishing time was limited to two days per week in Taku Inlet during the period July 12-25 because mark-recapture estimates of inriver run size were declining rapidly and U.S. marine harvests were well below average (Table 3). Fishing time was increased to three days per week for the next two weeks due to improved run strength of later-migrating Taku stocks, and to four days of fishing during the final week of the summer fishing season (statistical week 33: August 9-15).

Fishing time in Stephens Passage south of Circle Point (Subdistrict 111-31) totaled 7 days more than in Taku Inlet during the summer fishing season. Extended fishing time was allowed to target hatchery chum runs to the Limestone Inlet remote release site and Snettisham hatchery sockeye runs. Lower Stephens Passage (Subdistrict 111-20) was open for four days of fishing for each of four weeks between July 26 and August 20 to allow harvest of surplus pink salmon

Port Snettisham was closed to fishing through August 15 to limit harvest rates on Crescent and Speel Lake wild sockeye runs. Portions of Port Snettisham were opened each week beginning August 16. DIPAC counted 13,358 sockeye salmon through a weir they operated on the outlet stream to Speel Lake, the third highest count in 14 years of weir operation at this site. A substantial portion (percentage not available) of the escapement was comprised of fish from Speel brood smolts that had been reared at the Snettisham Hatchery and released into Speel Lake, as evidenced by the recovery of CWT fish in the escapement. The escapement to Crescent Lake was not enumerated through a weir, but a peak aerial

survey count of 5,400 sockeye salmon and on-the-grounds observations during sampling trips indicated escapement was above 1997 levels and important spawning grounds appeared well seeded.

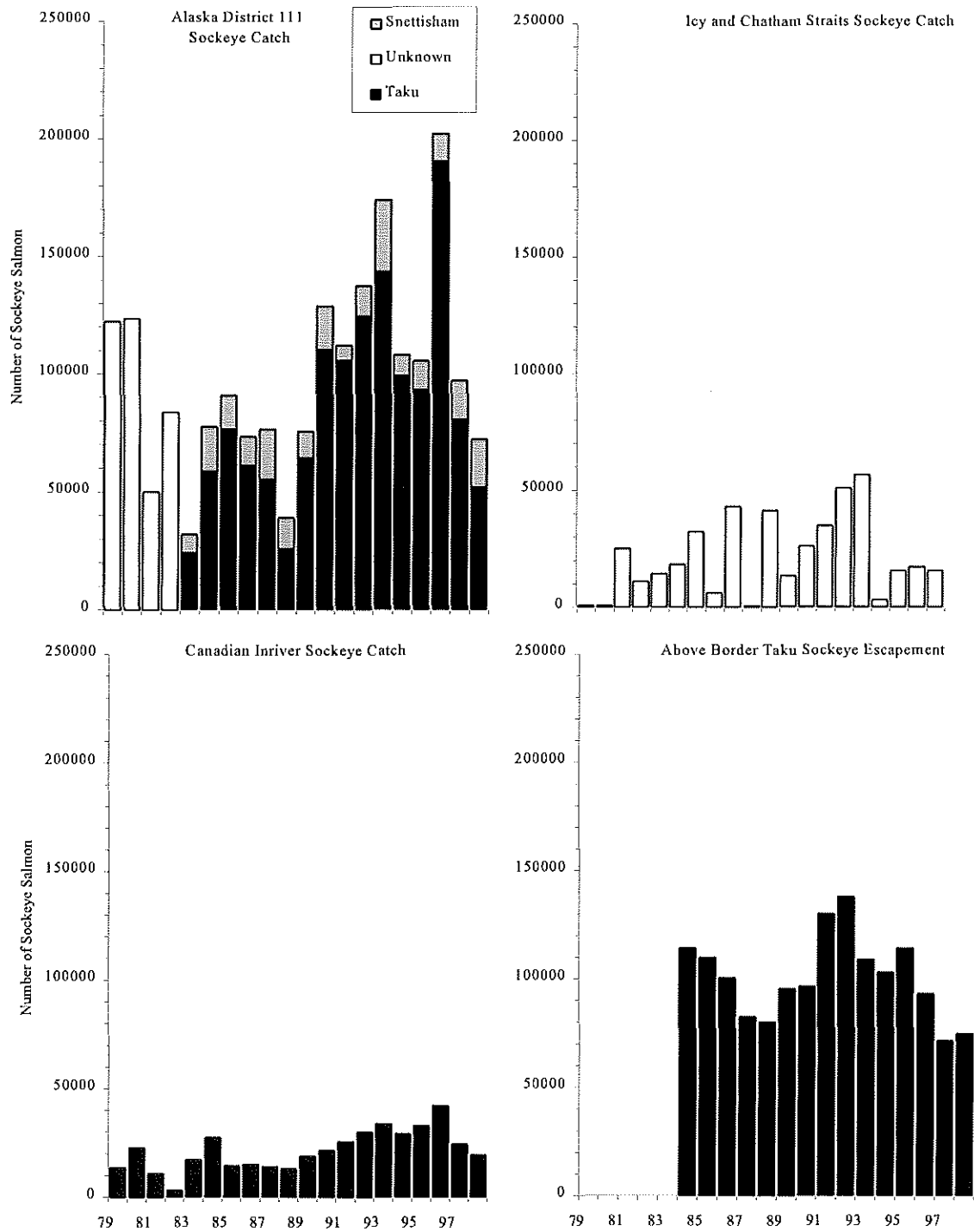


Figure 8. Sockeye catches for the Alaska District 111, the Icy and Chatham Straits, the combined Canadian commercial and food fisheries in the Taku River, and Taku sockeye escapements,

1979-1998.

Coho catches were well below average during each week of the summer fishing season. Coho catches and CPUE remained below average during the fall fishing season as well. Although inriver run strength was also below average during the fall season, projections of escapement from the mark-recapture program indicated the interim escapement goal would be met. The fall fishing season in District 111 lasted six weeks, with weekly fishing time varying between two and three days. The fishing season closed on September 22.

Table 3. U.S. inseason forecasts of total run size, inriver run size, TAC, and U.S. harvest of Taku River sockeye salmon for 1998.

Statistical	Total Above-border		U.S.		Projected
Week	Run	Run	TAC	TAC <sup>a</sup>	U.S. Harvest
26	113,288	81,546	38,288	31,396	30,242
27	187,756	146,946	112,756	92,460	39,310
28	119,080	83,782	44,080	36,146	33,798
29	113,846	81,180	38,846	31,854	31,166
30	121,680	91,321	46,680	38,278	28,859
31	125,913	88,630	50,913	41,749	35,783
32	137,549	97,681	62,549	51,290	38,368
33	145,765	103,957	70,765	58,027	41,887
Postseason	145,559	93,728	70,559	57,858	51,831 <sup>b</sup>

<sup>a</sup> U.S. TAC calculated as 82% of the total TAC.

<sup>b</sup> Postseason U.S. harvest estimate includes inriver personal use harvest.

Several other fisheries in the Juneau area harvested transboundary river stocks in 1998. Estimates of harvest in the U.S. Taku River personal use fishery are 31 chinook, 2,338 sockeye, 174 coho and 464 pink, and 4 chum salmon (Appendix D.4). The spring Juneau-area sport fishery harvested an estimated 2,339 large chinook (28 inches or longer) and 208 small chinook salmon. Almost all of the small chinook salmon were hatchery fish taken in terminal areas. Of the large fish, 1,840 (79%) were wild mature, 114 (5%) were wild immature and 385 (16%) were hatchery fish (CWT estimate). The spring chinook sport fishery CPUE in the Juneau area was the lowest since 1989. A number of stocks are thought to contribute to the sport fishery, including those from the Taku, Chilkat, and King Salmon rivers, and local hatchery stocks, but the major contributor of mature fish is believed to be the Taku River. The July Hawk Inlet shoreline purse seine fishery north of Point Marsden in Chatham Strait was not opened this year due to poor runs of early migrating pink salmon to the Juneau area.

### Canadian Fisheries

Taku River commercial fishers harvested 1,107 large chinook, 227 jack chinook (fish less than 2.3 kg), 19,038 sockeye, 5,090 coho, 2 chum and 176 steelhead salmon in 1998 (Appendix C.4). Catches of all species were below average with the exception of steelhead. The catch of large chinook salmon was 67% of the 1988-1997 average, the catch of jack chinook salmon was 16% above average, the sockeye catch was 71% average, and the coho catch was 92% of average, (Appendix D.5). A total of 42 days was fished, 7% above the 1988-1997 average. The above average fishing time was reflective of the existence

of a fall fishery, which in many previous years had been curtailed by Treaty restrictions. However, the seasonal fishing effort of 299 boat-days was 87% of the 1988-1997 average.

The Canadian commercial catch was composed of 4,279 Kuthai (23%), 3944 wild Trapper (21%), 533 planted Trapper (3%), 4,829 mainstem (25%), 5,397 wild Tatsamenie (28%), and 56 planted Tatsamenie fish (0.3%)(Appendices C.5, C.6, D.6)

In addition to the commercial catches, 60 chinook and 237 sockeye salmon were harvested in the aboriginal fishery in 1998. The 1988-1997 average catches in the Taku aboriginal fishery include 53 chinook, 205 sockeye, 86 coho, 1 chum salmon, and 2 steelhead salmon (Appendix D.7). There have been no Canadian test fishery catches since 1993 (Appendix D.8).

The Taku River Tlingit First Nation (TRTFN), in co-operation with DFO, conducted a creel census on the Nakina River in 1998. Data analyses are not yet complete; however, the total harvest appeared to be less than 100 chinook salmon.

The Canadian preseason forecast was for a run of approximately 238,100 sockeye salmon, which was the average of a sibling-based forecast of 223,900 sockeye salmon and a forecast of 252,300 fish based on stock-recruitment data. The point estimate was 2% above the 1988-1997 average run of 233,307 sockeye salmon. The preseason forecast was used to guide weekly management actions for the first three weeks of the season; thereafter, inseason forecasts based on the joint Canada/U.S mark-recapture program at Canyon Island were used.

The commercial fishery commenced at noon on Sunday, June 14 (statistical week 25) for a scheduled opening of two days and remained open for two days per week through week 26. The commercial sockeye CPUE was above average in week 26 as were the Canyon Island fishwheel catches but concern over low water levels kept the opening to 48 hours.

Fishing time was increased to three days in week 27, from June 28-30. Commercial sockeye CPUE remained above average and the peak sockeye catch of the season in the Canyon Island stock assessment fishwheels was recorded on June 30. The combined fishwheel catch of 183 sockeye salmon was a record catch for this date and was 2.8 times the 1984-1997 average. Total escapement projections generated at the end of week 27 based on the joint Canada/US Taku mark-recapture program, ranged upward from 117,000 fish, well above the target of 71,000 to 80,000 sockeye salmon.

Based on the apparent above average sockeye run strength in the preceding week, the fishery opened for three days in week 28 from July 05-07. However, a significant decrease in sockeye abundance was noticeable in both the inriver commercial fishery and the Canyon Island fishwheels. The commercial sockeye CPUE dropped to 64% of the 1988-1997 weekly average value of approximately 81 sockeye/fisher/day, and the Canyon Island fishwheel catches remained well below long term daily averages for all but one day during this week. The low inriver sockeye abundance resulted in a sharp decrease in the projected escapement, which dropped to a range of 67,800 to 109,200 fish (Table 4).

Below average run indicators and declining escapement projections in week 28 prompted a reduction in fishing time in week 29 to 48 hours. Although the commercial sockeye CPUE increased to approximately 80 sockeye/boat/day, it was still 20% below average. Canyon Island fishwheel catches also improved marginally but were mostly below daily averages.

With no improvement in the escapement forecast in week 29, the fishery opening the following week remained at two days. The sockeye catch rate in the commercial fishery reached the highest level of the season in week 30, i.e. 145 sockeye/fisher/day compared to an average value of 112 s/f/d. Fishing time was not extended in week 30 due to concerns over escapement and the continued below average fishwheel catches at Canyon Island.

The above average commercial sockeye CPUE observed in week 30 was not sustained in week 31. With a CPUE 40% below average, the fishery was closed after two days of fishing (July 26-28). Forecasts produced at the end of this week indicated a total escapement projection of 81,000 to 96,000 sockeye salmon. The Tulsequah flood occurred at the end of week 31 and the high water and debris loading hampered fishing conditions for first day of fishing in week 32. Although the opening was initially posted for two days, fishing time was extended by 36 hours in response to above average sockeye and coho CPUE and the improved sockeye escapement outlook from the previous week. Catches of both sockeye and coho salmon peaked during this opening.

Sockeye catches decreased sharply in week 33 prompting a fishery closure after 48 hours. The commercial CPUE dropped to 25% below average; Canyon Island fishwheel catches were also below average. After week 33, the commercial sockeye CPUE continued to be below average. The final inseason forecast, computed in week 35, indicated a total run size of 160,500 to 164,200 fish and a projected total escapement of 74,400 to 76,100 sockeye salmon (Table 4).

Table 4. Canadian inseason forecasts of total run size, total allowable catch (TAC), and spawning escapement of Taku sockeye salmon, 1998.

Week	Total Run		TAC		Escapement	
	Lower	Upper	Lower	Upper	Lower	Upper
25	238,100	238,100	163,100	163,100	71,000	80,000
26	238,100	238,100	163,100	163,100	71,000	80,000
27	156,383	308,800	81,383	233,800	117,012	230,928
28	109,506	176,359	34,506	101,359	67,797	109,186
29	114,248	160,298	39,248	85,298	69,931	98,118
30	135,694	179,202	60,694	104,202	80,561	106,392
31	133,635	162,087	58,635	87,087	76,547	92,845
32	159,772	190,087	84,772	115,087	80,808	96,140
33	158,159	188,168	83,159	113,168	81,588	90,756
34	159,446	167,057	84,446	92,057	74,726	78,294
35	160,451	164,208	85,451	89,208	74,359	76,100

The cumulative commercial sockeye CPUE over the season from week 26 to week 40 totaled 730 sockeye/fisher/day, 11% below the 1988-1997 average of 823 sockeye/fisher/day. Run timing appeared to be normal in 1998. Three distinct peaks occurred in the fishery, one in week 27, the largest in week 30, and a final peak in week 32.

Fishing times increased to 2.5 days in week 34, 3 days in week 35 and 4 days in week 36 to target coho salmon. During these three weeks, the number of fishers declined from twelve fishers in week 34, to four fishers in week 36. Weekly coho catches were below average and although the coho price was up over recent years, volumes were uneconomic for most fishers and buyers. No one fished in week 37 due to the lack of a buyer on the river. Thereafter through the end of the season, fishing time was increased to seven days/week commencing statistical week 38 (September 13-19) to provide incentive and



flexibility for the remaining fisher to fish coho salmon. Both DFO and ADF&G wished to have some fishing effort present in the river to provide crucial information regarding the inriver run size of Taku coho salmon. Although the fishery was open continuously, the number of days fished in weeks 38 to 40 declined from seven days in week 38, to three days in week 39 and one day in week 40.

The total season catch of coho salmon was 5,090 fish, 91% of the 1988-1997 average of 5,582 fish and the cumulative coho CPUE through week 40 was 85% of average. Run timing appeared to be normal. The strength of the early part of the run, through week 33, appeared to be above average, whereas, after the middle of August, run strength appeared to be average to below average.

Inriver coho run forecasts were generated through week 35 and ranged from 47,000 in week 34, to 57,000 in week 33. Escapement projections associated with the forecasts all exceeded the upper end of the interim escapement goal range of 27,500 to 35,000 coho salmon.

As in recent years, both set and drift gill netting techniques were utilized with the majority of the catch taken in drift gillnets. Mesh sizes were restricted to less than 150m through July 12 to minimize the incidental catch of chinook salmon. In addition to the gillnets, one fishwheel was in operation.

## **Escapement**

### **Sockeye**

Spawning escapement of sockeye salmon in the Canadian portion of the Taku River drainage is estimated from the joint Canada/U.S. mark-recapture program. Counting weirs operated by DFO at Little Trapper and Tatsamenie Lakes provide information on the distribution and abundance of discrete spawning stocks within the watershed. Additional sockeye enumeration programs were conducted at Kuthai Lake and the Nahlin River by the TRTFN in 1998.

A mark-recapture program has been operated annually from 1984 to 1998 to estimate the above-border run size (Appendices C.7, D.9). Spawning escapement may then be estimated by subtracting the inriver catch. The 1998 estimate of the border run is 93,728 sockeye salmon and the spawning escapement is estimated at 74,453 fish (Table 5). This spawning escapement is 73% of the 1987-1998 average (Appendix D.9), but is within the interim escapement goal range of 71,000 to 80,000 sockeye salmon.

The escapement through the Little Trapper Lake weir was 8,717 sockeye salmon, 72% of 1988-1997 average (Appendices C.9, D.10). Prior to 1995, weir counts for the Tatsamenie system were made at Little Tatsamenie Lake and included fish which spawn between Little Tatsamenie and Tatsamenie Lakes as well as fish which spawn in Tatsamenie Lake and its outlet stream. In 1995 the weir was moved upstream to Tatsamenie Lake. The escapement count through the Tatsamenie Lake weir in 1998 was 5,997 sockeye salmon (Appendix C.8). To be comparable with earlier spawning estimates, it needed to be expanded to represent the entire Tatsamenie system. In 1994 weirs were operated at both Little Tatsamenie and Tatsamenie Lakes; approximately 40% of the fish counted at the Little Tatsamenie weir did not migrate as far as the upper weir site at Tatsamenie Lake. Since this was from only one year and appears to be high, the upper Tatsamenie estimate was expanded by 1/0.8 rather than 1/0.6. The resulting escapement to the entire Tatsamenie system, is 7,496 fish. A total of 1,262 sockeye salmon was taken for brood stock leaving a spawning escapement of 6,234 sockeye salmon for 1998. ). The sockeye count through the Nahlin weir was 345 fish (Appendix C.10), the third lowest since counts were started in 1988 and 19% of the average. The sockeye count through the Kuthai Lake weir was 1,934 fish

(Appendix C.11), the second lowest recorded in the 1992-1997 period for the weir and 44% of the average count (Appendix D.10).

### **Chinook**

Aerial surveys of large chinook salmon (three-ocean and larger) to the six escapement index areas annually surveyed by ADF&G were as follows: Nakina, 2,720 fish; Kowatua, 473 fish; Tatsamenie, 675 fish; Dudidontu, 807 fish; Tseta, 360 fish; and Nahlin, 1,260 fish (Appendix D.11, Figure 9). The total of 6,295 large chinook salmon observed was 54% of the 1988-1997 average and the lowest recorded during that period. The interim index escapement goal for the combined six index areas of the Taku drainage is 13,200 large chinook salmon. A total of 1,448 chinook salmon was counted through the Nahlin River weir (Appendix C.10). The number of chinook carcasses counted at the Nakina River weir in 1998 was 656 fish, a poor showing of 137 females was observed (Appendix C.12). A chinook mark-recapture study was again conducted in 1998. The estimated above border escapement was 31,039 large chinook salmon.

### **Coho**

Spawning escapement of coho salmon in the Canadian portion of the Taku drainage was estimated from the joint Canada/U.S. mark-recapture program. Tag application and tag recovery occurred through statistical week 40 (September 27 to October 3). The above border run was estimated to be 66,472 fish and the spawning escapement was estimated at 61,382 fish (Appendices C.7, D.12). The spawning escapement is 87% of the 1988-1997 average but is above the interim escapement goal of 27,500 to 35,000 coho salmon. Escapement counts to other Taku spawning locations were below average (Appendix D.13).

### **Pink**

A total of 23,347 pink salmon was counted at the Canyon Island fish wheels in 1998 (Appendix D.14), which is 69% above the 1988-1997 average. There was no program in place to estimate the escapement of pink salmon to the Taku River in 1998.

### **Chum**

There was no program in place to estimate the system-wide escapement of Taku chum salmon. Low catch and CPUE information from the Canyon Island fish wheels and inriver commercial fishery (Appendix D.5) indicated that there was a below average chum run in 1998. A total of 179 chum salmon were captured in the fish wheels, which is 32% of the 1988-1997 average (Appendix D.14).

The Taku River fall chum run has continually declined since 1989. It is unlikely that the spawning escapement goal of 50,000 to 80,000 chum salmon was achieved.

### **Steelhead**

There was no program in place to estimate the system-wide Taku steelhead escapement. An escapement goal has not been set for this species.

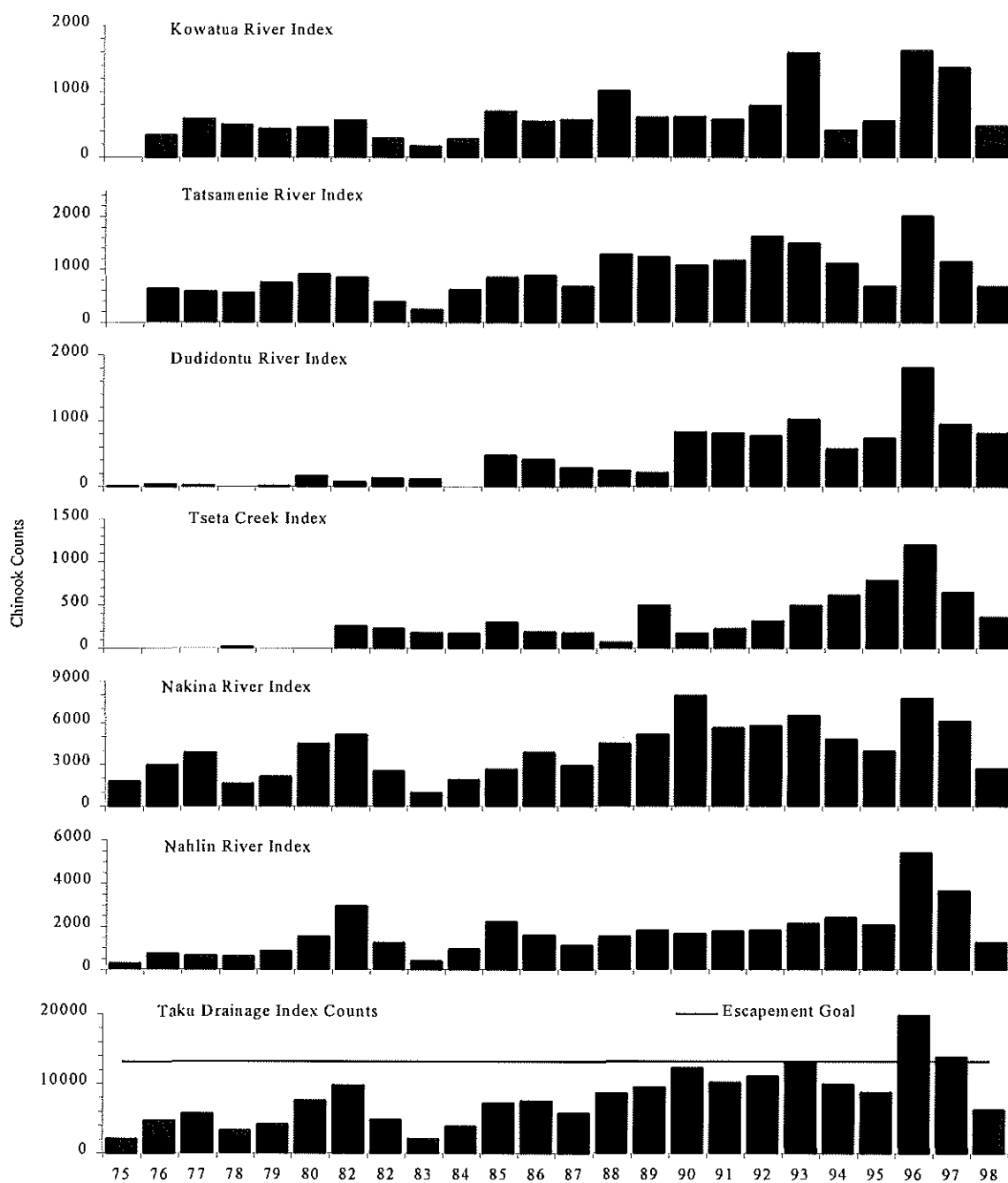


Figure 9. Taku River chinook index escapement counts, 1975-1998.

### Sockeye Run Reconstruction

The harvest of 48,673 wild Taku sockeye salmon in the District 111 fishery (Table 5) was estimated with scale pattern and brain parasite analysis. The estimate of 570 planted Trapper Lake and 250 planted Tatsamenie Lake sockeye salmon in the District 111 catch was based on expansion of thermally marked sockeye recovered in District 111 fishery samples. An additional 2,338 sockeye salmon were estimated to have been harvested in the U.S. inriver personal use fishery. The estimated total U.S. harvest of Taku sockeye salmon is 51,831 fish (Table 5).

The preliminary estimate of the magnitude of the above-border sockeye run in 1998, based on the joint Canada/U.S. mark-recapture program, was 93,728 fish. Subtracting the Canadian inriver catch of 19,275 sockeye salmon in the commercial and aboriginal fisheries from the border run estimate results in a border escapement estimate of 74,453 fish.

The run size, estimated by summing the U.S. harvest and the border run, was 145,559 sockeye salmon, 62% of the 1988-1997 average (Appendix D.9). Based on the escapement goal range of 71,000 to 80,000 fish, the TAC was 65,559 to 74,559 sockeye salmon, of which the U.S. harvested 70% to 79% and Canada harvested 26% to 29% (Table 5). The overall exploitation rate was estimated to be 49% in 1998.

Table 5. Taku sockeye salmon run reconstruction, 1998. Estimates do not include spawning escapements below the U.S./Canada border or Taku sockeye salmon harvested in marine areas outside District 111.

	Taku	Snettisham Stocks
Escapement	74,453	Not Available
Canadian Harvest		
Commercial		
Wild	18,449	
Planted	589	
Food Fishery	237	
Total	19,275	
% Harvest	27.1%	
Test Fishery Catch	0	
Above Border Run	93,728	
U.S. Harvest		
District 111		
Wild	48,673	2,284
Planted	820	17,900
Personal Use	2,338	
Total	51,831	
% Harvest	72.9%	
Test Fishery Catch	0	
Total Run	145,559	
Taku Harvest Plan	Minimum	Maximum
Escapement Goal	71,000	80,000
TAC	74,559	65,559
Canadian portion	25.9%	29.4%
U.S. Portion	69.5%	79.1%

## ALSEK RIVER

Alsek River salmon stocks contribute to the U.S. commercial gillnet fisheries located in Dry Bay, at the mouth of the Alsek River (Figure 10). Unknown quantities of Alsek origin fish are also taken in the U.S. commercial gillnet and troll fisheries in the Yakutat area. No commercial fishery exists in the Canadian portions of the Alsek River drainage, although aboriginal and recreational fisheries occur in the Tatshenshini River and some of its headwater tributaries (Figure 10).

### Harvest Regulations & Management Objectives

Although catch sharing of Alsek salmon stocks between Canada and the U.S. has not been specified, Annex IV does call for a cooperative attempt to rebuild depressed chinook and early-run sockeye stocks. Interim escapement goal ranges for Alsek sockeye and coho salmon were initially set by the TTC at 33,000 to 58,000 sockeye salmon, and 5,400 to 25,000 coho salmon. However, stock assessment projects to determine system-wide escapements have not yet been developed. Instead, the principle escapement monitoring tool for chinook, sockeye, and coho stocks on the Alsek River is the Klukshu weir, operated by DFO and the Champagne-Aishihik First Nation. The weir is dismantled during the coho run, and thus does not represent a total count of coho escapement into the river. The weir has been in operation since 1976. To make the management objectives of chinook and sockeye salmon better defined in terms of Klukshu stocks, revised goals, expressed in terms of Klukshu stocks only, were tentatively established for 1998.

The initiative to establish a specific Klukshu chinook spawning escapement goal began in 1991 when the TTC set an interim spawning objective of 4,700 Klukshu chinook salmon. This goal was based more on manager's intuition than on science. From 1995 through 1997, the TTC reviewed this escapement level and concluded that goal of 4,700 chinook salmon was not supported by the data. A new goal of 1,100 to 2,300 chinook salmon was proposed based on joint analyses of stock-recruitment data. The Parties conducted independent internal reviews of the analyses. Although there was not unanimous support for the proposal, there was agreement on establishing a minimum goal consistent with the lower end of the proposed range. As a result, Canadian and U.S. managers agreed to a minimum spawning escapement goal of 1,100 chinook salmon for the Klukshu system for the 1998 season. Recognizing that some harvesting would occur upstream from the weir, managers also agreed to establish a minimum weir count objective of 1,500 chinook salmon for 1998.

The stock-recruitment analyses of Klukshu sockeye data have not yet been completed nor has it undergone internal peer review. The analysis is following the same general methodology as was used for the chinook data. Analyses conducted by the TTC prior to the 1998 season resulted in establishing the following interim management objectives for 1998: a) for the early sockeye run, i.e. sockeye salmon migrating through the weir prior to August 15, a minimum spawning goal of 2,000 sockeye salmon; and b) for the late run, the minimum goal of 8,500 was established. Minimum weir count objectives were 4,000 early, and 11,500 late, run sockeye salmon. These targets were to be considered interim only and subject to further revision upon completion of the analyses and peer review.

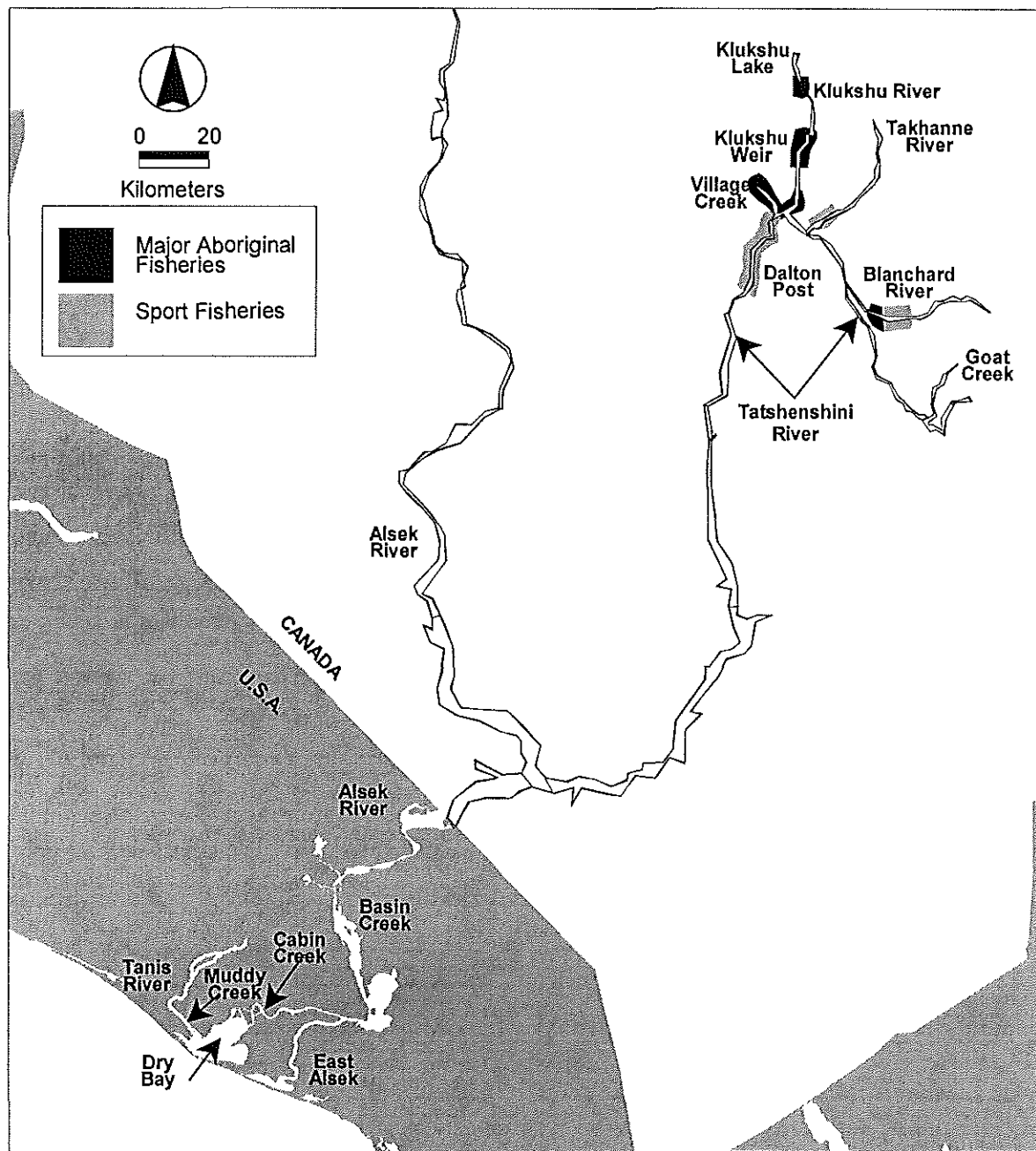


Figure 10. The Alsek River and principal Canadian aboriginal and sport fishing areas.

### **Preseason Forecasts**

Based on the above average parent-year early-run (<August 15) sockeye escapements to the Klukshu River in 1993 (5,200 sockeye salmon) and 1994 (3,000 sockeye salmon), an above average early sockeye run was expected in 1998. The late run escapements in 1993 (9,400 sockeye salmon) and 1994 (10,400 sockeye salmon), although below average, were close to the optimum level as determined from preliminary stock-recruitment analysis. As a result, the late run was also expected to return at above average levels.

Klukshu chinook escapements in 1993 and 1994, 3,200 and 3,600 fish, respectively, were above average. However, the escapements were also above the optimum escapement range of 1,100 to 2,300 chinook salmon as determined from stock-recruitment analysis. As a result, the chinook run to the Alsek River was expected to be average to slightly below average.

The coho escapements observed at the Klukshu River in 1994 (1,200 coho salmon) and 1995 (3,600 coho salmon) suggested the run in 1998 would be about average. The 1988-1997 average weir count was 2,400 coho salmon.

### **U.S. Fisheries**

The Dry Bay commercial set gillnet fishery harvested 550 chinook, 15,007 sockeye, 4,925 coho, 1 pink, and 145 chum salmon (Appendix E.1, Figure 11). The chinook harvest was 36% of the 1988-1997 average of 405 fish. The sockeye harvest was 80% of the average of 18,751 fish and the coho harvest was 85% of the average of 5,799 fish. The fishery was open for 41 days, 89% of the 1988-1997 average (Appendix E.4). The majority of fishing time (23 days) occurred late in the season (late August through early October) after the sockeye run had largely passed through the fishery. The total effort expended in the fishery was 399 boat-days, 84% of the 1988-1997 average.

The Alsek River was opened to commercial fishing during statistical week 23, the first Monday in June (June 1). The initial opening was limited to 24 hours in order to evaluate chinook and sockeye run strengths. Fishery performance indicated that the chinook and sockeye harvests were below expected levels and fishing time was not extended. The CPUE was below average during the second week of the season and fishing time was again limited to 24 hours. Fishing time remained at 24 hours during the third week (statistical week 25; June 14-20) of the season because CPUE remained below average. Fishing time was increased to 72 hours for statistical weeks 26 and 27, 24 hours for week 28, and 48 hours for week 29. Due to below average sockeye escapement at the Klukshu weir fishing periods were limited to 24 hours for weeks 30 through 35 even though CPUE was well above average for some of those weeks.

Historically, a set gillnet fishery targeting on chinook salmon was conducted during May and early-June. Due to depressed runs, the directed fishery has been closed since 1962 and chinook salmon have only been harvested incidentally during the sockeye fishery in early June. From 1962 through 1997, the early June periods were limited in time in order to reduce the impact on chinook salmon. With the advent of the new chinook escapement goal concern for incidentally caught chinook salmon has diminished so the management of the early June periods was based on sockeye CPUE. Gillnet mesh size was restricted to a maximum of six inches through July 1. Approximately 84% of the chinook catch (462 fish), was taken during the first three weeks of the season.

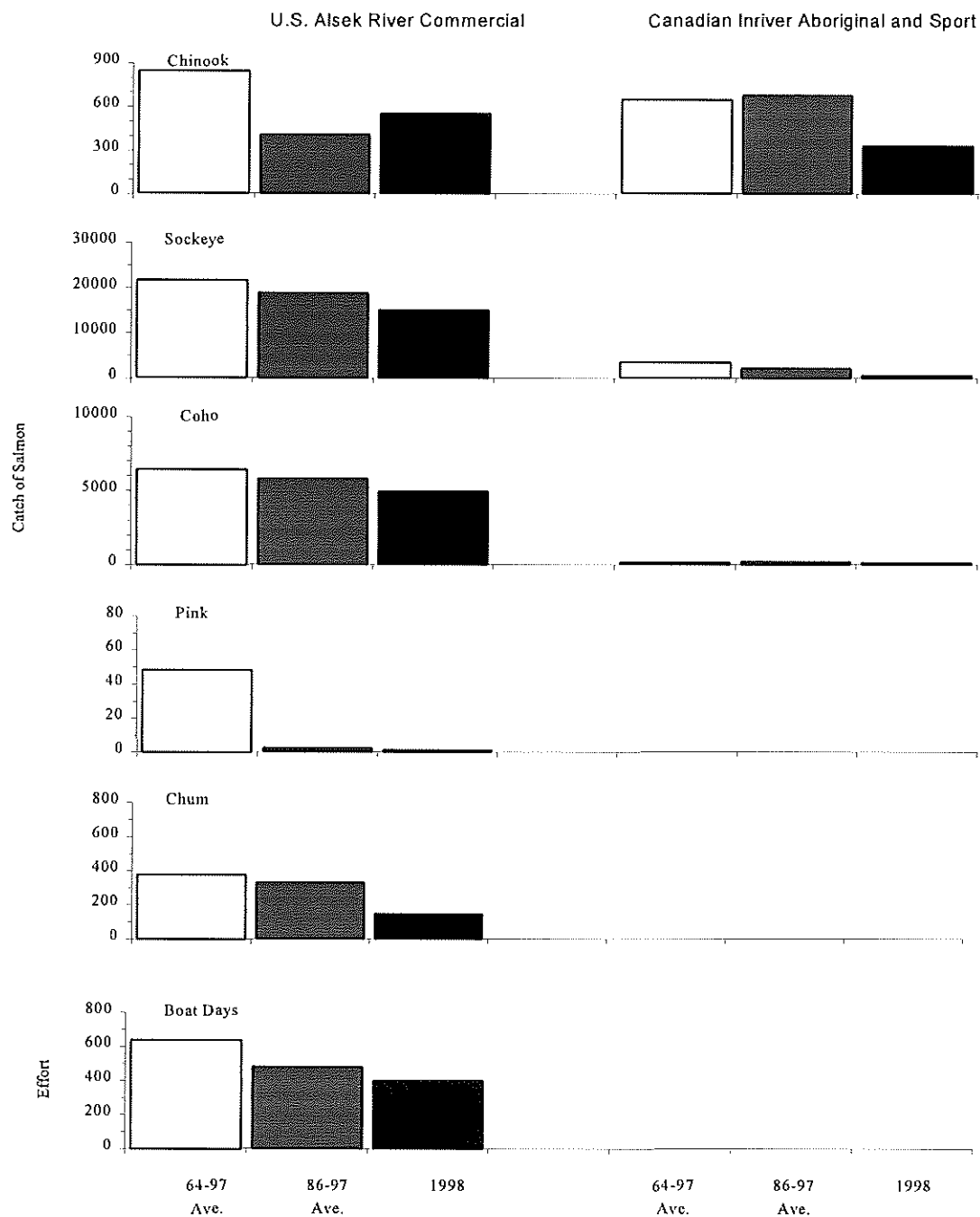


Figure 11. Average catches and fishing efforts compared with 1998 values for the U.S. Alsek River commercial fishery and the Canadian aboriginal and sport fisheries in the Alsek River.



The majority of the Alsek sockeye harvest (80%, 12,098 fish) was taken in the river, with the remainder of the catch coming from the surf area. Adjustments to the weekly fishing periods during the sockeye season relied heavily on fishery performance data; the decision of whether or not to extend any given period was initially based on catch and CPUE figures gathered inseason during that particular period. From week 30 through 35 management was based on Klukshu weir sockeye counts. The Alsek management model was not used this year as a management tool because of unreliable run estimates produced in recent years. The management model had used multiple regression analysis of fishery catch and effort data to generate weekly projections of the U.S. Alsek River catch, the Klukshu River escapement, and total index run size (U.S. catch + Klukshu weir count). Model results tended to get more accurate as the season progressed; early season projections were of limited use for management purposes. In 1996 and 1997, model projections were inaccurate and resulted in underestimates of catch and overestimates of escapement.

The coho escapement at Klukshu weir was well above average early in the season and fishing periods ranged from 3 to 5 days during weeks 35 through 41. Effort was minimal during the weeks 40 and 41 due to the closure of Sitka Sound Seafood's processing plant in Dry Bay.

### **Canadian Fisheries**

The aboriginal fishery harvested an estimated 154 chinook, 567 sockeye, and 72 coho salmon. The chinook catch was 54% of the 1988-1997 average and the sockeye catch 32% of average and the second lowest on record. The coho catch was 4.7 times the 1988-1997 average. Weekly catches and annual comparisons appear in Appendices E.2, E.6.

Catches in the recreational fishery were also below average with an estimated 175 chinook, 18 sockeye, and 40 coho salmon harvested. The chinook catch was 45% of the 1988-1997 average, the sockeye catch was 5% of average and the lowest on record, and the coho catch was 25% of average. The catch data was derived from a creel census program conducted in the Dalton Post area by the Klukshu weir personnel. Weekly estimates and annual comparisons are listed in Appendices E.2, E.6.

Management of salmon in the Yukon is a shared responsibility between the Department of Fisheries and Oceans Canada (DFO) and the Yukon Salmon Committee (YSC). The YSC was established in 1995 pursuant to the Comprehensive Land Claim Umbrella Final Agreement between the Government of Canada, the Council for Yukon Indians and the Government of the Yukon. The Committee is a public board consisting of ten members, 70% of which are appointed by Yukon First Nations. Two Champagne-Aishihik First Nation (CAFN) members sit on the YSC. Although the Committee currently operates by consensus, the voting structure of the Committee is organized so that, should a vote be necessary, 50% of the votes reside with appointees of Yukon First Nations.

The 1998 Alsek-Tatshenshini management plan, adopted by CAFN, YSC, and DFO, was based on the objectives described in the *Harvest Regulations & Management Objectives* section above. For chinook and early sockeye management, the status of the Klukshu weir counts was to be reviewed on July 15 to ensure weir and spawning escapement targets were on track. The status of the late sockeye run would be reviewed at the end of August. Adjustments to inseason fishing regimes in the sport and aboriginal fisheries would be made if deemed necessary. Other key elements of the plan are described below.

The centre of aboriginal fishing activity in the Alsek drainage occurs at the Champagne/Aishihik First Nation village of Klukshu, on the Haines Road, about 60 km south of Haines Junction. Salmon are harvested by means of gaff and traditional fish traps as the fish migrate up the Klukshu River into Klukshu Lake. Gaff fisheries also exist on Village Creek and in the headwaters of the Tatshenshini River and tributaries thereof (Goat Creek, Stanley Creek, Parton River, and the Blanchard River). The fishing plan for the aboriginal fishery for the period prior to August 15 allowed fishing by means of fish traps for 2 days per week. After August 15, it was planned that the traps would be fished 3 days per week. The plan did not restrict the gaff fishery other than to reserve Goat Creek, Stanley Creek, and the Parton River for elders only.

The majority of the sport fishing effort on this drainage occurs on the Tatshenshini River, at and just downstream of the mouth of the Klukshu River in the vicinity of the abandoned settlement of Dalton Post. The management plan prohibited the retention of sockeye salmon in the recreational fishery prior to August 15 to protect early runs. The chinook daily catch limit was two fish, only one of which could be over 45 cm. The overall possession limit for salmon was four, of which only two could be chinook salmon greater than 45 cm in length. Sport fishing in the Dalton Post area was initially to be open from 6:00 am Saturday to 12:00 noon Tuesday each week. Headwater areas upstream of the British Columbia/Yukon border were to be closed for the season to protect spawning chinook salmon.

The stock status review conducted on July 15 raised conservation concerns for both chinook and early sockeye salmon: the chinook count to date was 78% below average and the sockeye count was 97% below average. Projections, based on weir counts to date and historic timing data, suggested that the weir objectives for chinook and early run sockeye salmon were not likely to be achieved. However, projections made in mid-July are very sensitive to run timing. There was some indication from the Alsek-Tatshenshini chinook radio telemetry project that the chinook run timing was late. All but one of the radio tagged fish were distributed in the Tatshenshini River downstream from the Klukshu River. It was decided that a further review would be conducted on July 22 to see if the runs improved.

By July 21, the weir counts had shown only marginal improvements over the previous week. Chinook and sockeye numbers were still 77% and 95% below respective long-term averages. Projected weir counts for the season continued to fall below the minimum targets established in the management plan. As a result, the salmon sport fishery at Dalton Post was closed at noon July 21. This was followed by a complete closure of sport fishing in the Tatshenshini drainage effective 0600 h July 25. The sport fishing closure remained in effect through September 18. On September 19, a limited sport fishery was opened to target coho salmon for two days/week in the Tatshenshini River upstream from its confluence with the Klukshu River. On September 26, this area was opened seven days per week and on October 16, the Tatshenshini River was opened downstream from its confluence with the Klukshu River.

CAFN also imposed significant closures in the aboriginal fishery. On July 24, the lower Klukshu River was closed downstream of the weir and fishing time for sockeye salmon upstream from the weir was restricted to two days per week. On July 31, the CAFN voluntarily agreed to close all fishing in the Klukshu River and the sockeye fishery in Village Creek was reduced to two days/week. This closure remained in effect through September 17. On September 18, the aboriginal fishery opened in all areas for seven days/week for coho salmon. A voluntary closure on sockeye salmon in the Klukshu River was still in effect. Commencing September 25, the sockeye fishery in the Klukshu was open three days/week. The closures in the aboriginal fishery seriously impacted CAFN fishers in 1998.

## **Escapement**

It is currently not possible to accurately assess whether the system-wide escapement goals for Alsek chinook, sockeye, and coho salmon are being met because total drainage enumeration programs are not established. A large, but unknown, and presumably variable proportion of the escapement of each species is enumerated at the weir on the Klukshu River (Appendices E.3, E.7, Figures 12-14). Current escapement monitoring programs including the Klukshu weir, Village Creek electronic counter, and aerial surveys do, however, allow annual comparisons of escapement indices (Appendices E.8-E.10). The most reliable comparative escapement index for Alsek drainage salmon stocks is the Klukshu River weir count

### **Sockeye**

The 1998 weir count and escapements of Klukshu sockeye salmon were 13,591 and 13,580 fish, respectively (Table 6). The early-run (count through August 15) of 597 fish was 16% of the 1988-1997 average of 3,754 fish and the late-run count of 12,994 fish was 98% of the average of 13,238 sockeye salmon (Appendix E.7). The estimated Village Creek sockeye escapement was 826 fish, which is 17% of the 1988-1997 average of 4,932 fish (Appendix E.8). A count of 110 sockeye salmon in the Tanis River was below the 1988-1997 average of 893 fish (Appendix E.8). No other streams on the U.S. side of the border were surveyed for sockeye salmon in 1998.

### **Chinook**

The chinook count and escapements at Klukshu weir were 1,364 and 1,347 fish, respectively and were 46% and 47% of the 1988-1997 averages (Figure 13, Appendix E.7). The 1998 count was within the revised interim escapement goal of 1,100 to 2,300 Klukshu chinook salmon. The aerial survey count of 136 chinook salmon in the Takhanne River was 62% of the 1988-1997 average of 220 fish. An aerial count of 79 chinook salmon at the Blanchard River was 32% of the average of 244 chinook salmon. A total of 39 chinook salmon was observed at Goat Creek, 2% above the average of 38 fish. (Appendix E.9). An aerial survey count of Klukshu chinook salmon was not conducted in 1998. A chinook salmon mark recapture experiment was conducted in 1998. A total of 307 chinook salmon caught near the mouth of the Alsek River were tagged. Tagged fish were recovered from the Klukshu River weir, Blanchard River, and Goat Creek. The total estimated spawning escapement was 20,200 fish. Klukshu chinook salmon accounted for approximately 19% of the total Alsek escapement

### **Coho**

The Klukshu weir count of 1,961 coho salmon (Table 6) was 80% of the 1988-1997 average count of 2,440 fish (Table 6, Appendix E.7). The weir is removed prior to the completion of the coho run and does not include fish that migrate after mid-October. (Figure 14, Appendix E.10). Poor weather conditions hampered aerial surveys of U.S. tributaries and made it impossible to obtain accurate escapement counts for the streams.

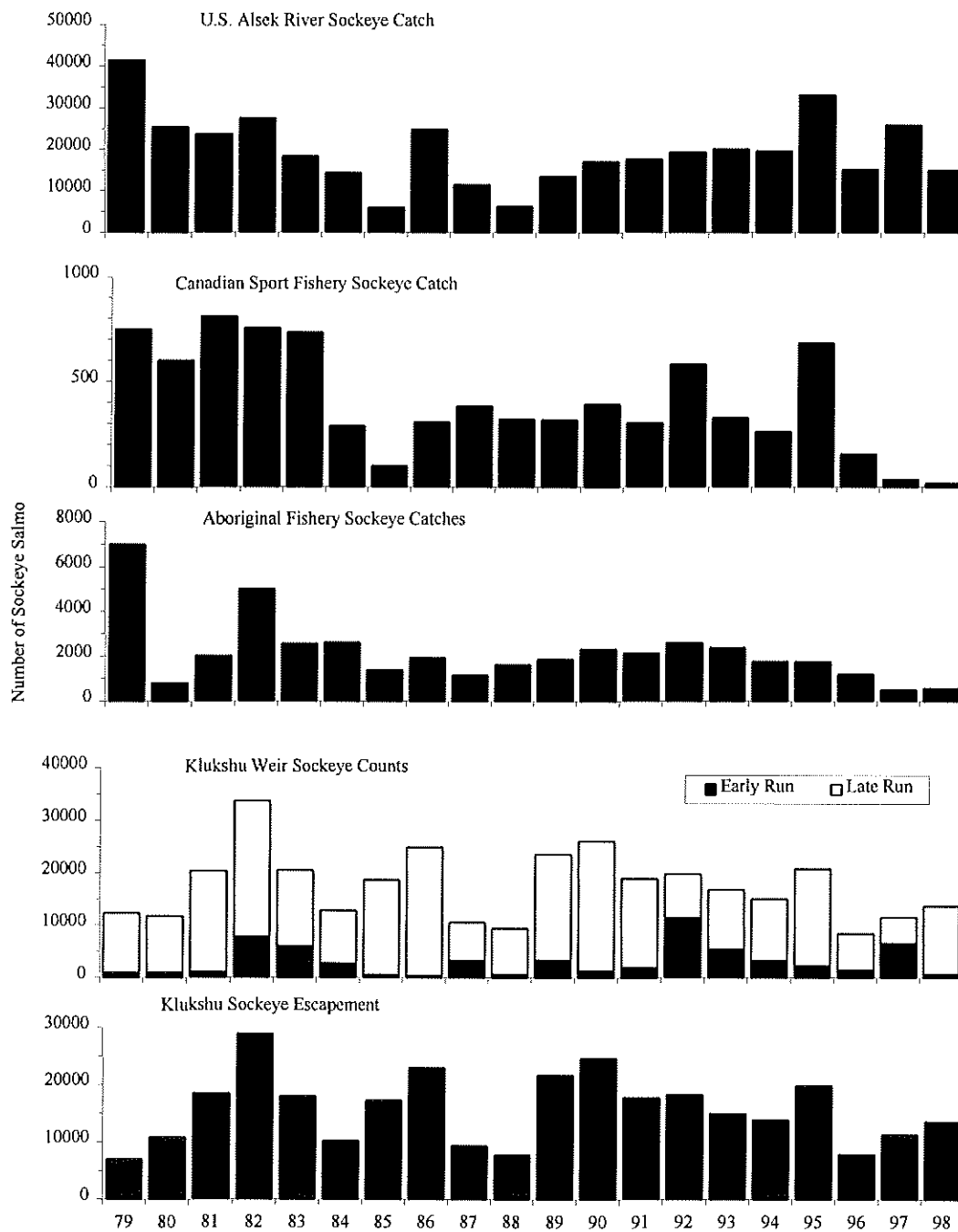


Figure 12. Alsek sockeye catches and weir counts, 1979-1998

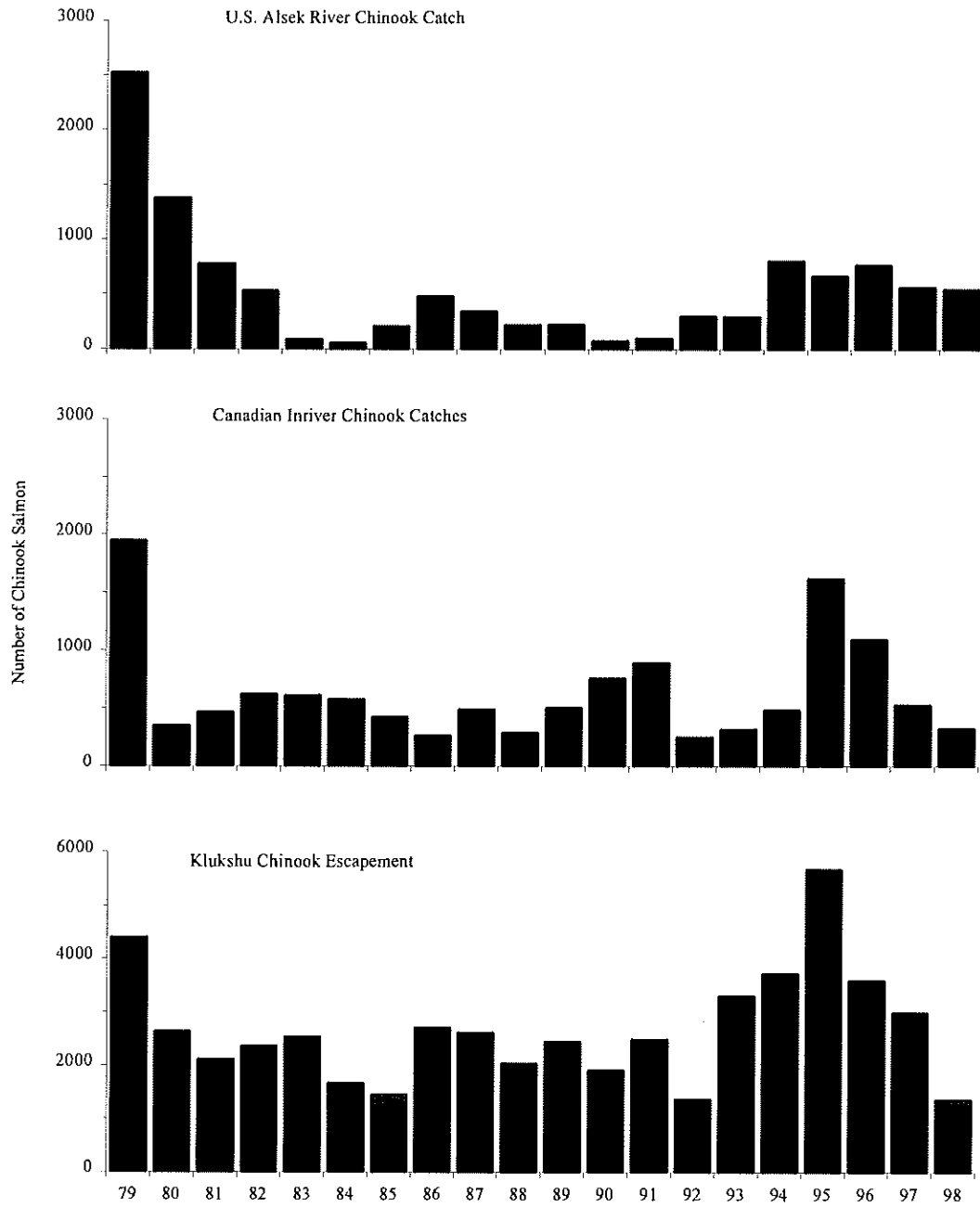


Figure 13. Alsek chinook catches and weir counts, 1979-1998.

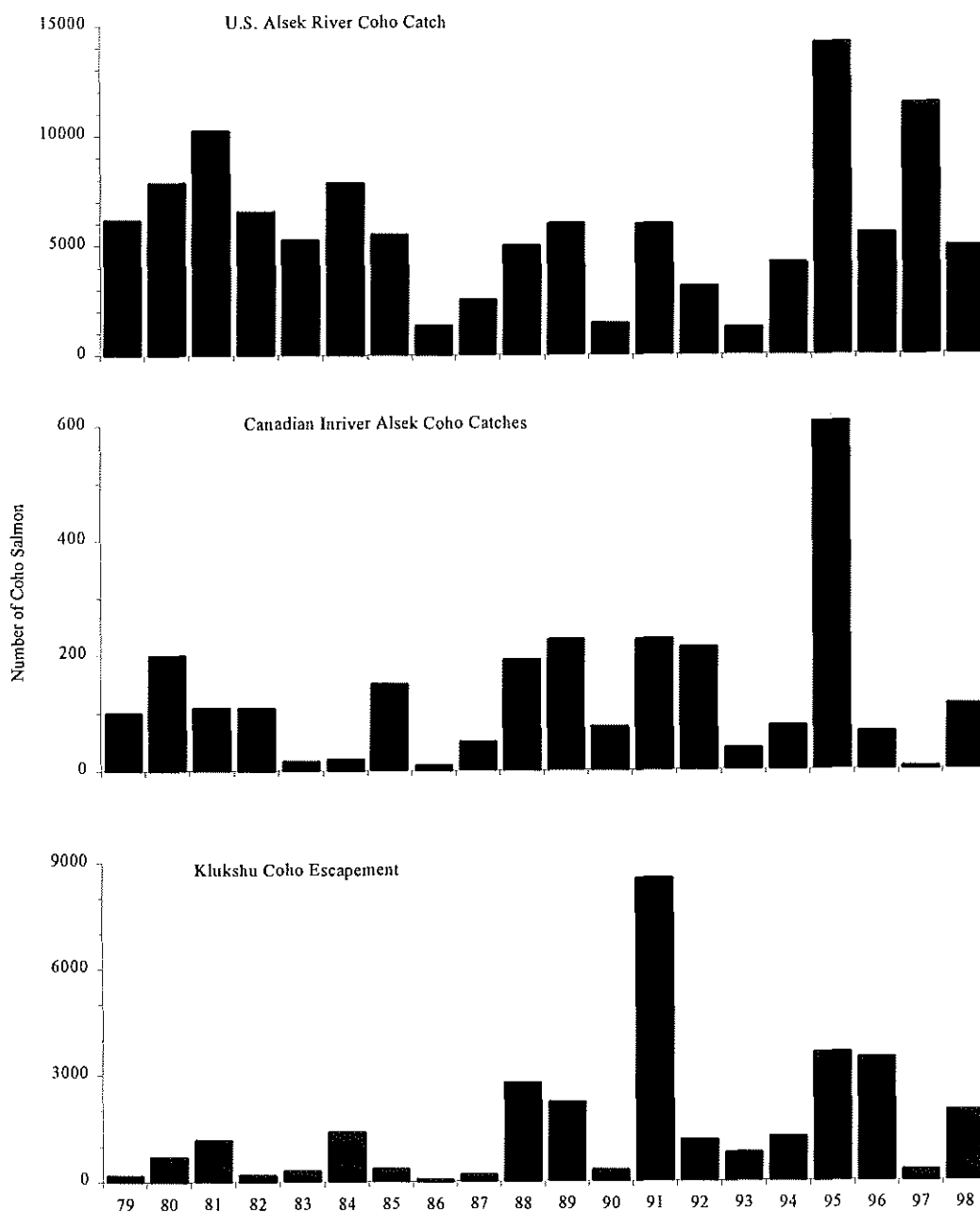


Figure 14. Alsek coho catches and weir counts, 1979-1998.

## Run Reconstruction

Estimates of the Klukshu contribution to the sockeye runs in the Alsek drainage vary from 37%, as estimated from an ADF&G mark-recapture study in 1983, to 60%, based on Canadian fishery managers' professional judgment. The Klukshu weir count divided by the estimated proportion of Klukshu fish that constitute the total Alsek run, minus the recreational and aboriginal fishery catches yields an escapement estimate for the Alsek River. The estimated escapement added to the U.S. commercial and subsistence catches yields an estimate of the entire Alsek run. Using the 37% to 60% contribution range, the estimated sockeye salmon escapement in the Alsek River was on the order of 22,300 (Canada) to 36,200 (U.S.) fish and the estimated Alsek sockeye run was on the order of 37,400 (Canada) to 51,300 (U.S.) sockeye salmon. The sockeye escapement estimate falls at or below the sockeye escapement goal range of from 33,000 (U.S.) to 58,000 (Canada) for the Alsek River.

Table 6. Catch and Klukshu index escapement data for Alsek sockeye, chinook, and coho salmon for 1998.

	Sockeye	Chinook	Coho
Escapement Index <sup>a</sup>			
Klukshu Weir Count	13,591	1,364	1,961
Klukshu Escapement	13,580	1,347	1,961
Harvest <sup>b</sup>			
U.S. Commercial	15,007	550	4,925
U.S. Subsistence	158	63	42
Canadian Sport	18	175	40
Canadian Aboriginal	567	154	72
Total	15,750	942	5,079

<sup>a</sup> The Klukshu salmon stock represents an assumed large and variable portion of the total Alsek River salmon escapement.

<sup>b</sup> U.S. harvest estimate differs from Joint Interception Committee estimate because no estimates are made for catches other than the listed fisheries.

## ENHANCEMENT ACTIVITIES

### Egg Collection

In 1998, sockeye eggs were collected at Tahltan Lake on the Stikine River for the tenth year, and in the Tatsamenie Lake system on the Taku River, for the ninth year. No eggs have been collected at Little Trapper Lake on the Taku River since 1994.

#### Tahltan Lake: Target 6.0 million eggs

The Tahltan egg collection was contracted to Arc Environmental Ltd. for the third consecutive year. Lower than average escapement in 1998 made capture of brood stock relatively difficult in comparison with previous years that had higher escapement levels. An estimated 4.3 million eggs were collected from 1,311 females. A similar number of males were taken. The brood stock was collected by beach seine at the major spawning site as has been done in previous years.

**Tatsamenie Lake: Target 5.0 million eggs**

Egg collection was again contracted to B. Mercer and Associates Ltd. An estimated 2.4 million eggs were collected from 623 females and a total of 535 males was spawned. The low Tatsamenie escapement in 1998 limited the availability of brood stock. A 1:1 spawning ratio was not possible due to fewer males than females collected for brood stock. The brood stock was captured at an adult enumeration weir that was located on the outlet of Tatsamenie Lake. This was the fifth year that all of the Tatsamenie brood stock were captured at this location. No significant problems were encountered during the course of brood stock collection

**Incubation and Fry Plants (1997 Brood Year)**

Incubation of 1997 brood eggs took place at Snettisham Hatchery and the resultant fry were transported to the appropriate systems from June 7 to June 29, 1998. The IHN virus was detected in one incubator that contained Tatsamenie fry and an estimated 178,577 fry died or were destroyed. The hatchery manager had observed behavior of pre-emergent fry indicative of IHN virus and made the decision to destroy those incubators of fish; the ADF&G pathology lab later confirmed the presence of the virus.

**Tahltan Lake**

A total of 1.9 million fry from the 1997 Tahltan sockeye egg take was planted back into Tahltan Lake in 1998 (Table 6). Survival from green-egg to outplanted-fry was 82%. Fry outplanting took place from June 7 through June 13.

**Tuya Lake**

A total of 433,000 fry from the 1997 Tahltan sockeye egg take were planted into Tuya Lake in 1998 (Table 6). Survival from green-egg to outplanted-fry was 91%. Fry outplanting took place on June 26.

**Tatsamenie Lake**

A total of 3.6 million fry from the 1997 egg-take were planted into Tatsamenie Lake in 1998 (Table 7). Survival from green-egg to outplanted-fry was 77%. IHNV was detected in one incubator and 178,577 fry died or were destroyed. Outplanting took place from June 15 through June 29.

Table 7. Summary of sockeye salmon fry releases to transboundary river systems.



Brood Year	Fry Destination			
	Tahltan Lake	Tuya Lake	Trapper Lake	Tatsamenie Lake
1989	1,042,000	0	0	0
1990	3,600,000	0	934,000	673,000
1991	1,400,000	1,600,000	1,800,000	1,200,000
1992	1,900,000	2,000,000	1,100,000	909,000
1993	904,000	4,700,000	916,000	521,000
1994	1,100,000	2,300,000	773,000	898,000
1995	2,300,000	2,500,000	0	1,700,000
1996	2,200,000	2,600,000	0	3,900,000
1997	1,900,000	433,000	0	3,600,000

## Outplant Evaluation Surveys

### Acoustic and Trawl, Beach seine and Limnological Sampling

In 1998, surveys continued to be directed by the Salmon Indexing Methods Unit of the Stock Assessment Division of Fisheries and Oceans, Canada. Limnological beach seine surveys were conducted at Tahltan, Tatsamenie, and Tuya Lakes by B. Mercer & Associates Ltd.; acoustic and trawl surveys were conducted at Tatsamenie, and Tuya Lakes by Mercer & Associates Ltd. The limnetic population estimates are based on the soundings and trawl samples only; beach seine catches are not used. Currently, beach seine catches serve as a qualitative index of the abundance of fish in the littoral zone, which cannot be sampled by the acoustic and trawl gear. Density estimates are made from the sounding transects. Each lake is divided into a number of transects and each transect is further divided into a number of depth strata. Limnetic fish population (rounded to the nearest 100,000) and density estimates and beach seine catches are presented in Table 8.

### Smolt Enumeration and Sampling

Smolt sampling and enumeration programs were conducted at Tahltan and Tatsamenie Lakes. Sampling only, was conducted at Tuya Lake. Sampling and enumeration at Tahltan Lake was conducted by DFO, Whitehorse, as part of their continuing smolt program. B. Mercer and Associates, on contract to DFO, performed the work at Tatsamenie and Tuya Lakes.

#### *Tahltan Lake*

Sampling and enumeration at Tahltan Lake was conducted from May 10 to June 29. Of the 694 smolts captured for sampling, a total of 682 were sampled and the heads preserved for thermal mark analysis. The overall age composition of the smolts captured was 92% age 1+ and 8% age 2+ based on the scale age analysis (Table 9). Average lengths and weights were 84.4 mm and 103.3 mm, and 4.6g and 8.5g for age 1+ and age 2+ fish, respectively.

The Tahltan smolt enumeration program uses a fence and modified inclined plane traps to capture all emigrating smolts. Volumetric displacement techniques are employed to determine the total smolt run size. The 1998 smolt outmigration was estimated to be 540,866 fish, (498,140 age 1+ and 42,726 age 2+) of which an estimated 214,446 fish originated from the fry planting program.

#### *Tatsamenie Lake*

Capture of smolts for sampling as well as for obtaining mark-recapture estimates was conducted from May 15 through June 30 using a fyke net, with attached wing nets. Of the 147,754 smolts captured, a total of 475 were retained for sampling and the heads preserved for thermal mark analysis. The overall age composition of the smolts captured was 97% age 1+ and 2.7% age 2+ based on length frequency analysis (Table 9). Average lengths and weights were 77.1mm and 110.1mm, and 3.8g and 10.7g for age 1+ and age2+, respectively. Of the 475 otoliths examined, 71 (15%) were thermally marked.

Table 8. Limnetic fish population, density estimates, and beach seine catches by broodyear in Tahltan, Tatsamenie, and Tuya Lakes.

Survey Date	Brood Year	Numbers of Limnetic Fish			Density (#/ha)				Beach Seine Catches		
		Total	Sockeye	Other	Total	CI(%)	Sockeye	Other	Sets	Sockeye	Other
Tahltan Lake											
18-Sep-93	1992	800,000	800,000		1,800	19	1,800		7	12	361
18-Sep-94	1993	400,000	400,000		800	41	800		10	9	162
	1994										
13-Sep-96	1995	600,000	600,000		1,300	15	1,300		10	141	277 <sup>a</sup>
27-Sep-97	1996	300,000	300,000		600	16	600		10	1	
No Surveys in 1998											
Tatsamenie Lake											
14-Sep-93	1992	1,100,000	1,100,000		700	36	700		10	11	178
13-Sep-94	1993	1,100,000	1,100,000		600	34	600		10	17	206
18-Sep-95	1994	900,000	900,000		600	39	600		10	9	35
16-Sep-96	1995	800,000	800,000		500	40	500		10	60	18 <sup>b</sup>
16-Jun-97	1996	900,000	900,000		500	37	500		10	1,846	
06-Aug-97	1996	2,300,000	2,300,000		1,400	40	1,400		10	2,919	
03-Sep-97	1996	2,700,000	2,700,000		1,600	32	1,600		10	840	
01-Oct-97	1996	1,300,000	1,300,000		800	39	800		10	84	15
22-Jul-98	1997	na	na		na		na		10	1,300	8
05-Aug-98	1997	900,000	900,000		600	48	600		10	372	
23-Aug-98	1997	na	na		na		na		10	75	7
04-Sep-98	1997	700,000	700,000		400	38	400		na	na na	
13-Sep-98	1997	na	na		na		na		10	282	7
23-Sep-98	1997	800,000	800,000		500	37	500		na	na na	
03-Oct-98	1997	na	na		an		an		10	139	7
12-Oct-98	1997	500,000	500,000		300	57	300		10	40	82
14-Oct-99	1998	352,000	352,000		200	29	200		10		
Tuya Lake											
8/30/1993	1992	400,000	400,000	0	200	52	200		9	0	1,152
9/2/1994	1993	2,100,000	200,000	100,000	700	55	700		10	0	181
9/11/1995	1994	1,500,000	1,500,000	0	500	97	500		10	0	87
9/9/1996	1995	2,100,000	1,600,000	500,000 <sup>a</sup>	700	23	500	200	2	0	33 <sup>b</sup>
9/26/1997	1996	2,100,000	1,400,000	700,000 <sup>c</sup>	700	29	500	????	2	0	0
9/19/1998	1997	700,000	600,000	100,000 <sup>d</sup>	200	42	200	<50	10	0	>13

<sup>a</sup> 63 sculpins, 11 adult sockeye, 203 suckers

<sup>b</sup> 14 sculpins, 3 juvenile chinook, 1 Dolly Varden Char

<sup>c</sup> sculpins

<sup>d</sup> 1 adult grayling, 12 juvenile grayling, 11 chub, 9 sculpins

The 1998 Tatsamenie smolt emigration was estimated using mark-recapture techniques. Smolt abundance was estimated (using Darroch estimator) to be 2,290,711 (95% CI 1,981,736 to 2,599,691) with a planted component of 354,406 smolts. An undetermined portion of the run occurred prior to the start of the mark-recapture program.

### ***Tuya Lake***

In 1998, emigrating smolts were captured with a fyke net from June 4 to June 9. Of the approximately 360 smolts captured, a total of 242 were retained for length, weight, and scale samples. The heads from 85 of the sampled smolts were preserved for otolith analysis, although it is assumed all smolts originated from fry plants. Based on length-frequency analysis, the overall age composition was 94% age1+, and 6% age 2+ (Table 8). Average length and weight were 103.4 mm and 140.4 mm, and 10.1 g and 25.1 g for age 1+ and age 2+, respectively.

### ***Trapper and Little Trapper Lakes***

These lakes were not sampled in 1998.

### **Short Term Fry Holding and Feeding Studies**

Short term pen holding studies were conducted at Tahltan and Tatsamenie Lakes. The objective of this program was to determine post-transport mortality rates. At Tatsamenie Lake a shipment of fry marked with an ancillary thermal mark was held and fed prior to release. The objective of this program was to increase the weight (perhaps triple it) of the fry to determine if larger size at release confers an advantage that will increase fry to smolt survival.

#### ***Tahltan Lake***

Four shipments totaling 1.9 million fry were made to Tahltan Lake June 7-13. The first two shipments of fry were held in net pens for 32-33 hours prior to release. The estimated number of mortalities (2500-4000) represented .23% to .38% of the 1,036,000 transported fry. The last two shipments of fry were not held in net pens due to extreme wind conditions which made it difficult to maneuver the plane on the lake; the number of fry released in these shipments totaled 836,900 fish.

#### ***Tatsamenie Lake***

Seven shipments totaling 3.6 million fry were made to Tatsamenie Lake June 15-27. The first shipment was released in the lake within 20 minutes. Five shipments totaling 2,694,400 fry were held for periods ranging from 28-72 hours prior to release. The number of estimated holding mortalities was 51,000 to 57,000 (1.9 to 2.1%) fish.

The remaining shipment of 394,300 fry was held and fed from June 25 to July 09 (15 days) prior to release. The estimated number of mortalities for this group was 20,000 (5.1%) fish. The average weight of these fry increased from 0.11g to 0.32g during the course of the study. The surface water temperature ranged from 12 to 16° C. Since these fish were marked with an ancillary thermal mark, it may be possible to determine if feeding and release at a larger size results in a survival rate that is higher than observed for the unfed release groups.

### **Passive Flow Incubator - Tatsamenie Lake**

An experimental passive flow incubator was setup in Tatsamenie Lake approximately 300 m from the lake outlet. Approximately 30,000 sockeye eggs were placed in the incubator on September 28, 1998. The estimated mortality rate on October 25 at the time of first picking (eyed stage) was 20%. This high initial mortality may have been due in part to the inclusion of a female sockeye salmon of poor quality in the broodstock.

A summary of data for the 1998 average length and weight for the transboundary sockeye smolts is presented in the Table 9.

Table 9. Age composition and average length and weight by age for combined wild and planted transboundary sockeye smolts captured in 1998.

Site	Origin	Sample Size (n)		Age Composition (%)		Length by age (mm)		Weight by age (g)	
		1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
Tahltan	Combined Wild and Planted	628	54	92.1	7.9	84.4	103.3	4.6	8.5
Tuya	Planted	228	14	94.2	5.8	103.4	140.7	10.1	25.2
Tatsamenic	Combined Wild and Planted	462	13	97.3	2.7	77.1	110.1	3.8	10.7
Trapper	Not Sampled in 1998	-	-	-	-	-	-	-	-
L. Trapper	Not Sampled in 1998	-	-	-	-	-	-	-	-

### Central Incubation Facility

As in past years, all eggs were incubated at the Snettisham Hatchery Central Incubation Facility. The otolith marks applied were of good quality based on the voucher samples analyzed by the ADF&G otolith lab. Douglas Island Pink and Chum, Inc. (DIPAC), a private aquaculture organization in Juneau, runs the Snettisham facility. A cooperative agreement between ADF&G and DIPAC provides for Snettisham to continue to serve the needs of the joint TBR planting projects.

### Otolith Analysis

#### U.S. Otolith Lab

##### *Sampling and Processing Summary*

During the 1998 season the ADF&G otolith laboratory received approximately 13,514 otolith pairs from 110 separate commercial and test fisheries collections from U.S. District 106, 108, and 111 and Canadian Taku and Stikine River gillnet fisheries during an 11 week period. Of these, 5,274 otoliths were extracted from commercial fisheries openings in Districts 106 and 108 and 2,818 otoliths were taken from commercial fisheries District 111. Additional otoliths were collected from test fishing operations in District 108 (1,668), Canadian test and commercial fisheries on the Stikine River (1,328) and the Taku River (711) as well as Port Snettisham cost-recovery fisheries (808) and escapement samples (907). Of the otoliths collected, 11,973 were processed for thermal marks and 3,290 marked fish were identified and classified as belonging to one of 25 marking groups.

This year a change in ownership of a fish processing plant in Wrangle necessitated some adjustment in the sampling procedures for the Stikine River stocks. This resulted in less than the desired number of samples being collected in Wrangell, however, other ports were often able to make up the shortfalls. In another change, the majority of fish sampled on the grounds in District 111 were recovered in Excursion Inlet rather than Petersburg. The sampling goal, of achieving a 95% confidence interval that was within  $\pm 7.5\%$  of the estimate, was met for each fishery opening.

This year the ADF&G lab, under arrangements with Canada, processed 60 otoliths per week collected over a 10-week period from the Canadian Taku inriver fisheries. Up to 200 Stikine inriver commercial and test fisheries otoliths were also examined weekly. Information from these samples was processed quickly to help provide information to managers. Samples from cost recovery fisheries in Gilbert Bay and Speel Arm (District 111-33, 35) were also examined on a weekly basis to help managers achieve adequate escapement of wild sockeye salmon to local streams.

Staff were able to keep up with the volume of samples received inseason and provide to ADF&G and Canadian managers with estimates on hatchery contributions in six separate fishery openings per week. These estimates provided information on run timing and abundance of planted fish. Managers used the information to make decisions about the duration and timing of future commercial openings.

Results from the 1998 otolith processing results are summarized in Table 10.

Table 10. Samples processed and marks recovered for the U.S. otolith lab in 1998.

Area	Number of Otoliths			Percent Marked	95% C.I.	
	Sampled	Prepared	Marked		Lower	Upper
Stikine Area Fisheries and Escapements						
U.S. 108/30-40 Commercial	671	651	281	47.6	43.4	51.8
U.S. 108/50-60 Commercial	1,152	872	111	12.0	10.0	14.1
U.S. 106-30 Commercial	1,331	745	26	2.0	1.2	2.8
U.S. 106-41 Commercial	2,120	1,491	200	10.1	8.8	11.4
U.S. Stikine Area Commercial	5,274	3,759	618	11.0	10.1	11.9
U.S. 108 Test	1,668	1,664	716	43.0		
Escapement	602	595	54	9.1		
Canada Inriver Com. and Test.	1,328	1,320	430	36.8	34.1	39.5
Total Stikine Area	14,146	11,097	2,436			
Taku Area Fisheries and Escapements						
U.S. 111 Commercial	2,818	2,815	512	25.2	23.5	26.9
Snettisham Cost Recovery	808	807	761	95.1	93.5	96.8
Escapement	305	302	187	61.9		
Canada Inriver Commercial	711	711	12	3.1	1.2	5.0
Total Taku Area	4,642	4,635	1,472			
All TBR Combined	18,788	15,732	3,908			

### Canadian Otolith Labs

DFO began developing capabilities to examine for the presence of otolith thermal marks in 1994. A term technician was hired in September of 1994 to work at the Pacific Biological Station (PBS) in Nanaimo, B.C. Otolith processing labs in both Juneau and Olympia (Washington Department of Fisheries) were visited to observe techniques and develop standardized terminology. The PBS lab, which is now processing otoliths from a number of southern British Columbia hatcheries (mainly chinook salmon) has processed most 1997 transboundary juvenile, and adult samples. Since the Canadian lab has been unable to provide results in a timely manner, the 1998 Stikine and Taku River adult commercial samples were processed inseason by the ADF&G lab located in Juneau.

The Whitehorse office of DFO has started a satellite thermal mark lab. A lab technician has been trained to process smolt samples and some outstanding 1997 Tahltan Lake smolt samples have been processed. Additional training for adult processing and some equipment purchases will be made in the near future to ensure that this lab is fully functional.

## **APPENDIX**

Appendix A.1. Weekly salmon catch and effort in the Alaskan Subdistrict 106-41&42 (Sumner Strait) commercial drift gillnet fishery, 1998.

Week	Start Date	Catch						Effort		Permit Days
		Chinook	Sockeye	Coho	Pink	Chum	Steelhead	Permits	Days	
25										
26	21-Jun	113	6,659	4,146	643	8,366		54	3.0	162
27	28-Jun	74	6,386	6,961	760	14,344		67	2.0	134
28	5-Jul	37	13,199	10,777	2,492	29,792		83	2.0	166
29	12-Jul	32	10,578	7,909	1,885	17,515		89	2.0	178
30	19-Jul	23	10,189	8,243	7,254	25,417		81	2.0	162
31	26-Jul	14	12,439	5,518	20,132	25,266		70	3.0	210
32	2-Aug	14	8,683	10,435	42,687	22,617		72	3.0	216
33	9-Aug	10	5,249	10,567	57,532	14,102		78	3.0	234
34	16-Aug	3	3,363	13,548	46,269	10,785		77	4.0	308
35	23-Aug	2	1,578	18,452	11,439	5,709		67	3.0	201
36	30-Aug	2	205	17,728	4,532	6,674		91	3.0	273
37	6-Sep	1	433	24,079	689	7,567		89	3.0	267
38	13-Sep	0	58	22,216	75	7,557		78	3.0	234
39	20-Sep	9	30	11,496	11	4,262		66	3.0	198
40	27-Sep	0	3	2,927	3	879		22	2	44
41	4-Oct	0	0	122	0	40		6	2	12
Total		334	79,052	175,124	196,403	200,892			43.0	2,999

Appendix A.2. Weekly stock proportions and catches of sockeye salmon harvested in the Alaskan Subdistrict 106-41&42 (Sumner Strait) commercial drift gillnet fishery, 1998. Data based on scale pattern analysis.

Week	Alaska	Canada	Stikine				Planted	CPUE of Stikine Fish			
			Tahltan <sup>a</sup>	Tuya	Mainstem	Total		Tahltan	Tahltan <sup>a</sup>	Tuya	Mainstem
Proportions											
26	0.230	0.236	0.026	0.507	0.000	0.533	0.005	0.121	0.434	0.000	0.383
27	0.265	0.311	0.129	0.293	0.002	0.424	0.010	0.681	0.291	0.531	0.353
28	0.440	0.480	0.004	0.076	0.000	0.081	0.000	0.038	0.126	0.000	0.112
29	0.637	0.295	0.007	0.061	0.000	0.068	0.005	0.047	0.075	0.000	0.070
30	0.802	0.155	0.007	0.035	0.002	0.043	0.005	0.049	0.045	0.469	0.047
31	0.653	0.330	0.003	0.014	0.000	0.017	0.000	0.017	0.018	0.000	0.018
32	0.584	0.406	0.009	0.001	0.000	0.010	0.000	0.041	0.001	0.000	0.007
33	0.612	0.387	0.001	0.000	0.000	0.001	0.000	0.003	0.000	0.000	0.001
34	0.551	0.425	0.001	0.022	0.000	0.023	0.000	0.002	0.005	0.000	0.004
35	0.551	0.425	0.001	0.022	0.000	0.023	0.000	0.001	0.004	0.000	0.003
36	0.551	0.425	0.001	0.022	0.000	0.023	0.000	0.000	0.000	0.000	0.000
37	0.551	0.425	0.001	0.022	0.000	0.023	0.000	0.000	0.001	0.000	0.001
38	0.551	0.425	0.001	0.022	0.000	0.023	0.000	0.000	0.000	0.000	0.000
39	0.551	0.425	0.001	0.022	0.000	0.023	0.000	0.000	0.000	0.000	0.000
40	0.551	0.425	0.001	0.022	0.000	0.023	0.000	0.000	0.000	0.000	0.000
Total	0.550	0.337	0.017	0.096	0.000	0.113	0.003	0.157	0.839	0.004	1.000
Catches											
26	1,533	1,574	176	3,376	0	3,552	33	1.1	20.8	0.0	21.9
27	1,694	1,987	821	1,869	15	2,705	64	6.1	13.9	0.1	20.2
28	5,802	6,333	57	1,007	0	1,064	0	0.3	6.1	0.0	6.4
29	6,738	3,125	75	640	0	715	53	0.4	3.6	0.0	4.0
30	8,172	1,577	72	352	16	440	51	0.4	2.2	0.1	2.7
31	8,128	4,100	32	179	0	211	0	0.2	0.9	0.0	1.0
32	5,072	3,524	79	8	0	87	0	0.4	0.0	0.0	0.4
33	3,213	2,029	6	1	0	7	0	0.0	0.0	0.0	0.0
34	1,855	1,431	5	73	0	78	0	0.0	0.2	0.0	0.3
35	870	671	2	34	0	36	0	0.0	0.2	0.0	0.2
36	113	87	0	4	0	5	0	0.0	0.0	0.0	0.0
37	239	184	1	9	0	10	0	0.0	0.0	0.0	0.0
38	32	25	0	1	0	1	0	0.0	0.0	0.0	0.0
39	17	13	0	1	0	1	0	0.0	0.0	0.0	0.0
40	2	1	0	0	0	0	0	0.0	0.0	0.0	0.0
Total	43,479	26,661	1,326	7,555	31	8,912	201	9.0	48.0	0.2	57.2

<sup>a</sup> Includes thermally marked fish.



Appendix A.3. Weekly salmon catch and effort in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1998.

Week	Start Date	Catch						Effort		Permit Days
		Chinook	Sockeye	Coho	Pink	Chum	Steelhead	Permits	Days	
26	21-Jun	39	637	787	106	251		13	3	39
27	28-Jun	42	1,238	3,736	271	1,241		13	2	26
28	5-Jul	14	2,129	5,849	1,019	1,400		17	2	34
29	12-Jul	13	5,157	10,439	6,836	12,453		43	2	86
30	19-Jul	9	6,193	11,536	22,425	20,890		54	2	108
31	26-Jul	18	6,855	6,285	31,788	29,554		55	3	165
32	2-Aug	13	6,774	7,361	85,707	28,512		62	3	186
33	9-Aug	5	2,633	5,589	60,649	12,926		52	3	156
34	16-Aug	6	1,989	6,113	70,332	10,909		60	4	240
35	23-Aug	1	662	4,378	22,458	2,826		42	3	126
36	30-Aug	0	67	4,124	4,103	2,395		23	3	69
37	6-Sep	0	8	2,394	69	1,013		16	3	48
38	13-Sep	10	29	15,343	488	3,677		36	3	108
39	20-Sep	13	12	8,986	0	2,102		29	3	87
40	27-Sep	1	0	5,042	1	945		20	2	40
41	4-Oct	0	0	111	0	36		2	2	4
Total		184	34,383	98,073	306,252	131,130			43	1,522

Appendix A.4. Weekly stock proportions and catches of sockeye salmon harvested in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1998. Data based on scale pattern analysis.

Week	Alaska	Canada	Stikine				Planted Tahltan	CPUE of Stikine Fish			
			Tahltan <sup>a</sup>	Tuya	Mainstem	Total		Tahltan <sup>a</sup>	Tuya	Mainstem	Total
Proportions											
26	0.535	0.138	0.054	0.270	0.003	0.327	0.000	0.146	0.000	0.255	0.154
27	0.535	0.138	0.054	0.270	0.003	0.327	0.000	0.425	0.000	0.745	0.449
28	0.695	0.208	0.007	0.090	0.000	0.097	0.000	0.072	0.000	0.000	0.175
29	0.724	0.240	0.017	0.019	0.000	0.036	0.000	0.170	0.000	0.000	0.062
30	0.763	0.203	0.014	0.020	0.000	0.034	0.000	0.129	0.000	0.000	0.056
31	0.758	0.179	0.005	0.058	0.000	0.062	0.000	0.032	0.000	0.000	0.075
32	0.596	0.388	0.004	0.011	0.000	0.015	0.000	0.026	0.000	0.000	0.016
33	0.774	0.201	0.000	0.026	0.000	0.026	0.000	0.000	0.000	0.000	0.013
34	0.792	0.206	0.000	0.003	0.000	0.003	0.000	0.000	0.000	0.000	0.001
35	0.792	0.206	0.000	0.003	0.000	0.003	0.000	0.000	0.000	0.000	0.000
36	0.792	0.206	0.000	0.003	0.000	0.003	0.000	0.000	0.000	0.000	0.000
37	0.792	0.206	0.000	0.003	0.000	0.003	0.000	0.000	0.000	0.000	0.000
38	0.792	0.206	0.000	0.003	0.000	0.003	0.000	0.000	0.000	0.000	0.000
39	0.792	0.206	0.000	0.003	0.000	0.003	0.000	0.000	0.000	0.000	0.000
Total	0.710	0.237	0.010	0.043	0.000	0.053	0.000	0.176	0.820	0.005	1.000
Catches											
26	341	88	35	172	2	208	0	0.9	4.4	0.0	5.3
27	663	170	67	334	3	405	0	2.6	12.8	0.1	15.6
28	1,480	443	15	191	0	206	0	0.4	5.6	0.0	6.1
29	3,736	1,236	89	96	0	185	0	1.0	1.1	0.0	2.2
30	4,726	1,256	85	126	0	211	0	0.8	1.2	0.0	2.0
31	5,198	1,229	32	396	0	428	0	0.2	2.4	0.0	2.6
32	4,039	2,631	29	75	0	104	0	0.2	0.4	0.0	0.6
33	2,037	528	0	68	0	68	0	0.0	0.4	0.0	0.4
34	1,575	409	0	5	0	5	0	0.0	0.0	0.0	0.0
35	524	136	0	2	0	2	0	0.0	0.0	0.0	0.0
36	53	14	0	0	0	0	0	0.0	0.0	0.0	0.0
37	6	2	0	0	0	0	0	0.0	0.0	0.0	0.0
38	23	6	0	0	0	0	0	0.0	0.0	0.0	0.0
39	10	2	0	0	0	0	0	0.0	0.0	0.0	0.0
Total	24,411	8,150	352	1,465	5	1,822	0	6.1	28.4	0.2	34.7

<sup>a</sup>Includes thermally marked fish.

Appendix A.5. Weekly salmon catch in the Alaskan District 106 commercial drift gillnet fisheries, 1998. Catches do not include Blind Slough terminal area harvests. Effort may be less than the sum of effort from 106-41&42 and 106-30 because some boats fished in more than one subdistrict. Data based on scale pattern analysis.

Week	Start Date	Catch						Effort		Permit Days
		Chinook	Sockeye	Coho	Pink <sup>a</sup>	Chum	Steelhead	Permits	Days	
26	21-Jun	152	7,296	4,933	749	8,617		66	3.0	198
27	28-Jun	116	7,624	10,697	1,031	15,585		80	2.0	160
28	5-Jul	51	15,328	16,626	3,511	31,192		100	2.0	200
29	12-Jul	45	15,735	18,348	8,721	29,968		131	2.0	262
30	19-Jul	32	16,382	19,779	29,679	46,307		131	2.0	262
31	26-Jul	32	19,294	11,803	51,920	54,820		120	3.0	360
32	2-Aug	27	15,457	17,796	128,394	51,129		127	3.0	381
33	9-Aug	15	7,882	16,156	118,181	27,028		123	3.0	369
34	16-Aug	9	5,352	19,661	116,601	21,694		132	4.0	528
35	23-Aug	3	2,240	22,830	33,897	8,535		109	3.0	327
36	30-Aug	2	272	21,852	8,635	9,069		106	3.0	318
37	6-Sep	1	441	26,473	758	8,580		104	3.0	312
38	13-Sep	10	87	37,559	563	11,234		112	3.0	336
39	20-Sep	22	42	20,482	11	6,364		95	3.0	285
40	27-Sep	1	3	7,969	4	1,824		42	2.0	84
41	4-Oct	0	0	233	0	76		8	2.0	16
Total		518	113,435	273,197	502,655	332,022			43.0	4,398
Alaska Hatchery Contribution										
26	21-Jun	73	43	3,029		0				
27	28-Jun	43	82	8,381		4,453				
28	5-Jul	77	104	12,064		17,141				
29	12-Jul	43	77	12,473		13,910				
30	19-Jul	35	175	6,908		17,124				
31	26-Jul	0	173	2,596		19,469				
32	2-Aug	0	51	1,893		23,784				
33	9-Aug	2	0	1,210		7,013				
34	16-Aug	2	0	1,917		9,696				
35	23-Aug	0	0	2,793		1,518				
36	30-Aug	0	0	6,113		0				
37	6-Sep	0	0	11,810		1,876				
38	13-Sep	14	0	16,287		2,113				
39	20-Sep	0	0	10,298		0				
40	27-Sep	1	0	3,360		0				
41	4-Oct	0	0	0		0				
Total		290	706	101,129		118,096				
Catches not including Alaska hatchery contributions										
26	21-Jun	79	7,253	1,904	749	8,617	0	66	3.0	198
27	28-Jun	73	7,542	2,316	1,031	11,132	0	80	2.0	160
28	5-Jul	-26	15,224	4,562	3,511	14,051	0	100	2.0	200
29	12-Jul	2	15,658	5,875	8,721	16,058	0	131	2.0	262
30	19-Jul	-3	16,207	12,871	29,679	29,183	0	131	2.0	262
31	26-Jul	32	19,121	9,207	51,920	35,351	0	120	3.0	360
32	2-Aug	27	15,406	15,903	128,394	27,345	0	127	3.0	381
33	9-Aug	13	7,882	14,946	118,181	20,015	0	123	3.0	369
34	16-Aug	7	5,352	17,744	116,601	11,998	0	132	4.0	528
35	23-Aug	3	2,240	20,037	33,897	7,017	0	109	3.0	327
36	30-Aug	2	272	15,739	8,635	9,069	0	106	3.0	318
37	6-Sep	1	441	14,663	758	6,704	0	104	3.0	312
38	13-Sep	-4	87	21,272	563	9,121	0	112	3.0	336
39	20-Sep	22	42	10,184	11	6,364	0	95	3.0	285
40	27-Sep	0	3	4,609	4	1,824	0	42	2.0	84
41	4-Oct	0	0	233	0	76	0	8	2.0	16
Total		228	112,729	172,068	502,655	213,926	0	1,586	43.0	4,398

<sup>a</sup> Data not available to estimate contributions of pink salmon from Alaska hatcheries.

Appendix A.6. Weekly stock proportions of sockeye salmon harvested in the Alaskan District 106 commercial drift gillnet fisheries, 1998. Data based on SPA.

Week	Alaska	Canada	Stikine				Planted	CPUE of Stikine Fish			
			Tahltan <sup>a</sup>	Tuya	Mainstem	Total		Tahltan	Tahltan <sup>a</sup>	Tuya	Mainstem
Proportions											
26	0.257	0.228	0.029	0.486	0.000	0.515	0.083	0.122	0.402	0.047	0.355
27	0.309	0.283	0.117	0.289	0.002	0.408	0.089	0.638	0.309	0.622	0.363
28	0.475	0.442	0.005	0.078	0.000	0.083	0.089	0.041	0.134	0.000	0.119
29	0.666	0.277	0.010	0.047	0.000	0.057	0.058	0.072	0.063	0.000	0.064
30	0.787	0.173	0.010	0.029	0.001	0.040	0.043	0.069	0.041	0.332	0.046
31	0.691	0.276	0.003	0.030	0.000	0.033	0.007	0.020	0.036	0.000	0.033
32	0.589	0.398	0.007	0.005	0.000	0.012	0.000	0.033	0.005	0.000	0.009
33	0.666	0.324	0.001	0.009	0.000	0.010	0.000	0.002	0.004	0.000	0.004
34	0.641	0.344	0.001	0.015	0.000	0.015	0.000	0.001	0.003	0.000	0.003
35	0.623	0.360	0.001	0.016	0.000	0.017	0.000	0.001	0.002	0.000	0.002
36	0.611	0.371	0.001	0.017	0.000	0.018	0.000	0.000	0.000	0.000	0.000
37	0.556	0.421	0.001	0.021	0.000	0.023	0.000	0.000	0.001	0.000	0.001
38	0.632	0.352	0.001	0.015	0.000	0.016	0.000	0.000	0.000	0.000	0.000
39	0.620	0.363	0.001	0.016	0.000	0.017	0.000	0.000	0.000	0.000	0.000
40	0.551	0.425	0.001	0.022	0.000	0.023	0.000	0.000	0.000	0.000	0.000
Total	0.598	0.307	0.015	0.080	0.000	0.095	0.002				
Catches											
26	1,874	1,662	211	3,548	2	3,760	33	1.1	17.9	0.0	19.0
27	2,357	2,157	888	2,203	18	3,110	64	5.6	13.8	0.1	19.4
28	7,282	6,776	72	1,198	0	1,270	0	0.4	6.0	0.0	6.4
29	10,474	4,361	164	736	0	900	53	0.6	2.8	0.0	3.4
30	12,898	2,833	157	478	16	651	51	0.6	1.8	0.1	2.5
31	13,326	5,329	64	575	0	639	0	0.2	1.6	0.0	1.8
32	9,111	6,155	108	83	0	191	0	0.3	0.2	0.0	0.5
33	5,250	2,557	6	69	0	75	0	0.0	0.2	0.0	0.2
34	3,430	1,840	5	78	0	83	0	0.0	0.1	0.0	0.2
35	1,394	807	2	36	0	38	0	0.0	0.1	0.0	0.1
36	166	101	0	5	0	5	0	0.0	0.0	0.0	0.0
37	245	186	1	9	0	10	0	0.0	0.0	0.0	0.0
38	55	31	0	1	0	1	0	0.0	0.0	0.0	0.0
39	26	15	0	1	0	1	0	0.0	0.0	0.0	0.0
40	2	1	0	0	0	0	0	0.0	0.0	0.0	0.0
Total	67,890	34,811	1,678	9,020	36	10,734	201	8.7	44.6	0.2	53.5

<sup>a</sup> Includes thermally marked fish.

Appendix A.7. Weekly salmon catch and effort in the Alaskan District 108 commercial drift gillnet fishery, 1998. Catches do not include Ohmer Creek terminal area harvests. The permit days are adjusted for boats which did not fish the entire opening and are less than the sum of the permits times the days open.

Week	Start Date	Catch						Effort		Permit Days
		Chinook	Sockeye	Coho	Pink <sup>a</sup>	Chum	Steelhead	Permits	Days	
26	21-Jun	105	2,224	91	16	211		20	3.0	60.0
27	28-Jun	143	4,768	389	148	1,013		42	2.0	84.0
28	5-Jul	137	5,563	1,741	665	3,162		76	4.0	304.0
29	12-Jul	19	1,820	168	1,158	2,474		20	2.0	40.0
30	19-Jul	20	2,564	327	3,967	3,249		19	2.0	38.0
31	26-Jul	22	3,308	1,309	10,851	12,746		39	3.0	117.0
32	2-Aug	2	1,036	1,139	8,760	3,287		19	3.0	57.0
33	9-Aug	3	345	810	5,634	3,255		20	3.0	60.0
34	16-Aug	5	301	1,630	6,325	6,312		21	4.0	84.0
35	23-Aug	3	48	514	1,464	3,235		14	3.0	42.0
36	30-Aug	1	32	4,891	245	729		22	3.0	66.0
37	6-Sep	0	11	2,770	13	800		22	3.0	66.0
38	13-Sep	0	8	1,837	0	318		7	3.0	21.0
39	20-Sep	0	3	569	0	82		6	3.0	18.0
40	27-Sep	0	0	755	0	141		7	2.0	14.0
41	4-Oct	0	0	266	0	43		1	2.0	2.0
Total		460	22,031	19,206	39,246	41,057		355	45	1,073
Alaska Hatchery Contribution										
26	21-Jun	97	0	95		0				
27	28-Jun	23	0	200		0				
28	5-Jul	139	0	729		3,751				
29	12-Jul	3	10	0		1,508				
30	19-Jul	40	52	110		0				
31	26-Jul	0	0	259		3,172				
32	2-Aug	0	0	40		3,105				
33	9-Aug	0	0	151		3,604				
34	16-Aug	0	0	227		0				
35	23-Aug	0	0	0		0				
36	30-Aug	0	0	368		0				
37	6-Sep	0	0	603		0				
38	13-Sep	0	0	112		0				
39	20-Sep	0	0	0		0				
40	27-Sep	0	0	147		0				
41	4-Oct	0	0	0		0				
Total		302	62	3,043		15,140				
Catches not including Alaska hatchery contributions										
26	21-Jun	8	2,224	-4	16	211	0	20	3.0	60
27	28-Jun	120	4,768	189	148	1,013	0	42	2.0	84
28	5-Jul	-2	5,563	1,012	665	-589	0	76	4.0	304
29	12-Jul	16	1,810	168	1,158	966	0	20	2.0	40
30	19-Jul	-20	2,512	217	3,967	3,249	0	19	2.0	38
31	26-Jul	22	3,308	1,050	10,851	9,574	0	39	3.0	117
32	2-Aug	2	1,036	1,099	8,760	182	0	19	3.0	57
33	9-Aug	3	345	659	5,634	-349	0	20	3.0	60
34	16-Aug	5	301	1,403	6,325	6,312	0	21	4.0	84
35	23-Aug	3	48	514	1,464	3,235	0	14	3.0	42
36	30-Aug	1	32	4,523	245	729	0	22	3.0	66
37	6-Sep	0	11	2,167	13	800	0	22	3.0	66
38	13-Sep	0	8	1,725	0	318	0	7	3.0	21
39	20-Sep	0	3	569	0	82	0	6	3.0	18
40	27-Sep	0	0	608	0	141	0	7	2.0	14
41	4-Oct	0	0	266	0	43	0	1	2.0	2
Total		158	21,969	16,163	39,246	25,917	0	355	45.0	1,073

<sup>a</sup> Data not available to estimate contributions of pink salmon from Alaska hatcheries.

Appendix A.8. Weekly stock proportions and stock-specific catch of sockeye salmon in the Alaskan District 108 commercial drift gillnet fishery, 1998. Catches do not include Ohmer Creek terminal area harvests. Data based on SPA.

Week	Alaska	Canada	Stikine				Planted	CPUE of Stikine Fish			
			Tahltan <sup>a</sup>	Tuya	Mainstem	Total		Tahltan	Tahltan a	Tuya	Mainstem
Proportions											
26	0.070	0.105	0.325	0.370	0.130	0.825	0.017	0.222	0.238	0.046	0.140
27	0.071	0.007	0.360	0.477	0.085	0.921	0.005	0.377	0.470	0.045	0.240
28	0.145	0.215	0.134	0.315	0.190	0.640	0.017	0.045	0.100	0.033	0.054
29	0.123	0.065	0.269	0.081	0.463	0.813	0.007	0.225	0.064	0.199	0.170
30	0.285	0.192	0.030	0.074	0.419	0.523	0.000	0.037	0.086	0.267	0.162
31	0.047	0.046	0.071	0.032	0.804	0.908	0.000	0.037	0.016	0.215	0.118
32	0.072	0.084	0.104	0.050	0.691	0.844	0.000	0.035	0.016	0.119	0.070
33	0.072	0.084	0.104	0.050	0.691	0.844	0.000	0.011	0.005	0.038	0.022
34	0.072	0.084	0.104	0.050	0.691	0.844	0.000	0.007	0.003	0.023	0.014
35	0.072	0.084	0.104	0.050	0.691	0.844	0.000	0.002	0.001	0.007	0.004
36	0.072	0.084	0.104	0.050	0.691	0.844	0.000	0.001	0.000	0.003	0.002
37	0.072	0.084	0.104	0.050	0.691	0.844	0.000	0.000	0.000	0.001	0.001
38	0.072	0.084	0.104	0.050	0.691	0.844	0.000	0.001	0.000	0.002	0.001
39	0.072	0.084	0.104	0.050	0.691	0.844	0.000	0.000	0.000	0.001	0.001
Total	0.115	0.108	0.189	0.244	0.343	0.777	0.008	0.249	0.265	0.486	1.000
Catch											
26	156	234	723	822	289	1,834	39	12.1	13.7	4.8	30.6
27	340	35	1,717	2,273	403	4,393	24	20.4	27.1	4.8	52.3
28	807	1,197	745	1,755	1,059	3,559	95	2.5	5.8	3.5	11.7
29	223	118	489	148	842	1,479	13	12.2	3.7	21.1	37.0
30	732	492	76	189	1,075	1,340	0	2.0	5.0	28.3	35.3
31	154	151	235	107	2,661	3,003	0	2.0	0.9	22.7	25.7
32	75	87	107	52	715	875	0	1.9	0.9	12.6	15.3
33	25	29	36	17	238	291	0	0.6	0.3	4.0	4.9
34	22	25	31	15	208	254	0	0.4	0.2	2.5	3.0
35	3	4	5	2	33	41	0	0.1	0.1	0.8	1.0
36	2	3	3	2	22	27	0	0.1	0.0	0.3	0.4
37	1	1	1	1	8	9	0	0.0	0.0	0.1	0.1
38	1	1	1	0	6	7	0	0.0	0.0	0.3	0.3
39	0	0	0	0	2	3	0	0.0	0.0	0.1	0.1
Total	2,541	2,376	4,170	5,383	7,561	17,114	170	54.3	57.6	105.8	217.7

<sup>a</sup> Includes thermally marked fish.

Appendix A.9. Weekly salmon catch and effort and sockeye stock composition in the Alaskan District 108 test fishery, 1998.

Week	Start	Catch					
	Date	Chinook	Sockeye	Coho	Pink	Chum	Steelhead
Catches							
25	14-Jun	0	676	2	0	7	0
26	21-Jun	0	918	37	12	65	0
27	28-Jun	0	1,916	103	49	163	0
Total		0	3,510	142	61	235	

Sockeye stock compositions

Week	Alaska	Canada	Stikine			Total	Planted
			Tahltan	Tuya	Mainstem		Tahltan
Proportions							
25	0.055	0.080	0.259	0.510	0.096	0.865	0.028
26	0.063	0.085	0.284	0.461	0.107	0.852	0.018
27	0.067	0.007	0.419	0.402	0.105	0.926	0.011
Total	0.064	0.041	0.353	0.438	0.104	0.895	0.016
Catch							
25	37	54	175	345	65	585	19
26	58	78	261	423	98	782	17
27	129	13	802	770	202	1,774	22
Total	224	145	1,238	1,538	365	3,141	57

Appendix A.10. Weekly salmon and steelhead trout catch and effort in the Canadian commercial fishery in the lower Stikine River, 1998.

Week	Start Date	Catch							Effort		
		Chinook		Sockeye	Coho	Pink	Chum	Steelhead	Permits	Days	Permit Days
		Jacks	Large								
25	21-Jun	38	304	44	0	0	0	1	9.00	1.0	9.0
26	28-Jun	130	511	2,286	0	0	0	0	9.00	3.0	27.0
27	5-Jul	74	302	6,279	0	0	0	2	10.75	4.0	43.0
28	12-Jul	37	224	6,030	0	0	0		11.33	3.0	34.0
29	19-Jul	27	192	9,137	1	16	1	7	11.20	5.0	56.0
30	26-Jul	11	42	6,751	8	2	4	13	11.00	4.0	44.0
31	2-Aug	7	13	3,862	24	15	5	19	11.00	4.0	44.0
32	9-Aug	3	23	1,772	47	21	2	46	11.00	2.0	22.0
33	16-Aug	0	2	610	43	1	1	19	6.00	3.0	18.0
34	23-Aug	0	0	415	230	0	0	56	6.00	3.0	18.0
35	30-Aug	1	1	92	175	0	0	26	6.00	2.5	15.0
36	6-Sep	0	0	23	99	0	0	7	6.00	3.0	18.0
37	13-Sep	0	0	6	74	0	0	5	6.67	3.0	20.0
38	20-Sep	0	0	3	14	0	0	7	1.00	3.0	3.0
39	27-Sep	0	0	0	11	0	0	1	1.00	3.0	3.0
Total		328	1,614	37,310	726	55	13	209		46.5	374.0

Appendix A.11. Weekly sockeye salmon stock proportions and catch by stock in the Canadian commercial fishery in the lower Stikine River, 1998. Sex specific age compositions were calculated and the stock composition of the females sampled for egg diameters was expanded to the catch by age.

Week	Proportion				Planted Tahltan	Catch			Tahltan	
	Small Egg	Tahltan <sup>a</sup>	Tuya	Mainstem		Tahltan <sup>a</sup>	Tuya	Mainstem	Wild	Planted
25	1.000	0.182	0.818	0.000	0.000	8	36	0	8	0
26	0.972	0.337	0.635	0.028	0.025	770	1,451	65	714	56
27	0.949	0.382	0.566	0.051	0.030	2,400	3,557	322	2,214	186
28	0.891	0.386	0.504	0.109	0.034	2,329	3,042	659	2,124	205
29	0.750	0.452	0.298	0.250	0.000	4,131	2,726	2,280	4,131	0
30	0.532	0.304	0.228	0.468	0.000	2,052	1,539	3,160	2,052	0
31	0.323	0.158	0.165	0.677	0.042	612	637	2,613	448	164
32	0.157	0.073	0.084	0.843	0.077	130	148	1,494	-6	136
33	0.077	0.077	0.000	0.923	0.000	47	0	563	47	0
34	0.043	0.043	0.000	0.957	0.000	18	0	397	18	0
35	0.024	0.008	0.016	0.976	0.000	1	1	90	1	0
36	0.000	0.000	0.000	1.000	0.000	0	0	23	0	0
37	0.000	0.000	0.000	1.000	0.000	0	0	6	0	0
38	0.000	0.000	0.000	1.000	0.000	0	0	3	0	0
Total						12,498	13,137	11,675	11,751	747
Proportion						0.335	0.352	0.313	0.315	0.020
Week	CPUE				Total CPUE	Tahltan				
	CPUE	Tahltan <sup>a</sup>	Tuya	Mainstem		Wild	Planted			
25	4.889	0.889	4.000	0.000	4.889	0.889	0.000			
26	84.667	28.519	53.741	2.407	84.667	28.519	0.000			
27	146.023	55.814	82.721	7.488	146.023	51.725	4.089			
28	177.353	68.500	89.471	19.382	177.353	63.198	5.302			
29	163.161	73.768	48.679	40.714	163.161	67.289	6.478			
30	153.432	46.636	34.977	71.818	153.432	46.636	0.000			
31	87.773	13.909	14.477	59.386	87.773	13.909	0.000			
32	80.545	5.909	6.727	67.909	80.545	4.325	1.584			
33	33.889	2.611	0.000	31.278	33.889	-0.127	2.738			
34	23.056	1.000	0.000	22.056	23.056	1.000	0.000			
35	6.133	0.049	0.099	5.985	6.133	0.049	0.000			
36	1.278	0.000	0.000	1.278	1.278	0.000	0.000			
37	0.300	0.000	0.000	0.300	0.300	0.000	0.000			
38	1.000	0.000	0.000	1.000	1.000	0.000	0.000			
39	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
Total	963.498	297.604	334.892	331.002	963.498	277.413	20.191			

Proportion	0.309	0.348	0.344	0.288	0.021
<sup>a</sup> Includes thermally marked fish.					



Appendix A.12. Weekly salmon and steelhead trout catch and effort in the Canadian commercial fishery in the upper Stikine River, 1998.

Week	Start Date	Catch							Effort		
		Chinook		Sockeye	Coho	Pink	Chum	Steelhead	Permits	Days	Permit Days
		Jacks	Large								
27	28-Jun	0	0	46	0	0	0	0	1.0	3.0	3.0
28	5-Jul	0	12	53	0	0	0	0	1.0	4.0	4.0
29	12-Jul	0	0	260	0	0	0	0	1.0	3.0	3.0
30	19-Jul	0	0	257	0	0	0	0	1.0	5.0	5.0
31	26-Jul	0	0	291	0	0	0	0	1.0	4.0	4.0
Total		0	12	907	0	0	0	0	5.0	19.0	19.0

Appendix A.13. Weekly salmon and steelhead trout catch and effort in the Canadian aboriginal fishery located at Telegraph Creek, on the Stikine River, 1998.

Week	Start Date	Catch							Effort		
		Chinook		Sockeye	Coho	Pink	Chum	Steelhead	Permits	Days	Permit Days
		Jacks	Large								
24	7-Jun	5	14	0	0	0	0	0	2	3.0	6.0
25	14-Jun	8	83	3	0	0	0	0	3	7.0	23.0
26	21-Jun	21	98	17	0	0	0	0	4	7.0	29.0
27	28-Jun	21	103	258	0	0	0	0	7	7.0	46.0
28	5-Jul	5	31	310	0	0	0	0	6	7.0	43.0
29	12-Jul	18	72	1,121	0	0	0	0	8	7.0	55.0
30	19-Jul	3	56	1,310	0	0	0	0	9	7.0	62.0
31	26-Jul	9	45	1,444	0	0	0	0	12	7.0	82.0
32	2-Aug	0	20	880	0	0	0	0	5	7.0	35.0
33	9-Aug	5	15	142	0	0	0	0	2	7.0	15.0
34	16-Aug	0	1	101	0	0	0	0	1	3.0	3.0
Total		95	538	5,586	0	0	0	0	58.7	69	399.0

Appendix A.14. Catch by stock by week for sockeye salmon harvested in the Canadian upper river commercial and aboriginal fisheries in the Stikine River, 1998.

Week	Start Date	Upper River Commercial					Aboriginal Fishery				
		Tahltan	Tuya	Mainstem	Tahltan		Tahltan	Tuya	Mainstem	Tahltan	
					Wild	Planted				Wild	Planted
25	14-Jun						1	2	0	1	0
26	21-Jun						6	11	0	6	0
27	28-Jun	17	29	0	16	1	96	162	0	89	7
28	5-Jul	21	32	0	16	5	122	188	0	101	21
29	12-Jul	123	129	8	112	11	531	555	35	487	44
30	19-Jul	98	140	19	92	6	501	713	96	470	31
31	26-Jul	104	187	0	100	4	517	927	0	495	22
32	2-Aug						457	423	0	457	0
33	9-Aug						71	71	0	71	0
34	16-Aug						50	51	0	50	0
Total		363	517	27	336	27	2,352	3,103	131	2,227	125

Appendix A.15. Weekly salmon and steelhead trout catch and effort in the Canadian test fishery in the Stikine River, 1998.

Week	Start Date	Catch							# Drifts/ Set Hours
		Chinook		Sockeye	Coho	Pink	Chum	Steelhead	
Jacks	Adults								
Drift gillnet									
25	14-Jun	10	17	29	0	0	0	0	50
26	21-Jun	0	4	37	0	0	0	0	30
27	28-Jun	0	2	28	0	0	0	0	20
28	5-Jul	0	0	32	0	0	0	0	30
29	12-Jul	0	0	8	0	2	1	0	10
30	19-Jul	1	0	20	0	3	1	0	20
31	26-Jul	0	0	5	0	6	1	1	10
32	2-Aug	0	1	8	2	5	5	1	40
33	9-Aug	0	0	11	3	0	6	1	30
34	16-Aug	0	0	4	5	3	3	1	30
35	23-Aug	0	0	0	9	0	0	0	49
36	30-Aug	0	0	3	26	0	3	5	87
37	6-Sep	0	0	2	31	1	8	3	98
38	13-Sep	0	1	2	70	0	10	8	96
39	20-Sep	0	0	0	35	0	1	4	77
40	27-Sep	0	0	1	13	0	1	0	85
41	4-Oct	0	0	0	13	0	0	0	58
Total		11	25	190	207	20	40	24	820
Set gillnet		There was no set gillnet test fishery in 1998							
Additional Drifts		There were no additional drifts in the test fishery in 1998							
Total Test Fishery Catch									
25	14-Jun	10	17	29	0	0	0	0	50
26	21-Jun	0	4	37	0	0	0	0	30
27	28-Jun	0	2	28	0	0	0	0	20
28	5-Jul	0	0	32	0	0	0	0	30
29	12-Jul	0	0	8	0	2	1	0	10
30	19-Jul	1	0	20	0	3	1	0	20
31	26-Jul	0	0	5	0	6	1	1	10
32	2-Aug	0	1	8	2	5	5	1	40
33	9-Aug	0	0	11	3	0	6	1	30
34	16-Aug	0	0	4	5	3	3	1	30
35	23-Aug	0	0	0	9	0	0	0	49
36	30-Aug	0	0	3	26	0	3	5	87
37	6-Sep	0	0	2	31	1	8	3	98
38	13-Sep	0	1	2	70	0	10	8	96
39	20-Sep	0	0	0	35	0	1	4	77
40	27-Sep	0	0	1	13	0	1	0	85
41	4-Oct	0	0	0	13	0	0	0	58
Total Test Catch		11	25	190	207	20	40	24	820

Appendix A.16. Weekly catch, CPUE, and migratory timing of Tahltan, Tuya, and mainstem sockeye stocks in the Stikine test fishery, 1998. Sex specific age compositions were calculated and the smoothed stock compositions of the females sampled for egg diameters was expanded to the catch by age.

Week	Proportions			Catch			CPUE			Migratory Timing			
	Tahltan	Tuya	Mainstem	Tahltan	Tuya	Mainstem	Tahltan	Tuya	Mainstem	Total	Tahltan	Tuya	Mainstem
Drift gillnet													
25	0.517	0.345	0.138	15	10	4	0.300	0.200	0.080	0.580	0.041	0.027	0.011
26	0.595	0.378	0.027	22	14	1	0.733	0.467	0.033	1.233	0.100	0.063	0.005
27	0.214	0.643	0.143	6	18	4	0.300	0.900	0.200	1.400	0.041	0.122	0.027
28	0.656	0.188	0.156	21	6	5	0.700	0.200	0.167	1.067	0.095	0.027	0.023
29	0.625	0.125	0.250	5	1	2	0.500	0.100	0.200	0.800	0.068	0.014	0.027
30	0.050	0.100	0.850	1	2	17	0.050	0.100	0.850	1.000	0.007	0.014	0.115
31	0.000	0.000	1.000	0	0	5	0.000	0.000	0.500	0.500	0.000	0.000	0.068
32	0.000	0.000	1.000	0	0	8	0.000	0.000	0.200	0.200	0.000	0.000	0.027
33	0.000	0.000	1.000	0	0	11	0.000	0.000	0.367	0.367	0.000	0.000	0.050
34	0.000	0.000	1.000	0	0	4	0.000	0.000	0.133	0.133	0.000	0.000	0.018
35	0.000	0.000	1.000	0	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
36	0.000	0.000	1.000	0	0	3	0.000	0.000	0.034	0.034	0.000	0.000	0.005
37	0.000	0.000	1.000	0	0	2	0.000	0.000	0.020	0.020	0.000	0.000	0.003
38	0.000	0.000	1.000	0	0	2	0.000	0.000	0.021	0.021	0.000	0.000	0.003
39	0.000	0.000	1.000	0	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40	0.000	0.000	1.000	0	0	1	0.000	0.000	0.012	0.012	0.000	0.000	0.002
Total				70	51	69	2.583	1.967	2.817	7.367			
Proportion				0.368	0.268	0.363		Proportion of run			0.351	0.267	0.382
There was no set gillnet test fishery in 1998													
There were no additional drifts in the test fishery in 1998													
Total Test Fishery Catches													
								Tahltan		Tahltan			
								Wild	Planted	Wild	Planted		
25	0.517	0.345	0.138	15	10	4		0.448	0.069	13	2		
26	0.595	0.378	0.027	22	14	1		0.297	0.297	11	11		
27	0.214	0.643	0.143	6	18	4		0.214	0.000	6	0		
28	0.656	0.188	0.156	21	6	5		0.656	0.000	21	0		
29	0.625	0.125	0.250	5	1	2		0.625	0.000	5	0		
30	0.050	0.100	0.850	1	2	17		0.050	0.000	1	0		
31	0.000	0.000	1.000	0	0	5		0.000	0.000	0	0		
32	0.000	0.000	1.000	0	0	8		0.000	0.000	0	0		
33	0.000	0.000	1.000	0	0	11		0.000	0.000	0	0		
34	0.000	0.000	1.000	0	0	4		0.000	0.000	0	0		
35	0.000	0.000	1.000	0	0	0		0.000	0.000	0	0		
36	0.000	0.000	1.000	0	0	3		0.000	0.000	0	0		
37	0.000	0.000	1.000	0	0	2		0.000	0.000	0	0		
38	0.000	0.000	1.000	0	0	2		0.000	0.000	0	0		
39	0.000	0.000	1.000	0	0	0		0.000	0.000	0	0		
40	0.000	0.000	1.000	0	0	1		0.000	0.000	0	0		
Total				70	51	69				57	13		
Proportion				0.368	0.268	0.363				0.300	.068		

Appendix A.17. Daily counts of adult sockeye salmon passing through Tahltan Lake weir, 1998.

Date	Count <sup>a</sup>	Cumulative		Date	Count	Cumulative	
		Count	Percent			Count	Percent
11-Jul	25	25	0.2	15-Aug	588	11,448	90.4
12-Jul	71	96	0.8	16-Aug	141	11,589	91.6
13-Jul	112	208	1.6	17-Aug	67	11,656	92.1
14-Jul	30	238	1.9	18-Aug	108	11,764	92.9
15-Jul	37	275	2.2	19-Aug	134	11,898	94.0
16-Jul	60	335	2.6	20-Aug	119	12,017	94.9
17-Jul	113	448	3.5	21-Aug	51	12,068	95.3
18-Jul	274	722	5.7	22-Aug	37	12,105	95.6
19-Jul	545	1,267	10.0	23-Aug	139	12,244	96.7
20-Jul	716	1,983	15.7	24-Aug	45	12,289	97.1
21-Jul	745	2,728	21.6	25-Aug	2	12,291	97.1
22-Jul	725	3,453	27.3	26-Aug	47	12,338	97.5
23-Jul	1,577	5,030	39.7	27-Aug	40	12,378	97.8
24-Jul	952	5,982	47.3	28-Aug	5	12,383	97.8
25-Jul	949	6,931	54.8	29-Aug	36	12,419	98.1
26-Jul	388	7,319	57.8	30-Aug	44	12,463	98.5
27-Jul	439	7,758	61.3	31-Aug	74	12,537	99.0
28-Jul	412	8,170	64.5	1-Sep	33	12,570	99.3
29-Jul	591	8,761	69.2	2-Sep	8	12,578	99.4
30-Jul	384	9,145	72.2	3-Sep	9	12,587	99.4
31-Jul	248	9,393	74.2	4-Sep	1	12,588	99.4
1-Aug	61	9,454	74.7	5-Sep	6	12,594	99.5
2-Aug	236	9,690	76.6	6-Sep	6	12,600	99.5
3-Aug	69	9,759	77.1	7-Sep	26	12,626	99.7
4-Aug	27	9,786	77.3	8-Sep	3	12,629	99.8
5-Aug	51	9,837	77.7	9-Sep	3	12,632	99.8
6-Aug	60	9,897	78.2	10-Sep	0	12,632	99.8
7-Aug	60	9,957	78.7	11-Sep	9	12,641	99.9
8-Aug	89	10,046	79.4	12-Sep	1	12,642	99.9
9-Aug	22	10,068	79.5	13-Sep	0	12,642	99.9
10-Aug	93	10,161	80.3	14-Sep	4	12,646	99.9
11-Aug	200	10,361	81.9	15-Sep	3	12,649	99.9
12-Aug	94	10,455	82.6	16-Sep	6	12,655	100.0
13-Aug	313	10,768	85.1	17-Sep	3	12,658	100.0
14-Aug	92	10,860	85.8	18-Sep	0	12,658	100.0
		Hatchery	Wild	Total			
Total Counted				12,658			
Fish removed for broodstock		75	2,3,024	-3,099 <sup>b</sup>			
Fish removed for otolith samples		26	364	-390 <sup>c</sup>			
Total Spawners		749	8,420	9,169 <sup>d</sup>			

<sup>a</sup> A total of 20 sockeye was added to the July 11th count (professional judgement) as the weir was installed late, after the run had commenced due to forest fires in the vicinity.

<sup>b</sup> A total of 1,574 females and 1,525 males were taken for broodstock (93 rejects included in the broodstock total).

<sup>c</sup> 390 fish were sacrificed for otolith analysis.

<sup>d</sup> unweighted ratio of wild to hatchery Tahltan fish from the weir samples applied to number of spawners

Appendix A.18. Daily counts of sockeye salmon smolt migrating through Tahltan Lake smolt weir, 1998.

Date	Count	Cumulative Count	Percent	Date	Count	Cumulative Count	Percent
8-May	3	3	0.0	6-Jun	1,375	504,751	93.3
9-May	4	7	0.0	7-Jun	6,412	511,163	94.5
10-May	31	38	0.0	8-Jun	6,903	518,066	95.8
11-May	44	82	0.0	9-Jun	3,657	521,723	96.5
12-May	369	451	0.1	10-Jun	1,072	522,795	96.7
13-May	41	492	0.1	11-Jun	1,708	524,503	97.0
14-May	82	574	0.1	12-Jun	276	524,779	97.0
15-May	10,637	11,211	2.1	13-Jun	45	524,824	97.0
16-May	7,137	18,348	3.4	14-Jun	28	524,852	97.0
17-May	2,199	20,547	3.8	15-Jun	303	525,155	97.1
18-May	42,451	62,998	11.6	16-Jun	2,750	527,905	97.6
19-May	40,441	103,439	19.1	17-Jun	168	528,073	97.6
20-May	9,361	112,800	20.9	18-Jun	4,775	532,848	98.5
21-May	5,085	117,885	21.8	19-Jun	3,977	536,825	99.3
22-May	28,973	146,858	27.2	20-Jun	760	537,585	99.4
23-May	5,424	152,282	28.2	21-Jun	47	537,632	99.4
24-May	1,799	154,081	28.5	22-Jun	1,576	539,208	99.7
25-May	1,403	155,484	28.7	23-Jun	56	539,264	99.7
26-May	11,205	166,689	30.8	24-Jun	107	539,371	99.7
27-May	8,122	174,811	32.3	25-Jun	164	539,535	99.8
28-May	131,800	306,611	56.7	26-Jun	585	540,120	99.9
29-May	19,421	326,032	60.3	27-Jun	404	540,524	99.9
30-May	59,070	385,102	71.2	28-Jun	161	540,685	100.0
31-May	23,932	409,034	75.6	29-Jun	155	540,840	100.0
1-Jun	13,643	422,677	78.1	30-Jun	26	540,866	100.0
2-Jun	7,109	429,786	79.5				
3-Jun	25,654	455,440	84.2				
4-Jun	12,797	468,237	86.6	Wild		326,420	
5-Jun	35,139	503,376	93.1	Hatchery		214,446	
						540,866	

Appendix A.19. Daily counts of adult chinook salmon passing through Little Tahltan weir, 1998.

Date	Large Chinook			Chinook Jacks		
	Count	Cumulative		Count	Cumulative	
		Count	Percent		Count	Percent
19-Jun	3	3	0.1	0	0	0.0
20-Jun	7	10	0.2	0	0	0.0
21-Jun	0	10	0.2	0	0	0.0
22-Jun	43	53	1.1	0	0	0.0
23-Jun	33	86	1.8	0	0	0.0
24-Jun	74	160	3.3	0	0	0.0
25-Jun	84	244	5.0	0	0	0.0
26-Jun	144	388	8.0	3	3	8.1
27-Jun	154	542	11.1	0	3	8.1
28-Jun	170	712	14.6	1	4	10.8
29-Jun	232	944	19.3	1	5	13.5
30-Jun	216	1,160	23.8	2	7	18.9
1-Jul	137	1,297	26.6	2	9	24.3
2-Jul	138	1,435	29.4	1	10	27.0
3-Jul	163	1,598	32.8	2	12	32.4
4-Jul	156	1,754	35.9	1	13	35.1
5-Jul	163	1,917	39.3	0	13	35.1
6-Jul	22	1,939	39.7	1	14	37.8
7-Jul	12	1,951	40.0	0	14	37.8
8-Jul	28	1,979	40.6	0	14	37.8
9-Jul	68	2,047	42.0	0	14	37.8
10-Jul	109	2,156	44.2	0	14	37.8
11-Jul	117	2,273	46.6	0	14	37.8
12-Jul	62	2,335	47.9	0	14	37.8
13-Jul	46	2,381	48.8	0	14	37.8
14-Jul	154	2,535	52.0	0	14	37.8
15-Jul	69	2,604	53.4	0	14	37.8
16-Jul	127	2,731	56.0	1	15	40.5
17-Jul	145	2,876	58.9	0	15	40.5
18-Jul	145	3,021	61.9	1	16	43.2
19-Jul	111	3,132	64.2	1	17	45.9
20-Jul	149	3,281	67.2	3	20	54.1
21-Jul	130	3,411	69.9	1	21	56.8
22-Jul	155	3,566	73.1	1	22	59.5
23-Jul	95	3,661	75.0	0	22	59.5
24-Jul	129	3,790	77.7	0	22	59.5
25-Jul	90	3,880	79.5	0	22	59.5
26-Jul	207	4,087	83.8	1	23	62.2
27-Jul	114	4,201	86.1	0	23	62.2
28-Jul	180	4,381	89.8	0	23	62.2
29-Jul	49	4,430	90.8	1	24	64.9
30-Jul	60	4,490	92.0	0	24	64.9
31-Jul	52	4,542	93.1	0	24	64.9
1-Aug	57	4,599	94.3	1	25	67.6
2-Aug	59	4,658	95.5	0	25	67.6
3-Aug	61	4,719	96.7	2	27	73.0
4-Aug	50	4,769	97.7	1	28	75.7
5-Aug	45	4,814	98.7	4	32	86.5
6-Aug	28	4,842	99.2	1	33	89.2
7-Aug	18	4,860	99.6	1	34	91.9
8-Aug	3	4,863	99.7	0	34	91.9
9-Aug	1	4,864	99.7	0	34	91.9
10-Aug	9	4,873	99.9	2	36	97.3
11-Aug	2	4,875	99.9	1	37	100.0
12-Aug	4	4,879	100.0	0	37	100.0
Total Counted		4,879			37	
Broodstock		6				
Escapement		4,873			37	

Appendix B.1. Salmon catch and effort in the Alaskan Subdistrict 106-41/42 (Sumner Strait) commercial drift gillnet fishery, 1960-1998.

Year	Catch					Steelhead	Effort	
	Chinook	Sockeye	Coho	Pink	Chum		Permit Days	Days Open
1960	24	9,005	277	1,103	362		251	17.0
1961	75	9,488	1,851	26,435	9,657		359	48.0
1962	131	19,692	6,548	45,987	9,544		811	44.0
1963	308	45,364	15,702	134,974	50,301		2,311	47.0
1964	314	52,910	27,193	183,394	22,540		2,344	49.0
1965	679	58,736	30,570	162,271	15,763		1,658	50.8
1966	690	65,721	30,792	96,287	24,235		2,080	74.3
1967	668	60,148	10,573	52,284	19,626		1,463	27.0
1968	1,010	50,212	46,111	82,012	39,001		2,997	52.0
1969	607	46,258	6,094	92,075	6,393	482	1,147	31.0
1970	420	26,812	15,153	29,102	18,092	366	905	41.0
1971	671	33,991	24,727	283,739	19,329	363	1,619	50.0
1972	1,747	74,745	60,827	40,644	46,511	515	2,152	41.0
1973	1,540	55,254	24,921	160,297	62,486	375	2,253	26.0
1974	1,342	46,760	28,889	57,296	38,045	238	1,579	28.0
1975	467	19,319	4,650	29,340	7,762	112	515	17.0
1976	237	9,319	10,367	20,251	2,301	71	366	19.0
1977	202	47,408	1,819	51,038	4,240	33	447	17.0
1978	274	1,422	26,762	9,546	3,142	70	389	26.5
1979	458	34,807	12,087	176,395	16,816	154	952	25.0
1980	205	48,434	10,894	17,072	15,162	39	596	16.0
1981	598	132,293	13,161	220,194	25,682	156	1,732	25.0
1982	648	121,556	21,376	10,338	11,911	199	1,083	22.0
1983	268	28,153	41,208	74,347	13,001	198	875	32.0
1984	136	27,372	19,124	99,807	28,461	268	587	32.0
1985	548	172,088	50,577	319,379	45,566	664	1,726	38.0
1986	421	85,247	104,328	105,347	48,471	684	1,896	32.0
1987	441	79,165	17,776	117,059	25,877	318	978	20.0
1988	452	57,337	6,349	10,894	42,210	341	815	18.0
1989	581	107,886	55,671	418,044	40,156	268	1,716	34.0
1990	759	104,922	94,526	84,543	42,474	767	1,827	34.0
1991	857	88,723	136,798	64,182	84,970	135	2,118	39.0
1992	743	146,608	190,885	38,483	100,666	138	2,630	40.0
1993	458	129,859	134,902	296,986	96,995	107	2,728	38.0
1994	456	157,526	191,664	66,225	125,818	59	2,988	43.0
1995	663	133,713	109,613	154,004	189,369	100	2,349	34.0
1996	487	223,784	159,319	70,620	162,872	97	3,623	46.0
1997	829	118,675	52,917	414,619	100,612		2,402	39.0
Averages								
60-97	564	71,861	47,290	113,595	42,537	261	1,560	34.5
88-97	629	126,903	113,264	161,860	98,614	224	2,320	36.5
1998	334	79,052	175,124	196,403	200,892		2,999	43.0

Appendix B.2. Stock proportions and catches of sockeye salmon in the Alaskan Subdistrict 106-41/42 (Sumner Strait) commercial drift gillnet fishery, 1985-1998. Data based on SPA.

Year	Alaska	Canada	Stikine				Tahltan	
			Tahltan <sup>a</sup>	Tuya	Mainstem	Total	Wild	Planted
Proportions								
1985	0.480	0.401	0.109		0.010	0.119		
1986	0.662	0.308	0.024		0.006	0.030		
1987	0.816	0.166	0.015		0.003	0.018		
1988	0.868	0.112	0.019		0.001	0.020		
1989	0.653	0.303	0.009		0.036	0.044		
1990	0.579	0.395	0.008		0.018	0.026		
1991	0.460	0.377	0.129		0.034	0.163		
1992	0.582	0.241	0.088		0.089	0.177		
1993	0.369	0.327	0.134		0.169	0.304		
1994	0.531	0.271	0.166		0.032	0.198	0.127	0.040
1995	0.287	0.565	0.099	0.001	0.048	0.149	0.049	0.051
1996	0.479	0.245	0.228	0.039	0.009	0.276	0.203	0.025
1997	0.538	0.269	0.079	0.101	0.014	0.193	0.056	0.023
Averages								
85-97	0.562	0.306	0.085	0.047	0.036	0.132	0.108	0.035
1998	0.550	0.337	0.017	0.096	0.000	0.113	0.014	0.003
Catches								
1985	82,563	68,962	18,801		1,762	20,563		
1986	56,462	26,214	2,070		501	2,571		
1987	64,582	13,170	1,155		258	1,413		
1988	49,776	6,426	1,071		64	1,135		
1989	70,436	32,663	957		3,830	4,787		
1990	60,795	41,415	801		1,911	2,712		
1991	40,832	33,406	11,459		3,026	14,485		
1992	85,364	35,277	12,961		13,005	25,967		
1993	47,970	42,450	17,446		21,992	39,438		
1994	83,692	42,620	26,164		5,050	31,214	19,934	6,230
1995	38,343	75,505	13,292	125	6,448	19,865	6,514	6,778
1996	107,193	54,823	50,924	8,731	2,113	61,768	45,340	5,584
1997	63,827	31,892	9,327	11,937	1,692	22,956	6,594	2,733
Averages								
85-97	65,526	38,833	12,802	6,931	4,743	19,144	19,596	5,331
1998	43,479	26,661	1,326	7,555	31	8,912	1,125	201

<sup>a</sup> Includes thermally marked fish.



Appendix B.3. Salmon catch and effort in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1960-1998.

Year	Catch						Effort	
	Chinook	Sockeye	Coho	Pink	Chum	Steelhead	Permit Days	Days Open
1960	22	1,349	59	143	140		118	13.0
1961	341	11,126	13,083	97,801	54,822		1,378	57.0
1962	1,177	27,341	35,728	210,633	49,575		3,882	52.0
1963	1,250	35,462	36,376	379,093	39,723		3,278	51.0
1964	1,766	23,598	37,316	259,684	21,305		3,039	49.0
1965	1,123	29,013	45,158	463,577	11,895		2,849	50.8
1966	975	24,126	32,031	304,645	16,521		2,898	74.3
1967	650	26,237	7,097	39,325	6,744		1,048	27.0
1968	306	14,459	21,040	87,095	22,365		1,968	52.0
1969	270	24,060	4,186	104,998	4,510	77	1,026	31.0
1970	365	15,966	20,317	65,790	14,139	107	1,025	41.0
1971	665	19,211	23,358	244,236	18,351	222	1,517	50.0
1972	826	26,593	32,600	48,823	25,871	177	1,276	41.0
1973	391	16,741	13,526	143,324	25,243	125	1,303	26.0
1974	584	10,586	16,762	47,107	12,264	97	712	28.0
1975	2,120	12,732	26,312	173,675	16,206	110	1,159	8.5
1976	147	6,162	8,759	119,188	4,567	57	527	21.0
1977	469	19,615	6,582	368,069	9,060	32	940	21.0
1978	2,408	40,152	28,816	215,169	13,403	133	1,148	16.0
1979	2,262	31,566	15,996	471,817	18,691	165	1,848	25.0
1980	375	58,988	5,772	28,594	11,115	52	749	25.0
1981	967	49,708	9,453	217,379	8,614	31	1,321	26.0
1982	1,000	72,140	10,288	15,141	6,719	83	647	21.0
1983	299	20,689	21,234	133,943	7,143	63	589	37.0
1984	756	64,281	22,235	243,448	41,797	230	1,236	24.0
1985	1,141	92,899	40,565	265,567	24,095	339	1,372	36.0
1986	1,283	60,462	90,584	203,137	33,818	630	1,664	31.0
1987	395	57,262	16,758	126,423	16,148	171	799	20.0
1988	652	35,192	6,754	58,665	27,410	246	682	19.0
1989	963	84,848	36,714	683,150	27,195	126	1,583	34.0
1990	1,349	80,883	69,709	234,643	30,758	193	1,676	34.0
1991	1,209	54,389	61,005	68,557	38,760	63	1,505	39.0
1992	612	56,547	108,050	55,765	39,802	49	1,603	40.0
1993	534	76,096	96,136	240,974	37,606	18	1,646	38.0
1994	298	53,522	76,167	113,769	50,200	36	1,606	43.0
1995	288	73,585	60,948	294,159	110,709	10	1,422	34.0
1996	157	87,316	64,321	117,415	120,418	33	1,580	39.0
1997	246	49,843	24,633	374,432	85,844		1,329	38.0
Averages								
60-97	806	40,651	32,801	192,615	29,041	131	1,472	34.5
88-97	631	65,222	60,444	224,153	56,870	86	1,463	35.8
1998	184	34,383	98,073	306,252	131,130		1,522	43.0

Appendix B.4. Stock proportions and catches of sockeye salmon in the Alaskan Subdistrict 106-30 (Clarence Strait) commercial drift gillnet fishery, 1985-1998. Data based on SPA.

Year	Alaska	Canada	Stikine				Tahltan	
			Tahltan <sup>a</sup>	Tuya	Mainstem	Total	Wild	Planted
Proportions								
1985	0.477	0.453	0.056		0.013	0.070		
1986	0.726	0.272	0.000		0.002	0.002		
1987	0.844	0.140	0.004		0.012	0.016		
1988	0.883	0.095	0.021		0.000	0.021		
1989	0.662	0.322	0.002		0.015	0.016		
1990	0.645	0.340	0.001		0.013	0.015		
1991	0.683	0.257	0.052		0.008	0.060		
1992	0.630	0.211	0.022		0.138	0.159		
1993	0.451	0.357	0.036		0.156	0.192		
1994	0.718	0.207	0.069		0.006	0.075	0.055	0.015
1995	0.370	0.551	0.047	0.000	0.032	0.079	0.036	0.010
1996	0.665	0.326	0.008	0.001	0.001	0.010	0.006	0.002
1997	0.657	0.276	0.019	0.026	0.021	0.066	0.004	0.015
Average								
85-97	0.647	0.293	0.026	0.009	0.032	0.060	0.025	0.011
1998	0.710	0.237	0.010	0.043	0.000	0.053	0.010	0.000
Catch								
1985	44,351	42,053	5,244		1,251	6,495		
1986	43,875	16,471	11		105	116		
1987	48,311	8,020	221		710	931		
1988	31,092	3,358	742		0	742		
1989	56,167	27,296	154		1,231	1,385		
1990	52,188	27,506	114		1,075	1,189		
1991	37,164	13,971	2,804		450	3,255		
1992	35,613	11,930	1,226		7,778	9,004		
1993	34,330	27,167	2,758		11,841	14,599		
1994	38,426	11,063	3,712		321	4,033	2,923	789
1995	27,201	40,570	3,423	0	2,391	5,814	2,668	755
1996	58,028	28,448	674	90	76	840	486	188
1997	32,759	13,773	952	1,295	1,064	3,311	202	750
Average								
85-97	41,500	20,894	1,695		2,176	3,978	1,570	621
1998	24,411	8,150	352	1,465	5	1,822	352	0

<sup>a</sup>Includes thermally marked fish.

Appendix B.5. Salmon catch and effort in the Alaskan District 106 commercial drift gillnet fisheries, 1964-1998. Catches do not include Blind Slough terminal area harvests. Effort may be less than the sum of effort from 106-41/42 and 106-30 since some boats fished in more than one subdistrict.

Year	Catch					Effort	
	Chinook	Sockeye	Coho	Pink <sup>a</sup>	Chum	Steelhead	Permit Days Open
1960	46	10,354	336	1,246	502		369
1961	416	20,614	14,934	124,236	64,479		1,737
1962	1,308	47,033	42,276	256,620	59,119		4,693
1963	1,558	80,826	52,078	514,067	90,024		5,589
1964	2,080	76,508	64,509	443,078	43,845		5,383
1965	1,802	87,749	75,728	625,848	27,658		4,507
1966	1,665	89,847	62,823	400,932	40,756		4,978
1967	1,318	86,385	17,670	91,609	26,370		2,511
1968	1,316	64,671	67,151	169,107	61,366		4,965
1969	877	70,318	10,280	197,073	10,903	559	2,112
1970	785	42,778	35,470	94,892	32,231	473	1,863
1971	1,336	53,202	48,085	527,975	37,680	585	2,774
1972	2,573	101,338	93,427	89,467	72,382	692	3,311
1973	1,931	71,995	38,447	303,621	87,729	500	3,300
1974	1,926	57,346	45,651	104,403	50,309	335	2,177
1975	2,587	32,051	30,962	203,015	23,968	222	1,781
1976	384	15,481	19,126	139,439	6,868	128	922
1977	671	67,023	8,401	419,107	13,300	65	1,381
1978	2,682	41,574	55,578	224,715	16,545	203	1,567
1979	2,720	66,373	28,083	648,212	35,507	319	2,784
1980	580	107,422	16,666	45,666	26,277	91	1,329
1981	1,565	182,001	22,614	437,573	34,296	187	2,928
1982	1,648	193,696	31,664	25,479	18,630	282	1,659
1983	567	48,842	62,442	208,290	20,144	261	1,422
1984	892	91,653	41,359	343,255	70,258	498	1,783
1985	1,689	264,987	91,142	584,946	69,661	1,003	2,625
1986	1,704	145,709	194,912	308,484	82,289	1,314	3,446
1987	836	136,427	34,534	243,482	42,025	489	1,726
1988	1,104	92,529	13,103	69,559	69,620	587	1,460
1989	1,544	192,734	92,385	1,101,194	67,351	394	3,080
1990	2,108	185,805	164,235	319,186	73,232	960	3,440
1991	2,066	143,112	197,803	132,739	123,730	198	3,642
1992	1,355	203,155	298,935	94,248	140,468	187	4,227
1993	992	205,955	231,038	537,960	134,601	125	4,353
1994	754	211,048	267,831	179,994	176,018	95	4,353
1995	951	207,298	170,561	448,163	300,078	110	4,468
1996	644	311,100	223,640	188,035	283,290	130	5,290
1997	1,075	168,518	77,550	789,051	186,456		3,668
Averages							
60-97	1,370	112,512	80,090	306,210	71,578	393	2,990
88-97	1,259	192,125	173,708	386,013	155,484	310	3,798
1998	518	113,435	273,197	502,655	332,022		4,398
Alaska Hatchery Contribution							
1989			5,081				
1990			42,859				
1991			64,088				
1992			84,568				
1993			77,860				
1994	414	1,667	39,841		67,114		
1995	353	4,553	27,330		72,417		
1996	326	5,787	54,621		109,245		
1997	375	1,463	19,512		80,015		
Averages							
89-97	367	3,368	46,196		82,198		
1998	290	706	101,129		118,096		
Catches not including Alaska hatchery contributions							
1989	1,544	192,734	87,304	1,101,194	67,351	394	3,080
1990	2,108	185,805	121,376	319,186	73,232	960	3,440
1991	2,066	143,112	133,715	132,739	123,730	198	3,642
1992	1,355	203,155	214,367	94,248	140,468	187	4,227
1993	992	205,955	153,178	537,960	134,601	125	4,353
1994	340	209,381	227,990	179,994	108,904	95	4,353
1995	598	202,745	143,231	448,163	227,661	110	4,468
1996	318	305,313	169,019	188,035	174,045	130	5,290
1997	700	167,055	58,038	789,051	106,441		3,668
Averages							
89-97	1,113	201,695	145,358	421,174	128,493	275	4,058
1998	228	112,729	172,068	502,655	213,926		4,398

<sup>a</sup> Data not available to estimate contributions of pink salmon from Alaska hatcheries.

Appendix B.6. Stock proportions and catches of sockeye salmon in the Alaskan District 106 commercial drift gillnet fisheries, 1982-1998. Catches do not include Blind Slough terminal area harvest. Data based on SPA.

Year	Alaska	Canada	Stikine				Tahltan	
			Tahltan <sup>a</sup>	Tuya	Mainstem	Total	Wild	Planted
Proportions								
1982	0.486	0.319				0.194		
1983	0.668	0.217	0.103		0.013	0.116		
1984	0.658	0.269	0.029		0.044	0.074		
1985	0.479	0.419	0.091		0.011	0.102		
1986	0.689	0.293	0.014		0.004	0.018		
1987	0.827	0.155	0.010		0.007	0.017		
1988	0.874	0.106	0.020		0.001	0.020		
1989	0.657	0.311	0.006		0.026	0.032		
1990	0.608	0.371	0.005		0.016	0.021		
1991	0.545	0.331	0.100		0.024	0.124		
1992	0.595	0.232	0.070		0.102	0.172		
1993	0.400	0.338	0.098		0.164	0.262		
1994	0.579	0.254	0.142		0.025	0.167	0.108	0.033
1995	0.316	0.560	0.081	0.001	0.043	0.124	0.044	0.036
1996	0.531	0.268	0.166	0.028	0.007	0.201	0.147	0.019
1997	0.573	0.271	0.061	0.079	0.016	0.156	0.040	0.021
Averages								
83-97	0.600	0.293	0.066		0.034	0.107		
88-97	0.568	0.304	0.075	0.036	0.043	0.128	0.085	0.027
1998	0.598	0.307	0.015	0.080	0.000	0.095	0.013	0.002
Catches								
1982	94,225	61,821				37,650		
1983	32,603	10,589	5,020		631	5,650		
1984	60,278	24,624	2,673		4,078	6,751		
1985	126,914	111,015	24,045		3,013	27,058		
1986	100,337	42,685	2,081		606	2,687		
1987	112,893	21,190	1,376		968	2,344		
1988	80,868	9,784	1,813		64	1,877		
1989	126,603	59,959	1,111		5,061	6,172		
1990	112,983	68,921	915		2,986	3,901		
1991	77,996	47,376	14,263		3,476	17,740		
1992	120,977	47,207	14,187		20,784	34,971		
1993	82,300	69,617	20,204		33,833	54,037		
1994	122,118	53,683	29,876		5,371	35,247	22,857	7,019
1995	65,544	116,075	16,715	125	8,839	25,679	9,182	7,533
1996	165,221	83,271	51,598	8,821	2,189	62,608	45,826	5,772
1997	96,586	45,665	10,279	13,232	2,756	26,267	6,796	3,483
Averages								
83-97	98,948	54,111	13,077		6,310	20,866		
88-97	105,120	60,156	16,096	7,393	8,536	26,850	21,165	5,952
1998	67,890	34,811	1,678	9,020	36	10,734	1,477	201

<sup>a</sup> Includes thermally marked fish.

Appendix B.7. Salmon catch and effort in the Alaskan District 108 commercial drift gillnet fishery, 1960-1998. Catches do not include Ohmer Creek terminal area harvests. Permit days are adjusted for boats which did not fish the entire opening and may total less than the sum of the permits times days open.

Year	Catch					Effort		
	Chinook	Sockeye	Coho	Pink <sup>a</sup>	Chum	Steelhead	Permit Days	Days Open
1960								
1961								
1962	618	4,430	3,921	2,889	2,035			27.0
1963	1,430	9,979	11,612	10,198	11,024			53.0
1964	2,911	20,299	29,388	114,555	10,771			62.0
1965	3,106	21,419	8,301	4,729	2,480			48.0
1966	4,516	36,710	16,493	61,908	17,730			62.0
1967	6,372	29,226	6,747	4,713	5,955			40.0
1968	4,604	14,594	36,407	91,028	14,537			61.0
1969	5,021	19,209	5,790	11,877	2,311	238	967	46.0
1970	3,207	15,120	18,403	20,523	12,305	109	1,222	51.0
1971	3,717	18,143	14,876	4,665	21,806	62	1,070	57.0
1972	9,332	51,734	38,520	17,153	17,363	193	2,095	64.0
1973	9,254	21,387	5,837	6,585	6,680	67	1,519	39.0
1974	8,199	2,428	16,021	4,188	2,107	57	1,178	28.5
1975	1,534	0	0	0	1	5	258	8.0
1976	1,123	18	6,056	722	124	20	372	19.0
1977	1,443	48,374	14,405	16,253	4,233	24	742	23.0
1978	531	56	32,650	1,157	1,001	60	565	12.0
1979	91	2,158	234	13,478	1,064	3	94	5.0
1980	631	14,053	2,946	7,224	6,910	8	327	22.0
1981	283	8,833	1,403	1,466	3,594	9	177	9.0
1982	1,033	6,911	19,971	16,988	741	32	494	21.0
1983	47	178	15,369	4,171	675	81	263	17.0
1984	14	1,290	5,141	4,960	1,892	4	56	8.6
1985	20	1,060	1,926	5,325	1,892		70	14.0
1986	102	4,185	7,439	4,901	5,928	5	246	25.0
1987	149	1,629	1,015	3,343	949	4	81	13.0
1988	206	1,246	12	144	3,109	9	66	8.0
1989	310	10,083	4,261	27,640	3,375	10	216	28.0
1990	557	11,574	8,218	13,822	9,382	29	359	34.0
1991	1,504	22,275	15,864	10,935	11,402	11	1,114	48.5
1992	967	52,717	22,127	66,742	15,458	27	1,029	51.0
1993	1,628	76,874	14,307	39,661	22,504	29	1,333	48.0
1994	1,996	97,224	44,891	35,405	27,658	47	2,908	57.0
1995	1,702	76,756	17,834	37,788	54,296	18	1,214	49.5
1996	1,717	154,150	19,059	37,651	135,623	40	1,696	56.5
1997	2,566	93,039	2,140	65,745	38,913		2,285	44.0
Averages								
60-97	2,290	26,371	13,044	21,880	12,797	44	828	35.0
88-97	1,315	59,594	14,871	33,553	32,172	24	1,222	42.5
1998	460	22,031	19,206	39,246	41,057		1,073	45.0
Alaska Hatchery Contribution								
1989			55					
1990			2,539					
1991			3,458					
1992			7,036					
1993			887					
1994	571	4	2,040		2,159			
1995	758	268	1,085		18,333			
1996	840	418	1,271		40,911			
1997	740	0	162		14,544			
Averages								
89-97	727	173	2,059		18,987			
1998	302	62	3,043		15,140			
Catches not including Alaska hatchery contributions								
1989	310	10,083	4,206	27,640	3,375	10	216	28.0
1990	557	11,574	5,679	13,822	9,382	29	359	34.0
1991	1,504	22,275	12,406	10,935	11,402	11	1,114	48.5
1992	967	52,717	15,091	66,742	15,458	27	1,029	51.0
1993	1,628	76,874	13,420	39,661	22,504	29	1,333	48.0
1994	1,425	97,220	42,851	35,405	25,499	47	2,908	57.0
1995	944	76,488	16,749	37,788	35,963	18	1,214	49.5
1996	877	153,732	17,788	37,651	94,712	40	1,696	56.5
1997	1,826	93,039	1,978	65,745	24,369		2,285	44.0
Averages								
89-97	1,115	66,000	14,463	37,265	26,963	26	1,350	46.3
1998	158	21,969	16,163	39,246	25,917		1,073	45.0

<sup>a</sup> Data not available to estimate contributions of pink salmon from Alaska hatcheries.

Appendix B.8. Stock proportions and catches of sockeye salmon in the Alaskan District 108 commercial drift gillnet fishery, 1985-1998. Catches do not include Ohmer Creek terminal area harvests. Data based on SPA.

Year	Alaska	Canada	Stikine			Total	Tahltan	
			Tahltan <sup>a</sup>	Tuya	Mainstem		Wild	Planted
1985	0.064	0.000	0.292		0.644	0.936		
1986	0.206	0.017	0.094		0.683	0.777		
1987 <sup>b</sup>	0.125	0.000	0.438		0.437	0.875		
1988	0.213	0.039	0.178		0.571	0.749		
1989	0.117	0.054	0.034		0.795	0.829		
1990	0.395	0.128	0.111		0.366	0.477		
1991	0.173	0.118	0.395		0.314	0.709		
1992	0.163	0.051	0.258		0.528	0.786		
1993	0.231	0.114	0.256		0.399	0.655		
1994	0.326	0.208	0.362		0.103	0.466	0.246	0.116
1995	0.135	0.204	0.455	0.006	0.200	0.661	0.198	0.257
1996	0.102	0.082	0.622	0.069	0.125	0.816	0.552	0.070
1997	0.058	0.131	0.362	0.261	0.189	0.812	0.260	0.102
Averages								
85-97	0.178	0.088	0.297	0.112	0.412	0.734	0.314	0.136
1998	0.115	0.108	0.189	0.244	0.343	0.777	0.182	0.008
Catch								
1985	68	0	310		683	992		
1986	862	71	393		2,858	3,252		
1987	204	0	714		712	1,425		
1988	265	48	222		711	933		
1989	1,180	545	341		8,017	8,358		
1990	4,576	1,479	1,280		4,239	5,519		
1991	3,859	2,622	8,807		6,987	15,794		
1992	8,604	2,696	13,599		27,818	41,417		
1993	17,758	8,742	19,688		30,686	50,374		
1994	31,715	20,250	35,222		10,037	45,259	23,936	11,286
1995	10,374	15,641	34,950	461	15,330	50,741	15,224	19,726
1996	15,755	12,618	95,837	10,621	19,319	125,777	85,041	10,796
1997	5,381	12,152	33,644	24,288	17,574	75,506	24,144	9,500
Averages								
85-97	7,739	5,913	18,847	11,790	11,152	32,719	37,086	12,827
1998	2,541	2,376	4,170	5,383	7,561	17,114	4,000	170

<sup>a</sup> Includes thermally marked fish.

<sup>b</sup> There was no data available to determine the ratio of Tahltan to mainstem Stikine stocks; a 1:1 ratio was assumed.

Appendix B.9. Salmon catch in the Alaskan District 106 and 108 test fisheries, 1984-1998. Only years with test fishery openings are listed.

Year	Catch					Boat
	Chinook	Sockeye	Coho	Pink	Chum	Hours
Sub-district 106-41 (Sumner Strait)						
1984	13	1,370	101	975	793	142.51
1985	16	4,345	301	3,230	746	156.31
1986	23	982	177	60	248	99.45
1987	24	2,659	799	4,117	741	508.10
1988	11	1,020	89	137	772	121.00
1989	11	2,043	275	6,069	856	60.20
1990	13	2,256	432	372	552	7.00
1994	0	12	1	0	16	11.00
Sub-district 106-30 (Clarence Strait)						
1986	24	363	95	80	58	23.25
1987	1	899	589	1,705	467	384.00
1988	10	16	412	112	598	119.70
1989	4	37	464	431	329	
Total District 106						
1984	13	1,370	101	975	793	142.51
1985	16	4,345	301	3,230	746	156.31
1986	47	1,345	272	140	306	122.70
1987	25	3,558	1,388	5,822	1,208	892.10
1988	21	1,036	501	249	1,370	240.70
1989	15	2,080	739	6,500	1,185	60.20
1990	13	2,256	432	372	552	7.00
1994	0	12	1	0	16	11.00
District 108						
1984	37	641	11	822	813	
1985	33	1,258	11	465	381	71.67
1986	79	564	3	36	315	72.15
1987	30	290	13	1,957	488	76.87
1988	65	451	9	1,091	1,009	126.83
1989	15	1,038	45	2,459	283	63.47
1990	19	866	45	942	643	7.00
1991	21	893	18	390	455	154.99
1992	26	1,299	23	855	252	79.00
1993	30	303	0	18	31	45.00
1998	0	3,510	142	61	235	45.00

Appendix B.10. Stock proportions of sockeye salmon in the Alaskan District 106 and 108 test fisheries, 1984-1998. Data based on SPA. Only years with test fishery openings are listed.

Year	Alaska	Canada	Stikine				Tahltan	
			Tahltan <sup>a</sup>	Tuya	Mainstem	Total	Wild	Planted
Sub-district 106-41 (Sumner Strait) Proportions								
1984	0.658	0.269	0.029		0.044	0.074		
1985	0.480	0.401	0.109		0.010	0.119		
1986	0.834	0.149	0.008		0.009	0.017		
1987	0.816	0.166	0.015		0.003	0.018		
1988	0.868	0.098	0.034		0.000	0.034		
1989	0.624	0.304	0.017		0.056	0.072		
1990	0.548	0.416	0.014		0.022	0.035		
1994	0.500	0.250	0.250		0.000	0.250	0.167	0.083
Sub-district 106-30 (Clarence Strait) Proportions								
1986	0.726	0.272	0.000		0.002	0.002		
1987	0.844	0.140	0.004		0.012	0.016		
1988	0.746	0.254	0.000		0.000	0.000		
1989	0.514	0.486	0.000		0.000	0.000		
District 106 Proportions								
1984	0.658	0.269	0.029		0.044	0.074		
1985	0.480	0.401	0.109		0.010	0.119		
1986	0.805	0.182	0.006		0.007	0.013		
1987	0.823	0.160	0.012		0.006	0.017		
1988	0.867	0.100	0.033		0.000	0.033		
1989	0.622	0.307	0.016		0.055	0.071		
1990	0.548	0.416	0.014		0.022	0.035		
1994	0.500	0.250	0.250		0.000	0.250	0.167	0.083
District 108 Proportions								
1985	0.064	0.000	0.292		0.644	0.936		
1986	0.134	0.044	0.486		0.336	0.822		
1987	0.125	0.000	0.438		0.437	0.875		
1988	0.205	0.049	0.132		0.614	0.746		
1989	0.132	0.084	0.072		0.712	0.784		
1990	0.417	0.172	0.094		0.318	0.411		
1991	0.128	0.128	0.494		0.251	0.745		
1992	0.149	0.076	0.333		0.442	0.774		
1993	0.168	0.109	0.475		0.248	0.719		
1998	0.064	0.041	0.353	0.438	0.104	0.895	0.336	0.016

<sup>a</sup> Includes thermally marked fish.



Appendix B.11. Stock specific catches of sockeye salmon in the Alaskan District 106 and 108 test fisheries, 1984-1998. Data based on SPA. Only years with test fishery openings are listed.

Year	Alaska	Canada	Stikine			Total	Tahltan	
			Tahltan <sup>a</sup>	Tuya	Mainstem		Wild	Planted
Sub-district 106-41 (Sumner Strait) Catches								
1984	901	368	40		61	101		
1985	2,085	1,741	475		44	519		
1986	819	146	8		9	17		
1987	2,169	442	39		9	47		
1988	886	100	35		0	35		
1989	1,274	621	34		114	148		
1990	1,237	939	31		49	80		
1994	6	3	3		0	3	2	1
Subdistrict 106-30 (Clarence Strait) Catches								
1986	263	99	0		1	1		
1987	758	126	3		11	15		
1988	12	4	0		0	0		
1989	19	18	0		0	0		
District 106 Catches								
1984	901	368	40		61	101		
1985	2,085	1,741	475		44	519		
1986	1,082	245	8		9	17		
1987	2,928	568	42		20	62		
1988	898	104	35		0	35		
1989	1,293	639	34		114	148		
1990	1,237	939	31		49	80		
1994	6	3	3		0	3	2	1
District 108 Catches								
1985	81	0	367		810	1,177		
1986	76	25	274		190	464		
1987	36	0	127		127	254		
1988	93	22	59		277	336		
1989	137	87	75		739	814		
1990	361	149	81		275	356		
1991	114	114	441		224	665		
1992	194	99	432		574	1,006		
1993	51	33	144		75	219		
1998	224	145	1,238	1,538	365	3,141	1,181	57

<sup>a</sup> Includes thermally marked fish.

Appendix B.12. Salmon and steelhead trout catch and effort in the Canadian commercial fishery in the lower Stikine River, 1979-1998.

Year	Catch							Effort	
	Chinook		Sockeye	Coho	Pink	Chum	Steelhead	Permit	Days
	Jacks	Large						Days	
1979 <sup>a</sup>	63	712	10,534	10,720	1,994	424	264	756.0	42.0
1980		1,488	18,119	6,629	736	771	362	668.0	41.0
1981		664	21,551	2,667	3,713	1,128	280	522.0	32.0
1982		1,693	15,397	15,904	1,782	722	828	1,063.0	71.0
1983	430	492	15,857	6,170	1,043	274	667	434.0	54.0
1984 <sup>b</sup>									
1985	91	256	17,093	2,172	2,321	532	231	145.5	22.5
1986	365	806	12,411	2,278	107	295	192	239.0	13.5
1987	242	909	6,138	5,728	646	432	217	287.0	20.0
1988	201	1,007	12,766	2,112	418	730	258	320.0	26.5
1989	157	1,537	17,179	6,092	825	674	127	325.0	23.0
1990	680	1,569	14,530	4,020	496	499	188	328.0	29.0
1991	318	641	17,563	2,638	394	208	71	282.4	39.0
1992	89	873	21,031	1,850	122	231	129	235.4	55.0
1993	164	830	38,464	2,616	29	395	63	483.8	58.0
1994	158	1,016	38,462	3,377	89	173	75	430.1	74.0
1995	599	1,067	45,622	3,418	48	256	208	534.0	59.0
1996	221	1,708	66,262	1,402	25	229	153	439.2	81.0
1997	186	3,283	56,995	401	269	222	33	569.4	89.0
Averages <sup>c</sup>									
79-97		1,362	24,776	4,455	837	455	241	448	46.1
88-97	277	1,353	32,887	2,793	272	362	131	395	53.4
1998	328	1,614	37,310	726	55	13	209	374.0	46.5

<sup>a</sup> The lower river commercial catch in 1979 includes the upper river commercial catch.

<sup>b</sup> There was no commercial fishery in 1984.

<sup>c</sup> Chinook average for 1979-1994 is for jacks and large fish combined.

Appendix B.13. Sockeye salmon stock proportions and catch by stock in the Canadian commercial fishery in the lower Stikine River, 1979-1998. Stock compositions based on: scale circuli counts 1970-1983; SPA in 1985; average of SPA and GPA 1986; SPA in 1987 and 1988; and egg diameter in 1989-1998.

Year	Proportions			Planted	Catch			Tahltan	
	Tahltan	Tuya	Mainstem		Tahltan	Tuya	Mainstem	Wild	Planted
1979	0.433		0.567		4,561		5,973		
1980	0.309		0.691		5,599		12,520		
1981	0.476		0.524		10,258		11,293		
1982	0.624		0.376		9,608		5,789		
1983	0.422		0.578		6,692		9,165		
1984 <sup>a</sup>									
1985	0.623		0.377		10,649		6,444		
1986	0.489		0.511		6,069		6,342		
1987	0.225		0.775		1,380		4,758		
1988	0.161		0.839		2,062		10,704		
1989	0.164		0.836		2,813		14,366		
1990	0.346		0.654		5,029		9,501		
1991	0.634		0.366		11,136		6,427		
1992	0.482		0.518		10,134		10,897		
1993	0.537		0.463		20,662		17,802		
1994	0.616		0.384		23,678		14,784		
1995	0.676	0.020	0.304	0.195	30,848	893	13,881	21,936	8,912
1996	0.534	0.114	0.352	0.061	35,355	7,583	23,324	31,308	4,047
1997	0.397	0.274	0.329	0.077	22,599	15,622	18,775	18,194	4,405
Averages									
79-97	0.453		0.525		12,174		11,264		
88-97	0.455	0.136	0.505	0.111	16,432	8,033	14,046	23,813	5,788
1998	0.335	0.352	0.313	0.020	12,498	13,137	11,675	11,751	747

<sup>a</sup>There was no commercial fishery in 1984.

Appendix B.14. Salmon and steelhead trout catch and effort in the Canadian commercial fishery in the upper Stikine River, 1975-1998.

Year	Catch							Effort	
	Chinook		Sockeye	Coho	Pink	Chum	Steelhead	Permit	Days
	Jacks	Large						Days	
1975		178	270	45	0	0	0		
1976		236	733	13	0	0	0		
1977		62	1,975	0	0	0	0		
1978		100	1,500	0	0	0	0		
1979 <sup>a</sup>									
1980		156	780	40	20	0	0		
1981		154	769	0	0	0	0	11.0	5.0
1982		76	195	0	0	0	0	8.0	4.0
1983		75	614	0	0	4	1	10.0	8.0
1984 <sup>b</sup>									
1985		62	1,084	0	0	0	0	14.0	6.0
1986	41	104	815	0	0	0	0	19.0	7.0
1987	19	109	498	0	0	19	0	20.0	7.0
1988	46	175	348	0	0	0	0	21.5	6.5
1989	17	54	493	0	0	0	0	14.0	7.0
1990	20	48	472	0	0	0	0	15.0	7.0
1991	32	117	761	0	0	0	0	13.0	6.0
1992	19	56	822	0	0	0	0	28.0	13.0
1993	2	44	1,692	0	0	0	2	48.0	22.0
1994	1	76	2,466	0	1	0	0	68.0	50.0
1995	17	9	2,355	0	0	0	0	54.0	25.0
1996	44	41	1,101	0	0	0	0	75.0	59.0
1997	6	45	2,199	0	0	0	0	42.0	29.0
Averages <sup>c</sup>									
75-97		102	1,041	5	1	1	0		
88-97	20	67	1,271	0	0	0	0	37.9	22.5
1998	0	12	907	0	0	0	0	19.0	19.0

<sup>a</sup> Catches in 1979 were included in the lower river commercial catches.

<sup>b</sup> There was no commercial fishery in 1984.

<sup>c</sup> Chinook average for 1975-1997 is for jacks and large fish combined.

Appendix B.15. Salmon and steelhead trout catch in the Canadian aboriginal fishery located at Telegraph Creek, on the Stikine River, 1972-1998.

Year	Catch						
	Chinook		Sockeye	Coho	Pink	Chum	Steelhead
	Jacks	Large					
1972			4,373	0	0	0	0
1973		200	3,670	0	0	0	0
1974		100	3,500	0	0	0	0
1975		1,024	1,982	5	0	0	0
1976		924	2,911	0	0	0	0
1977		100	4,335	0	0	0	0
1978		400	3,500	0	0	0	0
1979		850	3,000	0	0	0	0
1980		587	2,100	100	0	0	0
1981		586	4,697	200	144	0	4
1982		618	4,948	40	60	0	0
1983	215	851	4,649	3	77	26	46
1984	59	643	5,327	1	62	0	2
1985	94	793	7,287	3	35	4	9
1986	569	1,026	4,208	2	0	12	2
1987	183	1,183	2,979	3	0	8	2
1988	197	1,178	2,177	5	0	3	3
1989	115	1,078	2,360	6	0	0	0
1990	259	633	3,022	17	0	0	11
1991	310	753	4,439	10	0	0	0
1992	131	911	4,431	5	0	0	3
1993	142	929	7,041	0	0	0	2
1994	191	698	4,167	4	0	0	9
1995	244	570	5,490	0	0	7	62
1996	156	722	6,918	2	0	3	30
1997	94	1,155	6,365	0	0	0	0
Averages <sup>a</sup>							
72-97		826	4,226	16	15	2	7
88-97	184	863	4,641	5	0	1	12
1998	95	538	5,586	0	0	0	0

<sup>a</sup> Chinook average for 1972-1997 is for jacks and large fish combined.

Appendix B.16. Stock specific sockeye catches in the Canadian upper river commercial and aboriginal fisheries in the Stikine River, 1972-1998.

Year	Upper River Commercial					Aboriginal Fishery				
	Tahltan	Tuya	Mainstem	Tahltan		Tahltan	Tuya	Mainstem	Tahltan	
				Wild	Planted				Wild	Planted
1972						3,936			437	
1973						3,303			367	
1974						3,150			350	
1975	243		27			1,784			198	
1976	660		73			2,620			291	
1977	1,778		198			3,902			434	
1978	1,350		150			3,150			350	
1979 <sup>a</sup>						2,700			300	
1980	630		70			1,890			210	
1981	692		77			4,227			470	
1982	176		20			4,453			495	
1983	553		61			4,184			465	
1984 <sup>b</sup>						4,794			533	
1985	976		108			6,558			729	
1986	734		82			3,787			421	
1987	448		50			2,681			298	
1988	313		35			1,959			218	
1989	444		49			2,124			236	
1990	425		47			2,720			302	
1991	685		76			3,995			444	
1992	740		82			3,988			443	
1993	1,523		169			6,337			704	
1994	2,219		247	1,904	315	3,750			417	3,217
1995	2,120	60	176	1,508	612	4,941	139		410	3,514
1996	917	155	29	782	135	5,736	972		210	4,881
1997	1,276	883	40	1,072	204	3,650	2,513		202	3,084
Averages <sup>a</sup>										
72-97	900		89			3,705			382	
88-97	1,066	366	95	1,316	316	3,920	1,208		359	3,674
1998	363	517	27	336	27	2,352	3,103	131	2,227	125

<sup>a</sup> Catches in 1979 were included in the lower river commercial catches.

<sup>b</sup> There was no commercial fishery in 1984.

Appendix B.17. Salmon and steelhead trout catch in the combined Canadian net fisheries in the Stikine River, 1972-1998. ESSR catches not included.

Year	Catch						
	Chinook		Sockeye	Coho	Pink	Chum	Steelhead
	Jacks	Large					
1972		0	4,373	0	0	0	0
1973		200	3,670	0	0	0	0
1974		100	3,500	0	0	0	0
1975		1,202	2,252	50	0	0	0
1976		1,160	3,644	13	0	0	0
1977		162	6,310	0	0	0	0
1978		500	5,000	0	0	0	0
1979	63	1,562	13,534	10,720	1,994	424	264
1980		2,231	20,919	6,769	756	771	362
1981		1,404	27,017	2,867	3,857	1,128	284
1982		2,387	20,540	15,944	1,842	722	828
1983	645	1,418	21,120	6,173	1,120	304	714
1984 <sup>a</sup>	59	643	5,327	1	62	0	2
1985	185	1,111	25,464	2,175	2,356	536	240
1986	975	1,936	17,434	2,280	107	307	194
1987	444	2,201	9,615	5,731	646	459	219
1988	444	2,360	15,291	2,117	418	733	261
1989	289	2,669	20,032	6,098	825	674	127
1990	959	2,250	18,024	4,037	496	499	199
1991	660	1,511	22,763	2,648	394	208	71
1992	239	1,840	26,284	1,855	122	231	132
1993	308	1,803	47,197	2,616	29	395	67
1994	350	1,790	45,095	3,381	90	173	84
1995	860	1,646	53,467	3,418	48	263	270
1996	421	2,471	74,281	1,404	25	232	183
1997	286	4,483	65,559	401	269	222	33
Averages <sup>b</sup>							
72-97		1,855	22,220	3,104	594	319	174
88-97	482	2,282	38,799	2,798	272	363	143
1998	423	2,164	43,803	726	55	13	209

<sup>a</sup>There was no commercial fishery in 1984.

<sup>b</sup>Chinook average for 1972-1997 is for jacks and large fish combined.

Appendix B.18. Salmon catches in the Stikine River harvested under Canadian ESSR licenses, 1992-1998.

Year	Tahltan			Tuya	
	Total	Wild	Planted		
1993	1,752	1,714	38		
1994	6,852	5,682	1,170		
1995	10,740	6,680	4,060		
1996	14,339	13,045	1,294	216	
1997	378	291	87	2,015	No ESSR at Tahltan
1998	390	364	26	6,103	No ESSR at Tahltan
Salmon taken for otolith samples at Tahltan weir and included in ESSR catch when fishery was operated.					
1996	407	370	37		
1997	378	291	87		
1998	390	364	26		

Appendix B.19. Salmon and steelhead trout catches and effort in Canadian test fisheries in the Stikine River, 1985-1998.

River, 1985-1998.								
Year	Catches							Effort
	Chinook		Sockeye	Coho	Pink	Chum	Steelhead	Drift=#
	Jacks	Large						Set=hr.
Drift Test Fishery Catches								
1985								0
1986	12	27	412	226	8	25	0	405
1987a		128	385	162	111	61	0	845
1988	14	168	325	75	9	33	7	720
1989	4	116	364	242	41	46	5	870
1990	6	167	447	134	5	29	6	673
1991	1	90	503	118	37	30	3	509
1992	27	135	393	75	13	23	7	312
1993	11	94	440	37	6	18	7	304
1994	4	43	179	71	6	20	7	175
1995	13	18	297	35	4	12	4	285
1996	5	42	262	55	4	55	10	245
1997	7	30	245	11	9	15	2	210
Averages								
85-97	9	88	354	103	21	31	5	463
1998	11	25	190	207	20	40	24	820
Set Test Fishery Catches								
1985			1,340					
1986								0
1987a		61	1,283	620	587	193	0	1,456
1988	15	101	922	130	23	65	14	1,380
1989	20	101	1,243	502	249	103	17	1,392
1990	12	64	1,493	271	42	48	18	1,212
1991	15	77	1,872	127	197	48	1	1,668
1992	21	62	1,971	193	56	43	19	1,249
1993	11	85	1,384	136	6	63	6	1,224
1994	34	74	414	0	0	0	0	456
1995	35	61	850	166	5	41	14	888
1996	40	64	338	0	0	0	1	312
1997								0
Averages								
85-97	23	75	1,192	215	117	60	9	1,022
1998								0
Additional Test Fishery Catches								
1992	134	417	594	0	0	0	0	85
1993	65	389	1,925	2	1	3	2	266
1994	40	178	840	0	0	0	0	131
1995	136	169	1,423	26	1	9	1	222
1996	31	192	712	0	0	0	0	138
1997								0
Averages								
85-97	81	269	1,099	6	0	2	1	140
1998								0
Total Test Fishery Catches								
1985	0	0	1,340	0	0	0	0	
1986	12	27	412	226	8	25	0	
1987	30	189	1,668	782	698	254	0	
1988	29	269	1,247	205	32	98	21	
1989	24	217	1,607	744	290	149	22	
1990	18	231	1,940	405	47	77	24	
1991	16	167	2,375	245	234	78	4	
1992	182	614	2,958	268	69	66	26	
1993	87	568	3,749	175	13	84	15	
1994	78	295	1,433	71	6	20	7	
1995	184	248	2,570	227	10	62	19	
1996	76	298	1,312	55	4	55	11	
1997	7	30	245	11	9	15	2	
Averages								
85-97	57	243	1,758	263	109	76	12	
1998	11	25	190	207	20	40	24	

<sup>a</sup> 1987 jack chinook catch is for both set and drift nets.

Appendix B.20. Sockeye salmon stock proportions and catch by stock in the test fishery in the lower Stikine River, 1985-1998. Stock composition based on: SPA 1985; average of SPA and GPA 1986-1988; egg diameter 1989-1998.

Year	Catch Tahltan		Catch		Marked Tahltan	Proportion Tahltan		Average Proportions <sup>a</sup>		
	U.S.	Canada	Tuya	Mainstem		U.S.	Canada	Tahltan	Tuya	Mainstem
1985	560	439		841		0.418	0.328	0.372		0.628
1986	164	127		267		0.398	0.308	0.352		0.648
1987	513	397		1,213		0.308	0.238	0.273		0.727
1988	408	295		895		0.327	0.237	0.282		0.718
1989		414		1,192			0.258	0.258		0.742
1990		822		1,058			0.454	0.454		0.546
1991		1,443		931			0.608	0.608		0.392
1992		1,912		1,046			0.646	0.646		0.354
1993		2,184		1,564			0.583	0.583		0.417
1994		1,228		205			0.857	0.857		0.143
1995		2,064	20	486	729		0.803	0.803	0.008	0.189
1996		916	77	319	105		0.698	0.698	0.059	0.243
1997		110	44	91	9		0.449	0.449	0.180	0.371
Averages										
85-97										
1998		70	51	69	4		0.368	0.368	0.268	0.363

<sup>a</sup> Average proportions are from averages of weekly estimates.

Appendix B.21. Estimated proportion of inriver run comprised of Tahltan, Tuya, and mainstem sockeye stocks, 1979-1998. Stock compositions based on: scale circuli counts 1979-1983; SPA in 1985; average of SPA and GPA 1986-1988; and egg diameter analysis in 1989-1998. 1994-1998 data from commercial catch and CPUE.

Year	Tahltan		Average <sup>a</sup>		
	U.S.	Canada	Tahltan	Tuya	Mainstem
1979	0.433		0.433		0.567
1980	0.305		0.305		0.695
1981	0.475		0.475		0.525
1982	0.618		0.618		0.382
1983	0.489	0.423	0.456		0.544
1984	0.635	0.394	0.493		0.507
1985	0.621	0.363	0.466		0.534
1986	0.398	0.500	0.449		0.551
1987	0.338	0.257	0.304		0.696
1988	0.209	0.122	0.172		0.828
1989		0.188	0.188		0.812
1990		0.417	0.417		0.583
1991		0.561	0.561		0.439
1992		0.496	0.496		0.504
1993		0.477	0.477		0.523
1994		0.606	0.606		0.394
1995		0.578	0.578	0.016	0.406
1996		0.519	0.519	0.105	0.376
1997		0.340	0.340	0.230	0.430
Averages					
79-97					
88-97					
1998		0.309	0.309	0.348	0.344

<sup>a</sup> Average proportions are from averages of weekly stock composition and migratory timing (from drift test fishery) estimates.



Appendix B.22. Counts of adult sockeye salmon migrating through Tahltan Lake weir, 1959-1998.

Year	Weir Installed	Date of Arrival			Total Count	Broodstock	Samples or ESSR	Spawners		
		First	50%	90%				Total	Natural	Hatchery
1959	30-Jun	2-Aug	12-Aug	16-Aug	4,311					
1960	15-Jul	2-Aug	24-Aug	27-Aug	6,387					
1961	20-Jul	9-Aug	11-Aug	15-Aug	16,619					
1962 <sup>a</sup>	1-Aug	2-Aug	5-Aug	8-Aug	14,508					
1963 <sup>b</sup>	3-Aug				1,780					
1964	23-Jul	26-Jul	14-Aug	25-Aug	18,353					
1965 <sup>c</sup>	19-Jul	18-Jul	2-Sep	7-Sep	1,471					
1966	12-Jul	3-Aug	13-Aug	21-Aug	21,580					
1967	11-Jul	14-Jul	21-Jul	28-Jul	38,801					
1968	11-Jul	21-Jul	25-Jul	8-Aug	19,726					
1969	7-Jul	11-Jul	18-Jul	31-Jul	11,805					
1970	5-Jul	25-Jul	1-Aug	11-Aug	8,419					
1971	12-Jul	19-Jul	28-Jul	12-Aug	18,523					
1972	13-Jul	13-Jul	19-Jul	31-Aug	52,545					
1973	10-Jul	24-Jul	30-Jul	7-Aug	2,877					
1974	3-Jul	28-Jul	3-Aug	17-Aug	8,101					
1975	10-Jul	25-Jul	8-Aug	17-Aug	8,159					
1976	16-Jul	29-Jul	1-Aug	6-Aug	24,111					
1977	6-Jul	11-Jul	16-Jul	10-Aug	42,960					
1978	10-Jul	10-Jul	20-Jul	29-Jul	22,788					
1979	9-Jul	23-Jul	1-Aug	11-Aug	10,211					
1980	4-Jul	15-Jul	22-Jul	12-Aug	11,018					
1981	30-Jun	16-Jul	26-Jul	3-Aug	50,790					
1982	2-Jul	10-Jul	19-Jul	29-Jul	28,257					
1983	27-Jun	5-Jul	22-Jul	5-Aug	21,256					
1984	20-Jul	19-Jul	24-Jul	3-Aug	32,777					
1985	28-Jun	18-Jul	31-Jul	6-Aug	67,326					
1986	10-Jul	26-Jul	4-Aug	11-Aug	20,280					
1987	14-Jul	21-Jul	4-Aug	13-Aug	6,958					
1988	16-Jul	16-Jul	6-Aug	14-Aug	2,536					
1989	7-Jul	9-Jul	1-Aug	14-Aug	8,316	2,210		6,106		
1990	6-Jul	15-Jul	26-Jul	3-Aug	14,927	3,302		11,625		
1991	15-Jul	17-Jul	25-Jul	7-Aug	50,135	3,552		46,583		
1992	10-Jul	18-Jul	25-Jul	3-Aug	59,907	3,694		56,213		
1993	10-Jul	10-Jul	28-Jul	10-Aug	53,362	4,506	1,752	47,104	46,074	1,030
1994	10-Jul	14-Jul	30-Jul	9-Aug	46,363	3,378	6,852	36,133	29,961	6,172
1995	8-Jul	9-Jul	24-Jul	12-Aug	42,317	4,902	10,740	26,675	16,591	10,084
1996	14-Jul	14-Jul	22-Jul	04-Aug	52,500	4,402	14,339	33,759	30,713	3,046
1997	15-Jul	15-Jul	25-Jul	26-Aug	12,483	2,294	378	9,811	7,220	2,591
Averages										
59-97	11-Jul	19-Jul	30-Jul	11-Aug	23,988					
88-97	11-Jul	13-Jul	27-Jul	10-Aug	34,285	3,582	6,812	30,445	26,112	4,585
1998	11-Jul	11-Jul	25-Jul	26-Aug	12,658	3,099	390	9,169	8,420	749

<sup>a</sup> Question as to date weir installed.

<sup>b</sup> Daily counts unavailable.

<sup>c</sup> A slide occurred blocking the entrance for a while.

Appendix B.23. Aerial survey counts of Mainstem sockeye stocks in the Stikine River drainage, 1984-1998.  
The index represents the combined counts from eight spawning areas.

Year	Chutine River	Scud River	Porcupine Slough	Christina Creek	Craig River	Bronson Slough	Verrett Creek	Verrett Slough	Escapement Index
1984	526	769	69	130	102		640		2,236
1985	253	282	69	67	27		383		1,081
1986	139	151	6	0	0		270		566
1987	6	490	62	6	30		103		697
1988	14	219	22	7	0		114		376
1989	29	269	133	10	60	60	180	68	809
1990	24	301	31	4	0	0	301	82	743
1991	0	100	61		7	32	179	8	387
1992	164	1,242	90	50	17	138	163	22	1,886
1993	57	321	141	28	2	79	107	142	877
1994	267	292	66			62	147	114	948
1995	13	260	11			72	47	31	434
1996	134	351	149			27	54	338	1,053
1997	204	271	25			12	116	32	660
Averages									
84-97	131	380	67	34	25	54	200	93	911
1998	230	246	89			9	183	135	892

Appendix B.24. Estimates of sockeye salmon smolt migrating through Tahltan Lake smolt weir, 1984-1998.

Year	Weir	Date of Arrival			Total Count	Total Estimate	Date and Expansion	Smolt	
	Installed	First	50%	90%				Natural	Hatchery
1984	10-May	11-May	23-May	06-Jun		218,702			
1985	25-Apr	23-May	31-May	28-May		613,531			
1986	08-May	10-May	31-May	07-Jun		244,330			
1987 <sup>a</sup>	07-May	15-May	23-May	24-May		810,432			
1988	01-May	08-May	20-May	06-Jun		1,170,136			
1989	05-May	08-May	22-May	06-Jun		580,574			
1990 <sup>b</sup>	05-May	15-May	29-May	05-Jun	595,147	610,407	6/14 97.5%		
1991 <sup>c</sup>	05-May	14-May	21-May	30-May	1,439,676	1,487,265	6/13 96.8%	1,220,397	266,868
1992 <sup>d</sup>	07-May	13-May	21-May	27-May	1,516,150	1,555,026	6/14 97.5%	750,702	804,324
1993	07-May	11-May	17-May	22-May		3,255,045		2,855,562	399,483
1994	08-May	08-May	16-May	12-Jun		915,119		620,809	294,310
1995	05-May	06-May	13-May	11-Jun		822,284		767,027	55,257
1996	11-May	11-May	20-May	25-May		1,559,236		1,408,020	151,216
1997	07-May	11-May	23-May	30-May		518,202		348,079	170,123
Averages									
84-97	05-May	11-May	22-May	01-Jun		1,025,735		1,138,657	305,940
1998	07-May	08-May	25-May	05-Jun		540,866		326,420	214,446

<sup>a</sup> Estimate includes approximately 30,000 mortalities from overcrowding on 5/22, 1987.

<sup>b</sup> Estimate of 595,147 on June 14 expanded by average % of outmigration by date (97.5%) from historical data.

<sup>c</sup> Estimate of 1,439,673 on June 13 expanded by average % of outmigration by date (96.8%) from historical data.

<sup>d</sup> Estimate of 1,516,150 on June 14 expanded by average % of outmigration by date (97.5%) from historical data.

Appendix B.25. Weir counts of chinook salmon at Little Tahltan River, 1985-1998.

	Weir	Date of Arrival			Total	Broodstock	Natural	Total
Year	Installed	First	50%	90%	Count	and Other	Spawners	Natural Spawners
Large Chinook								
1985	03-Jul	04-Jul	30-Jul	06-Aug	3,114		3,114	
1986	28-Jun	29-Jun	21-Jul	05-Aug	2,891		2,891	
1987	28-Jun	04-Jul	24-Jul	02-Aug	4,783		4,783	
1988	26-Jun	27-Jun	18-Jul	03-Aug	7,292		7,292	
1989	25-Jun	26-Jun	23-Jul	02-Aug	4,715		4,715	
1990	22-Jun	29-Jun	23-Jul	04-Aug	4,392		4,392	
1991	23-Jun	25-Jun	20-Jul	03-Aug	4,506		4,506	
1992	24-Jun	04-Jul	21-Jul	30-Jul	6,627	-12	6,615	
1993	20-Jun	21-Jun	16-Jul	28-Jul	11,449	-12	11,437	
1994	18-Jun	28-Jun	22-Jul	02-Aug	6,387	-14	6,373	
1995	17-Jun	20-Jun	17-Jul	04-Aug	3,072	0	3,072	
1996	26-Jun	08-Jul	16-Jul	30-Jul	4,821	0	4,821	
1997	14-Jun	22-Jun	16-Jul	29-Jul	5,557	-10	5,547	
Averages								
85-97	23-Jun	14-Dec	20-Jul	01-Aug	5,354		5,351	
1998	13-Jun	19-Jun	14-Jul	29-Jul	4,879	-6	4,873	
Jack Chinook (fish <670 mm pohl length)								
1985	03-Jul	04-Jul	31-Jul	10-Aug	316			3,430
1986	28-Jun	03-Jul	25-Jul	06-Aug	572			3,463
1987	28-Jun	03-Jul	26-Jul	06-Aug	365			5,148
1988	26-Jun	27-Jun	17-Jul	02-Aug	327			7,619
1989	25-Jun	26-Jun	23-Jul	02-Aug	199			4,914
1990	22-Jun	05-Jul	22-Jul	30-Jul	417			4,809
1991	23-Jun	03-Jul	24-Jul	07-Aug	313			4,819
1992	24-Jun	12-Jul	22-Jul	30-Jul	131			6,746
1993	20-Jun	30-Jun	14-Jul	01-Aug	60			11,497
1994	18-Jun	02-Jul	22-Jul	05-Aug	121			6,494
1995	17-Jun	22-Jun	28-Jul	10-Aug	135			3,207
1996	26-Jun	02-Jul	13-Jul	14-Jul	22			4,843
1997	14-Jun	26-Jun	21-Jul	1-Aug	54			5,601
Averages								
85-97	23-Jun	01-Jul	22-Jul	02-Aug	233			5,584
1998	13-Jun	26-Jun	20-Jul	7-Aug	37			4,910

Appendix B.26. Index counts of Stikine chinook escapements, 1979-1998. Counts do not include jacks (fish < 660mm mef length).

Year	Little Tahltan		Tahltan Aerial	Beatty Aerial	Andrew Foot	Comments	M-R Estimate
	Weir	Aerial					
1979		1,166	2,118		382	Andrew weir includes broodstock	
1980		2,137	960	122	363	Andrew weir includes broodstock	
1981		3,334	1,852	558	654	Andrew weir includes broodstock	
1982		2,830	1,690	567	947	Andrew weir includes broodstock	
1983		594	453	83	444	Andrew weir includes broodstock	
1984		1,294		126	389	Andrew weir includes broodstock	
1985	3,114	1,598	1,490	147	319		
1986	2,891	1,201	1,400	183	707		
1987	4,783	2,706	1,390	312	788	Andrew helicopter	
1988	7,292	3,796	4,384	593	564		
1989	4,715	2,527		362	530	Tahltan not surveyed - visibility	
1990	4,392	1,755	2,134	271	664		
1991	4,506	1,768	2,445	193	400	Andrew fixed wing	
1992	6,627	3,607	1,891	362	778	Andrew helicopter, Little Tahltan inc. brood	
1993	11,437	4,010	2,249	757	1,060		
1994	6,373	2,422		184	572	Andrew helicopter, Tahltan no survey	
1995	3,072	1,117	696	152	338		
1996	4,821	1,920	772	218	332		28,949
1997	5,547	1,907	260	218	300		26,996
<b>Averages</b>							
79-97	5,352	2,194	1,637	300	554		
88-97	5,878	2,483	1,854	331	554		
1998	4,873	1,385	587	125	487		25,546

Appendix B.27. Index counts of Stikine coho salmon escapements, 1984-1998. Missing data due to poor survey conditions.

Year	Date	Katete West	Katete	Craig	Verrett	Bronson Slough	Scud Slough	Porcupine	Christina	Total
1984	10/30	147	313	0	15	42				517
1985	10/25	590	1,217	735	39	0	924	365		3,870
1988	10/28	32	227		175		97	53	0	584
1989	10/29	336	896	992	848	120	707	90	55	4,044
1990	10/30	94	548	810	494		664	430		3,040
1991	10/29	302	878	985	218		221	352		2,956
1992	10/29	295	1,346	949	320		462	316		3,688
1993	10/30						206	324		
1994	11/1-2	28	652	1,026	466		448	1,105		3,725
1995	10/30	211	208	1,419	574		621	719		3,752
1996	10/30	163	232	205	549		630	1,466		3,245
1997	11/01	2	0	19	116		272	648		1,057
Average										
84-97		200	592	714	347	54	477	533	28	2,771
1998	10/30	14	63	141	282		143	450		1,093

Appendix B.28. Stikine River sockeye salmon run size, 1979-1998. Catches include test fishery catches.

Year	Inriver Run			Inriver Catch	Escapement <sup>b</sup>	Marine Catch	Total Run
	Canada	U.S.	Average <sup>a</sup>				
1979		40,353	40,353	13,534	26,819	8,299	48,652
1980		62,743	62,743	20,919	41,824	23,206	85,949
1981		138,879	138,879	27,017	111,862	27,538	166,417
1982		68,761	68,761	20,540	48,221	42,725	111,486
1983	77,260	66,838	71,683	21,120	50,563	5,781	77,464
1984	95,454	59,168	76,211	5,327	70,884	7,799	84,010
1985	237,261	138,498	184,747	26,804	157,943	29,747	214,494
1986			69,036	17,846	51,190	6,420	75,456
1987			39,264	11,283	27,981	4,085	43,350
1988			41,915	16,538	25,377	3,181	45,096
1989			75,054	21,639	53,415	15,492	90,546
1990			57,386	19,964	37,422	9,856	67,242
1991			120,152	25,138	95,014	34,199	154,351
1992			154,542	29,242	125,300	77,394	231,936
1993			176,100	52,698	123,402	104,630	280,730
1994			127,527	53,380	74,147	80,509	208,036
1995			142,308	66,777	75,531	76,420	218,728
1996			183,909	90,148	93,761	188,385	372,294
1997			118,031	68,197	49,834	101,773	219,804
Averages							
79-97			102,558	32,006	70,552	44,602	147,160
88-97			119,693	44,372	75,320	69,184	188,876
1998			90,459	50,486	39,973	30,989	121,448
Tahltan sockeye run size							
1979			17,472	7,261	10,211	5,076	22,548
1980			19,137	8,119	11,018	11,239	30,376
1981			65,968	15,178	50,790	16,189	82,157
1982			42,493	14,236	28,257	20,876	63,369
1983			32,684	11,428	21,256	5,072	37,757
1984			37,571	4,794	32,777	3,096	40,667
1985			86,008	18,682	67,326	25,197	111,205
1986			31,015	10,735	20,280	2,757	33,771
1987			11,923	4,965	6,958	2,259	14,182
1988			7,222	4,686	2,536	2,129	9,351
1989			14,110	5,794	8,316	1,561	15,671
1990			23,923	8,996	14,927	2,307	26,230
1991			67,394	17,259	50,135	23,511	90,905
1992			76,681	16,774	59,907	28,218	104,899
1993			84,068	32,458	51,610	40,036	124,104
1994			77,239	37,728	39,511	65,101	142,340
1995			82,290	50,713	31,577	51,665	133,955
1996			95,424	57,263	38,161	147,435	242,859
1997			40,118	28,013	12,105	43,923	84,041
Averages							
79-97			48,039	18,688	29,350	26,192	74,231
88-97			56,847	25,968	30,879	40,589	97,435
1998			27,941	15,673	12,268	7,086	35,027
Tuya sockeye run size							
1995			2,216	1,112	1,104	586	2,802
1996			19,399	9,003	10,396	19,442	38,841
1997			27,153	21,077	6,076	37,520	64,673
Averages							
95-97			16,256	10,397	5,859	19,183	35,439
1998			31,442	22,911	8,531	15,941	47,383
Mainstem sockeye run size							
1979			22,880	6,273	16,608	3,223	26,103
1980			43,606	12,800	30,806	11,967	55,573
1981			72,911	11,839	61,072	11,349	84,260
1982			26,267	6,304	19,964	21,850	48,117
1983			38,999	9,692	29,307	709	39,707
1984			38,640	533	38,107	4,703	43,343
1985			98,739	8,122	90,617	4,550	103,289
1986			38,022	7,111	30,910	3,663	41,685
1987			27,342	6,318	21,023	1,826	29,168
1988			34,693	11,852	22,841	1,052	35,745
1989			60,944	15,845	45,099	13,931	74,875
1990			33,464	10,968	22,495	7,549	41,013
1991			52,758	7,879	44,879	10,687	63,446
1992			77,861	12,468	65,393	49,176	127,037
1993			92,033	20,240	71,792	64,594	156,627
1994			50,288	15,652	34,636	15,408	65,696
1995			57,802	14,953	42,850	24,169	81,971
1996			69,085	23,882	45,203	21,508	90,593
1997			50,761	19,107	31,654	20,330	71,091
Averages							
79-97			51,952	11,676	40,277	15,381	67,334
88-97			57,969	15,285	42,684	22,840	80,809
1998			31,077	11,902	19,175	7,962	39,039

<sup>a</sup> The averages for 1983-1985 are averages of weekly run timing estimates as well as stock composition estimates and are not simple averages of total estimates for the season.

<sup>b</sup> Escapement includes fish later captured for broodstock.



Appendix C.1. Weekly salmon catch and effort in the Alaskan District 111 and Subdistrict 111-32 (Taku Inlet), commercial drift gillnet fishery, 1998.

Week	Start	Catch					Effort			
	Date	Chinook	Sockeye	Coho	Pink	Chum	Steelhead	Boats	Days Open	Boat Days
District 111 catches										
26	21-Jun	329	2,319	2	20	1,902		51	3.0	153
27	28-Jun	175	4,597	32	2,357	16,242		80	3.0	240
28	5-Jul	101	5,144	131	9,147	62,471		74	4.0	296
29	12-Jul	43	9,626	285	14,619	81,727		86	4.0	344
30	19-Jul	59	11,566	517	33,692	71,733		93	5.0	465
31	26-Jul	47	16,459	1,497	39,872	37,078		97	4.0	388
32	2-Aug	21	10,141	1,440	35,604	14,619		80	4.0	320
33	9-Aug	6	5,558	2,431	19,293	5,644		56	4.0	224
34	16-Aug	10	2,826	1,977	12,171	1,461		47	4.0	188
35	23-Aug	0	895	3,040	1,448	1,136		38	3.0	114
36	30-Aug	1	267	3,619	59	760		32	3.0	96
37	6-Sep	0	173	6,736	1	872		40	2.0	80
38	13-Sep	2	103	6,524	0	441		42	3.0	126
39	20-Sep	0	3	482	0	25		18	2.0	36
Total		794	69,677	28,713	168,283	296,111			48.0	3,070
Alaskan hatchery contribution for chinook, and coho salmon. <sup>a</sup>										
26	21-Jun			4						
27	28-Jun	167		0						
28	5-Jul	24		0						
29	12-Jul	51		0						
30	19-Jul	0								
31	26-Jul	50		36						
32	2-Aug	0		134						
33	9-Aug	0		244						
34	16-Aug	0		350						
35	23-Aug	0		372						
36	30-Aug	0		632						
37	6-Sep	0		2,195						
38	13-Sep	0		1,826						
39	20-Sep	0		138						
Total		292		5,931						
Catches not including Alaskan hatchery contribution:										
26	21-Jun	329		2						
27	28-Jun	8		28						
28	5-Jul	77		131						
29	12-Jul	-8		285						
30	19-Jul	59		517						
31	26-Jul	-3		1,461						
32	2-Aug	21		1,306						
33	9-Aug	6		2,187						
34	16-Aug	10		1,627						
35	23-Aug	0		2,668						
36	30-Aug	1		2,987						
37	6-Sep	0		4,541						
38	13-Sep	2		4,698						
39	20-Sep	0		344						
Total		502		22,782						
Subdistrict 111-32 Catches (Taku Inlet)										
26	21-Jun	313	1,867	1	10	1,332		43	3.0	129
27	28-Jun	159	3,781	25	1,677	13,856		73	3.0	219
28	5-Jul	80	4,294	104	6,985	52,287		72	3.0	216
29	12-Jul	22	6,987	224	8,487	49,991		77	2.0	154
30	19-Jul	18	7,483	219	18,310	41,160		83	2.0	166
31	26-Jul	25	9,889	1,132	17,590	20,795		77	3.0	231
32	2-Aug	9	6,718	837	16,051	8,874		62	3.0	186
33	9-Aug	3	4,227	2,023	12,445	3,762		49	4.0	196
34	16-Aug	2	1,265	1,185	3,356	583		34	3.0	102
35	23-Aug	0	379	2,093	306	387		28	3.0	84
36	30-Aug	1	248	3,595	51	695		31	3.0	93
37	6-Sep	0	169	6,527	1	759		39	2.0	78
38	13-Sep	2	103	6,175	0	351		41	3.0	123
39	20-Sep	0	3	466	0	25		15	2.0	30
Total		634	47,413	24,606	85,269	194,857			39.0	2,007

<sup>a</sup> Chum Salmon are not included because of the difficulty of making an accurate estimate, the majority of the summer chum catch was of hatchery origin.



Appendix C.2. Estimate of the proportion of natural and planted sockeye salmon stock groups harvested in the Alaskan District 111 commercial drift gillnet fishery by week, 1998. Stock compositions estimated with scale pattern analysis, planted fish estimated from analysis of thermal marks.

Week	Kuthai	Little Trapper			Tatsamenie		Total		All Wild		U.S.
		Wild	Planted	Mainstem	Wild	Planted	Taku	Crescent	Speel	Snett.	Planted
26	0.605	0.135	0.005	0.179	0.024	0.003	0.952	0.019	0.016	0.035	0.013
27	0.282	0.481	0.013	0.138	0.034	0.007	0.957	0.020	0.005	0.025	0.018
28	0.193	0.231	0.017	0.178	0.143	0.003	0.766	0.015	0.002	0.017	0.217
29	0.099	0.202	0.021	0.180	0.209	0.005	0.715	0.018	0.002	0.021	0.264
30	0.048	0.117	0.004	0.204	0.219	0.003	0.596	0.032	0.000	0.032	0.372
31	0.027	0.110	0.006	0.186	0.319	0.002	0.650	0.033	0.002	0.035	0.314
32	0.041	0.122	0.004	0.269	0.330	0.006	0.772	0.039	0.008	0.047	0.182
33	0.000	0.082	0.003	0.365	0.348	0.003	0.801	0.001	0.002	0.003	0.196
34	0.001	0.116	0.000	0.158	0.237	0.000	0.511	0.019	0.066	0.086	0.403
35	0.001	0.116	0.000	0.158	0.237	0.000	0.511	0.019	0.066	0.086	0.403
36	0.001	0.116	0.000	0.158	0.237	0.000	0.511	0.019	0.066	0.086	0.403
37	0.001	0.116	0.000	0.158	0.237	0.000	0.511	0.019	0.066	0.086	0.403
38	0.001	0.116	0.000	0.158	0.237	0.000	0.511	0.019	0.066	0.086	0.403
39	0.001	0.116	0.000	0.158	0.237	0.000	0.511	0.019	0.066	0.086	0.403
Total	0.087	0.158	0.008	0.209	0.245	0.004	0.710	0.026	0.007	0.033	0.257

Appendix C.3. Weekly stock-specific catch of wild and planted Taku River and Port Snettisham sockeye salmon harvested in the Alaskan District 111 commercial drift gillnet fishery, 1998. Stock compositions estimated with scale pattern analysis, planted fish estimated from analysis of thermal marks.

Week	Kuthai	Little Trapper			Tatsamenie		Total		All Wild		U.S.
		Wild	Planted	Mainstem	Wild	Planted	Taku	Crescent	Speel	Snett.	Planted
26	1,402	314	12	416	55	8	2,207	43	38	81	31
27	1,298	2,212	61	635	158	34	4,398	94	22	116	83
28	995	1,190	88	916	738	15	3,942	78	9	87	1,115
29	949	1,943	201	1,729	2,015	48	6,885	175	23	198	2,543
30	556	1,358	46	2,362	2,537	39	6,898	369	0	369	4,299
31	438	1,817	101	3,066	5,249	34	10,705	547	33	580	5,174
32	412	1,234	45	2,732	3,344	57	7,824	392	82	474	1,843
33	2	457	16	2,030	1,933	15	4,453	3	11	14	1,091
34	2	327	0	446	670	0	1,444	55	187	242	1,140
35	1	103	0	141	212	0	457	17	59	77	361
36	0	31	0	42	63	0	136	5	18	23	108
37	0	20	0	27	41	0	88	3	11	15	70
38	0	12	0	16	24	0	53	2	7	9	42
39	0	0	0	0	1	0	2	0	0	0	1
Total	6,055	11,018	570	14,560	17,040	250	49,493	1,784	500	2,284	17,900

Appendix C.4. Weekly salmon and steelhead trout catch and effort in the Canadian commercial fishery in the Taku River, 1998.

Week	Start Date	Catch							Effort		
		Chinook		Sockeye	Coho	Pink	Chum	Steelhead	Average Permits	Days Fished	Permit Days
		Jacks	Large								
25	14-Jun	78	477	278	0	0	0	0	8.50	2.00	17.00
26	21-Jun	61	278	1,225	0	0	0	0	10.00	2.00	20.00
27	28-Jun	58	209	2,585	2	0	0	0	10.00	3.00	30.00
28	5-Jul	13	66	1,129	11	0	0	0	10.67	3.00	32.01
29	12-Jul	8	55	1,776	46	0	0	0	11.00	2.00	22.00
30	19-Jul	7	16	3,336	281	0	0	0	11.50	2.00	23.00
31	26-Jul	0	2	1,360	364	0	0	0	10.00	2.00	20.00
32	2-Aug	2	2	4,597	1,233	0	0	1	10.86	3.50	38.01
33	9-Aug	0	2	1,084	511	0	0	7	10.00	2.00	20.00
34	16-Aug	0	0	806	797	0	0	3	11.60	2.50	29.00
35	23-Aug	0	0	627	783	0	0	47	7.00	3.00	21.00
36	30-Aug	0	0	217	547	0	0	43	4.00	4.00	16.00
37	6-Sep										
38	13-Sep	0	0	13	285	0	2	52	1.00	7.00	7.00
39	20-Sep	0	0	5	164	0	0	23	1.00	3.00	3.00
40	27-Sep	0	0	0	66	0	0	0	1.00	1.00	1.00
Total		227	1,107	19,038	5,090	0	2	176		42.00	299.02

Appendix C.5. Weekly stock proportions of sockeye salmon harvested in the Canadian commercial fishery in the Taku River, 1998. Stock compositions estimated with scale pattern analysis, planted fish estimated from analysis of thermal marks.

Week	Start Date	Kuthai	Little Trapper		Mainstem	Tatsamenie	
			Wild	Planted		Wild	Planted
25	14-Jun	0.568	0.248	0.000	0.180	0.004	0.000
26	21-Jun	0.704	0.159	0.000	0.113	0.024	0.000
27	28-Jun	0.800	0.142	0.017	0.000	0.042	0.000
28	5-Jul	0.275	0.523	0.017	0.027	0.157	0.000
29	12-Jul	0.222	0.423	0.015	0.164	0.176	0.000
30	19-Jul	0.075	0.201	0.050	0.372	0.285	0.017
31	26-Jul	0.068	0.238	0.015	0.457	0.224	0.000
32	2-Aug	0.030	0.147	0.055	0.287	0.480	0.000
33	9-Aug	0.004	0.120	0.000	0.349	0.528	0.000
34	16-Aug	0.000	0.117	0.000	0.428	0.455	0.000
35	23-Aug	0.000	0.093	0.000	0.480	0.427	0.000
36	30-Aug	0.000	0.093	0.000	0.480	0.427	0.000
37	6-Sep						
38	13-Sep	0.000	0.093	0.000	0.480	0.427	0.000
39	20-Sep	0.000	0.093	0.000	0.480	0.427	0.000
40	27-Sep	0.000	0.093	0.000	0.480	0.427	0.000
Total		0.225	0.207	0.028	0.254	0.283	0.003

Appendix C.6. Weekly stock-specific catch of sockeye salmon in the Canadian commercial fishery in the Taku River, 1998. Stock compositions estimated with scale pattern analysis, planted fish estimated from analysis of thermal marks.

Week	Start Date	Kuthai	Little Trapper		Mainstem	Tatsamenie	
			Wild	Planted		Wild	Planted
25	14-Jun	158	69	0	50	1	0
26	21-Jun	862	195	0	138	30	0
27	28-Jun	2,067	366	44	0	108	0
28	5-Jul	311	591	19	31	177	0
29	12-Jul	395	751	27	291	312	0
30	19-Jul	250	670	168	1,241	951	56
31	26-Jul	92	323	20	621	304	0
32	2-Aug	140	675	255	1,320	2,207	0
33	9-Aug	4	130	0	378	572	0
34	16-Aug	0	94	0	345	367	0
35	23-Aug	0	58	0	301	268	0
36	30-Aug	0	20	0	104	93	0
37	6-Sep						
38	13-Sep	0	1	0	6	6	0
39	20-Sep	0	0	0	2	2	0
40	27-Sep	0	0	0	0	0	0
Total		4,279	3,944	533	4,829	5,397	56

Appendix C.7. Mark-recapture estimate of above border run of sockeye and coho salmon in the Taku River, 1998.

Recovery Week	Start Date	Above Border Run	Canadian Harvests			Above Border Escapement
			Commercial	Test	Aboriginal <sup>a</sup>	
Sockeye						
25	14-Jun	3,810	278			3,532
26	21-Jun	6,388	1,225			5,163
27	28-Jun	8,641	2,585			6,056
28	5-Jul	10,259	1,129			9,130
29	12-Jul	8,539	1,776			6,763
30	19-Jul	18,395	3,336			15,059
31	26-Jul	10,352	1,360			8,992
32	2-Aug	14,210	4,597			9,613
33	9-Aug	5,326	1,084			4,242
34	16-Aug	3,091	806			2,285
35	23-Aug	1,643	627			1,016
36-39	30-Aug	3,073	235			2,838
M-R Estimate		93,728				
95% C.I.		85,196				
Total Estimate		93,728	19,038	0	237	74,453
Coho						
28-37	5-Jul	36,347	4,575			31,772
38-40	13-Sep	12,943	515			12,428
Late season expansion		17,182				
M-R Estimate		49,290				
95% C.I.		40,499				
Total Estimate		66,472	5,090	0	0	61,382

<sup>a</sup> Aboriginal catch by week is not available.

Appendix C.8. Daily counts of adult salmon passing through Tatsamenie weir, 1998.

Sockeye				Coho		
Date	Count	Cumulative		Count	Cumulative	
		Count	Percent		Count	Percent
14-Aug	---- Weir Fish Tight ----					
15-Aug	20	20	0.3	0	0	0.0
16-Aug	311	331	5.5	0	0	0.0
17-Aug	84	415	6.9	0	0	0.0
18-Aug	13	428	7.1	0	0	0.0
19-Aug	228	656	10.9	0	0	0.0
20-Aug	116	772	12.9	0	0	0.0
21-Aug	175	947	15.8	0	0	0.0
22-Aug	61	1,008	16.8	0	0	0.0
23-Aug	58	1,066	17.8	0	0	0.0
24-Aug	52	1,118	18.6	0	0	0.0
25-Aug	77	1,195	19.9	0	0	0.0
26-Aug	62	1,257	21.0	0	0	0.0
27-Aug	235	1,492	24.9	0	0	0.0
28-Aug	164	1,656	27.6	0	0	0.0
29-Aug	200	1,856	30.9	0	0	0.0
30-Aug	198	2,054	34.3	0	0	0.0
31-Aug	124	2,178	36.3	0	0	0.0
1-Sep	177	2,355	39.3	0	0	0.0
2-Sep	261	2,616	43.6	0	0	0.0
3-Sep	117	2,733	45.6	0	0	0.0
4-Sep	296	3,029	50.5	0	0	0.0
5-Sep	343	3,372	56.2	0	0	0.0
6-Sep	179	3,551	59.2	0	0	0.0
7-Sep	308	3,859	64.3	0	0	0.0
8-Sep	35	3,894	64.9	0	0	0.0
9-Sep	74	3,968	66.2	0	0	0.0
10-Sep	80	4,048	67.5	0	0	0.0
11-Sep	113	4,161	69.4	0	0	0.0
12-Sep	51	4,212	70.2	0	0	0.0
13-Sep	213	4,425	73.8	0	0	0.0
14-Sep	155	4,580	76.4	0	0	0.0
15-Sep	69	4,649	77.5	0	0	0.0
16-Sep	53	4,702	78.4	0	0	0.0
17-Sep	146	4,848	80.8	0	0	0.0
18-Sep	78	4,926	82.1	0	0	0.0
19-Sep	118	5,044	84.1	0	0	0.0
20-Sep	230	5,274	87.9	0	0	0.0
21-Sep	101	5,375	89.6	0	0	0.0
22-Sep	70	5,445	90.8	0	0	0.0
23-Sep	160	5,605	93.5	0	0	0.0
24-Sep	97	5,702	95.1	0	0	0.0
25-Sep	22	5,724	95.4	0	0	0.0
26-Sep	87	5,811	96.9	0	0	0.0
27-Sep	3	5,814	96.9	0	0	0.0
28-Sep	17	5,831	97.2	0	0	0.0
29-Sep	46	5,877	98.0	0	0	0.0
30-Sep	55	5,932	98.9	0	0	0.0
1-Oct	23	5,955	99.3	0	0	0.0
2-Oct	17	5,972	99.6	0	0	0.0
3-Oct	0	5,972	99.6	0	0	0.0
4-Oct	2	5,974	99.6	0	0	0.0
5-Oct	23	5,997	100.0	0	0	0.0
6-Oct	0	5,997	100.0	0	0	0.0
7-Oct	0	5,997	100.0	0	0	0.0
9-Oct	---- Weir Pulled ----					
Counts		5,997				
Outlet spawners <sup>a</sup>		1,499				
Broodstock <sup>b</sup>		-1,262				
Spawners		6,234				

<sup>a</sup> The run was adjusted upwards to account for fish which spawn between L. Tatsamenie and the weir at Tatsamenie Lake.

<sup>b</sup> The brood stock included 623 females, 535 males, 79 prespawn male mortalities and 25 female prespawn mortalities.

Appendix C.9. Daily counts of adult sockeye salmon passing through Little Trapper Lake weir, 1998.

Date	Count	Cumulative	
		Count	Percent
18-Jul	----		
19-Jul	0	0	0.00
20-Jul	0	0	0.00
21-Jul	0	0	0.00
22-Jul	0	0	0.00
23-Jul	0	0	0.00
24-Jul	0	0	0.00
25-Jul	203	203	2.33
26-Jul	404	607	6.96
27-Jul	492	1,099	12.61
28-Jul	200	1,299	14.90
29-Jul	512	1,811	20.78
30-Jul	610	2,421	27.77
31-Jul	576	2,997	34.38
1-Aug	202	3,199	36.70
2-Aug	243	3,442	39.49
3-Aug	204	3,646	41.83
4-Aug	115	3,761	43.15
5-Aug	248	4,009	45.99
6-Aug	168	4,177	47.92
7-Aug	301	4,478	51.37
8-Aug	254	4,732	54.28
9-Aug	287	5,019	57.58
10-Aug	238	5,257	60.31
11-Aug	611	5,868	67.32
12-Aug	613	6,481	74.35
13-Aug	511	6,992	80.21
14-Aug	462	7,454	85.51
15-Aug	268	7,722	88.59
16-Aug	267	7,989	91.65
17-Aug	131	8,120	93.15
18-Aug	149	8,269	94.86
19-Aug	92	8,361	95.92
20-Aug	191	8,552	98.11
21-Aug	46	8,598	98.63
22-Aug	47	8,645	99.17
23-Aug	9	8,654	99.28
24-Aug	0	8,654	99.28
25-Aug	13	8,667	99.43
26-Aug	4	8,671	99.47
27-Aug	8	8,679	99.56
28-Aug	6	8,685	99.63
29-Aug	7	8,692	99.71
30-Aug	5	8,697	99.77
31-Aug	3	8,700	99.80
1-Sep	3	8,703	99.84
2-Sep	3	8,706	99.87
3-Sep	2	8,708	99.90
4-Sep	2	8,710	99.92
5-Sep	0	8,710	99.92
6-Sep	2	8,712	99.94
7-Sep	0	8,712	99.94
8-Sep	0	8,712	99.94
9-Sep	4	8,716	99.99
10-Sep	0	8,716	99.99
11-Sep	1	8,717	100.00
11-Sep	----		
Count		8,717	
Spawners		8,717	

Appendix C.10. Daily counts of adult salmon passing through the Nahlin River weir, 1998. Chinook counts represent an unknown portion of the escapement because the weir was not operated throughout the entire run.

Date	Jack	Chinook			Sockeye		
	Chinook	Cumulative			Cumulative		
	Count	Count	Count	Percent	Count	Cum.	Percent
5-Jun	na	0	0	0.00	0	0	0.00
6-Jun	na	0	0	0.00	0	0	0.00
7-Jun	na	0	0	0.00	0	0	0.00
8-Jun	na	0	0	0.00	0	0	0.00
9-Jun	na	0	0	0.00	0	0	0.00
10-Jun	na	0	0	0.00	0	0	0.00
11-Jun	na	0	0	0.00	0	0	0.00
12-Jun	na	0	0	0.00	0	0	0.00
13-Jun	na	0	0	0.00	0	0	0.00
14-Jun	na	0	0	0.00	0	0	0.00
15-Jun	na	0	0	0.00	0	0	0.00
16-Jun	na	0	0	0.00	0	0	0.00
17-Jun	na	0	0	0.00	0	0	0.00
18-Jun	na	0	0	0.00	0	0	0.00
19-Jun	na	0	0	0.00	0	0	0.00
20-Jun	na	0	0	0.00	0	0	0.00
21-Jun	na	0	0	0.00	0	0	0.00
22-Jun	na	0	0	0.00	0	0	0.00
23-Jun	na	0	0	0.00	0	0	0.00
24-Jun	na	0	0	0.00	0	0	0.00
25-Jun	na	2	2	0.14	0	0	0.00
26-Jun	na	0	2	0.14	0	0	0.00
27-Jun	na	0	2	0.14	0	0	0.00
28-Jun	na	8	10	0.69	0	0	0.00
29-Jun	na	0	10	0.69	0	0	0.00
30-Jun	na	0	10	0.69	0	0	0.00
1-Jul	na	20	30	2.07	10	10	2.90
2-Jul	na	20	50	3.45	10	20	5.80
3-Jul	na	20	70	4.82	11	31	8.99
4-Jul	na	6	76	5.24	2	33	9.57
5-Jul	na	0	76	5.24	0	33	9.57
6-Jul	na	4	80	5.51	6	39	11.30
7-Jul	na	0	80	5.51	0	39	11.30
8-Jul	na	0	80	5.51	20	59	17.10
9-Jul	na	1	81	5.58	6	65	18.84
10-Jul	na	1	82	5.65	19	84	24.35
11-Jul	na	1	83	5.72	6	90	26.09
12-Jul	na	4	87	6.00	43	133	38.55
13-Jul	na	3	90	6.20	27	160	46.38
14-Jul	na	58	148	10.20	15	175	50.72
15-Jul	na	0	148	10.20	0	175	50.72
16-Jul	na	652	800	55.13	1	176	51.01
17-Jul	na	0	800	55.13	0	176	51.01
18-Jul	na	42	842	58.03	4	180	52.17
19-Jul	na	104	946	65.20	1	181	52.46
20-Jul	na	0	946	65.20	0	181	52.46
21-Jul	na	2	948	65.33	0	181	52.46
22-Jul	na	35	983	67.75	11	192	55.65
23-Jul	na	0	983	67.75	0	192	55.65
24-Jul	na	136	1,119	77.12	26	218	63.19
25-Jul	na	84	1,203	82.91	40	258	74.78
26-Jul	na	51	1,254	86.42	17	275	79.71
27-Jul	na	23	1,277	88.01	7	282	81.74
28-Jul	na	42	1,319	90.90	8	290	84.06
29-Jul	na	6	1,325	91.32	5	295	85.51
30-Jul	na	10	1,335	92.01	9	304	88.12
31-Jul	na	0	1,335	92.01	8	312	90.43
1-Aug	na	0	1,335	92.01	7	319	92.46
2-Aug	na	0	1,335	92.01	5	324	93.91
3-Aug	na	6	1,341	92.42	6	330	95.65
4-Aug	na	0	1,341	92.42	3	333	96.52
5-Aug	na	0	1,341	92.42	5	338	97.97
6-Aug	na	0	1,341	92.42	1	339	98.26
7-Aug	na	0	1,341	92.42	6	345	100.00
8-Aug	na	8	1,349	92.97		345	100.00
9-Aug	na	19	1,368	94.28		345	100.00
10-Aug	na	8	1,376	94.83		345	100.00
11-Aug	na	35	1,411	97.24		345	100.00
12-Aug	na	5	1,416	97.59		345	100.00
13-Aug	na	10	1,426	98.28		345	100.00
14-Aug	na	10	1,436	98.97		345	100.00
15-Aug	na	12	1,448	99.79		345	100.00
16-Aug	na	3	1,451	100.00			
18-Aug	---- Weir Pulled ----						
Counts	0	1,451			345		

Appendix C.11. Daily counts of adult sockeye salmon passing through the Kuthai Lake weir, 1998.

Date	Count	Cumulative	
		Count	Percent
3-Jul	0	0	0.00
4-Jul	0	0	0.00
5-Jul	0	0	0.00
6-Jul	0	0	0.00
7-Jul	0	0	0.00
8-Jul	0	0	0.00
9-Jul	0	0	0.00
10-Jul	0	0	0.00
11-Jul	0	0	0.00
12-Jul	0	0	0.00
13-Jul	440	440	22.75
14-Jul	9	449	23.22
15-Jul	417	866	44.78
16-Jul	72	938	48.50
17-Jul	44	982	50.78
18-Jul	107	1,089	56.31
19-Jul	58	1,147	59.31
20-Jul	103	1,250	64.63
21-Jul	64	1,314	67.94
22-Jul	77	1,391	71.92
23-Jul	71	1,462	75.59
24-Jul	0	1,462	75.59
25-Jul	0	1,462	75.59
26-Jul	21	1,483	76.68
27-Jul	93	1,576	81.49
28-Jul	10	1,586	82.01
29-Jul	51	1,637	84.64
30-Jul	98	1,735	89.71
31-Jul	2	1,737	89.81
1-Aug	196	1,933	99.95
2-Aug	0	1,933	99.95
3-Aug	0	1,933	99.95
4-Aug	0	1,933	99.95
5-Aug	0	1,933	99.95
6-Aug	1	1,934	100.00
7-Aug	0	1,934	100.00
8-Aug	0	1,934	100.00
9-Aug	0	1,934	100.00
10-Aug	0	1,934	100.00
11-Aug	0	1,934	100.00
12-Aug	0	1,934	100.00
13-Aug	0	1,934	100.00
14-Aug	0	1,934	100.00
15-Aug	0	1,934	100.00
16-Aug	0	1,934	100.00
17-Aug	0	1,934	100.00
18-Aug	0	1,934	100.00
19-Aug	0	1,934	100.00
20-Aug	0	1,934	100.00
21-Aug	0	1,934	100.00
22-Aug	0	1,934	100.00
23-Aug	0	1,934	100.00
24-Aug	0	1,934	100.00
25-Aug	0	1,934	100.00
26-Aug	0	1,934	100.00
27-Aug	---- Weir Pulled ----		
Total	1,934		



Appendix C.12. Daily counts of chinook salmon carcasses at the Nakina River weir, 1998.

Date	Count			Cumulative	
	Female	Male	Combined	Count	Percent
4-Aug	2	6	8	8	0.012
5-Aug	6	7	13	21	0.032
6-Aug	14	22	36	57	0.087
7-Aug	16	20	36	93	0.142
8-Aug	14	24	38	131	0.200
9-Aug	11	18	29	160	0.244
10-Aug	25	51	76	236	0.360
11-Aug	11	48	59	295	0.450
12-Aug	5	46	51	346	0.527
13-Aug	12	71	83	429	0.654
14-Aug	4	52	56	485	0.739
15-Aug	4	42	46	531	0.809
16-Aug	9	30	39	570	0.869
17-Aug	1	30	31	601	0.916
18-Aug	2	29	31	632	0.963
19-Aug	0	5	5	637	0.971
20-Aug	1	5	6	643	0.980
21-Aug	0	3	3	646	0.985
22-Aug	0	4	4	650	0.991
23-Aug	0	2	2	652	0.994
24-Aug	0	2	2	654	0.997
25-Aug	0	1	1	655	0.998
26-Aug	0	1	1	656	1.000
Total	137	519	656		

Appendix D.1. Salmon catches and effort in the Alaskan District 111 and Subdistrict 111-32 (Taku Inlet) commercial drift gillnet fishery, 1960-1998. Days open are for the entire district and include openings to harvest spawner chinook salmon, 1960-1975.

Year	Catch						Effort		
	Chinook	Sockeye	Coho	Pink	S. Chum <sup>a</sup>	F. Chum <sup>a</sup>	Steelhead	Boat Days	Days Open
District 111 Catches									
1960	8,810	42,819	22,374	33,155	8,754	33,098			60.00
1961	7,434	45,981	15,486	41,455	8,578	15,855			62.00
1962	5,931	36,745	15,661	17,280	7,453	13,182			52.00
1963	2,652	24,119	10,855	21,392	12,335	7,779			54.00
1964	2,509	34,140	29,315	26,593	4,970	7,883			56.00
1965	4,170	27,569	32,667	2,768	3,842	7,691			63.00
1966	4,829	33,925	26,065	23,833	5,015	30,118			64.00
1967	5,417	17,735	40,391	12,372	2,183	20,651			53.00
1968	4,904	19,501	39,103	67,365	5,747	16,143			60.00
1969	6,986	41,169	10,802	73,927	4,851	10,198	369	1,461	41.50
1970	3,357	50,922	44,960	197,017	19,593	90,797	1,055	2,688	53.00
1971	6,958	66,181	41,830	31,484	31,813	59,332	631	2,914	55.00
1972	10,955	80,404	49,780	144,339	67,126	80,831	574	3,100	51.00
1973	9,799	85,317	35,453	58,186	33,296	75,949	554	3,316	41.00
1974	2,908	38,670	38,667	57,731	11,263	75,423	465	2,237	29.50
1975	2,182	32,513	1,185	9,567	2,091	587	89	1,089	15.50
1976	1,757	61,749	41,729	14,962	6,027	75,776	499	1,939	25.00
1977	1,068	70,097	54,917	88,578	8,995	52,107	359	2,284	27.00
1978	1,926	55,398	31,944	51,385	9,076	27,178	397	2,176	26.00
1979	3,701	122,148	16,194	152,836	5,936	55,261	243	2,235	28.83
1980	2,251	123,451	41,677	296,572	33,627	159,020	363	4,080	30.92
1981	1,721	49,942	26,711	254,856	22,546	53,892	262	2,660	30.00
1982	3,057	83,625	29,072	109,297	14,867	22,741	476	2,437	35.50
1983	888	31,821	21,455	66,239	6,160	9,104	183	1,274	33.00
1984	1,773	77,233	33,836	145,971	45,811	40,930	366	2,690	52.50
1985	2,636	88,077	55,597	311,248	58,972	47,748	499	3,102	48.00
1986	2,584	73,061	30,512	16,568	29,909	28,883	529	2,102	32.83
1987	2,076	75,212	35,219	363,439	57,280	64,380	272	2,514	34.75
1988	1,777	38,901	44,818	157,732	80,797	59,241	226	2,146	32.00
1989	1,811	74,019	51,812	180,639	18,024	18,955	215	2,333	41.00
1990	3,480	126,884	67,530	153,126	112,336	33,463	310	3,202	38.33
1991	3,214	109,471	126,576	74,170	146,444	13,978	69	4,103	57.00
1992	2,341	135,411	172,662	314,445	97,725	14,802	166	4,550	50.00
1993	6,748	171,383	65,539	17,083	156,031	10,447	52	3,827	43.00
1994	5,047	105,861	188,501	401,525	198,002	16,169	459	5,082	66.00
1995	4,660	103,377	83,626	41,269	339,178	10,920	128	4,034	49.00
1996	2,659	199,014	33,633	12,660	347,612	6,455	240	3,229	46.00
1997	2,804	94,745	3,515	51,424	173,804	3,060	0	2,107	33.00
Averages									
60-97	3,942	72,331	45,044	107,750	57,844	36,053	347	2,790	43.95
88-97	3,454	115,907	83,821	140,407	166,995	18,749	187	3,461	45.53
1998	794	69,677	28,713	168,283	291,416	4,695	0	3,070	48.00
Subdistrict 111-32 Catches (Taku Inlet)									
1960	8,763	26,641	20,282	26,777	4,566	28,720		1,680	60.00
1961	7,269	30,805	14,618	34,615	6,863	14,876		2,901	62.00
1962	5,719	25,969	13,699	10,006	5,418	11,812		1,568	52.00
1963	2,547	16,079	9,406	18,102	8,085	7,071		1,519	51.00
1964	2,482	28,873	28,603	22,177	3,919	7,822		1,491	56.00
1965	4,146	23,828	32,382	2,641	3,604	7,691		1,332	60.00
1966	4,817	28,301	24,153	22,490	4,350	27,327		1,535	58.00
1967	5,351	14,537	39,983	11,619	1,569	20,463		1,663	50.00
1968	4,862	16,952	37,570	55,527	4,646	15,597		2,420	60.00
1969	6,874	38,260	10,131	66,991	4,233	9,926	366	1,413	42.00
1970	3,073	41,476	37,587	143,886	14,208	76,795	996	2,425	53.00
1971	6,753	62,459	38,571	30,765	31,110	54,696	627	2,849	55.00
1972	9,633	62,877	38,568	78,673	45,955	60,097	544	2,797	51.00
1973	9,525	80,063	29,770	55,234	30,817	61,025	513	3,135	41.00
1974	2,280	26,256	27,670	32,684	6,469	51,063	378	1,741	30.00
1975	1,998	28,201	429	8,084	1,639	31	77	986	15.00
1976	1,693	51,674	31,641	11,868	3,766	42,674	450	1,582	23.00
1977	754	47,512	48,403	67,072	5,436	43,595	318	1,879	27.00
1978	1,642	43,795	21,620	41,624	7,142	18,101	314	1,738	24.00
1979	3,016	103,043	12,741	114,324	4,317	46,142	225	2,011	29.00
1980	1,986	108,577	35,814	241,085	25,779	131,126	337	3,634	31.00
1981	1,325	39,963	20,936	98,524	10,407	40,212	233	1,740	22.00
1982	2,841	75,012	24,761	77,942	11,558	18,363	447	2,130	36.00
1983	689	25,957	17,665	40,996	3,171	7,813	172	1,065	31.00
1984	1,414	59,229	25,951	83,028	28,214	27,967	315	2,120	39.00
1985	2,152	70,160	45,106	176,710	35,897	40,530	436	2,116	37.00
1986	1,877	60,106	26,474	9,772	14,646	24,790	485	1,413	30.00
1987	1,534	54,436	23,342	200,203	31,992	28,891	197	1,517	30.00
1988	948	23,755	33,159	41,631	53,226	27,010	174	1,213	29.00
1989	1,606	68,104	44,034	141,426	30,747	15,491	183	1,909	36.00
1990	2,432	110,006	60,078	101,218	117,449	29,099	286	2,879	38.00
1991	2,611	95,594	119,039	44,324	109,067	12,279	63	3,324	52.00
1992	1,672	103,238	152,598	180,340	68,802	11,649	135	3,407	43.00
1993	4,413	144,982	58,062	8,801	109,116	7,760	46	3,372	43.00
1994	3,051	88,625	156,314	198,507	141,630	12,280	422	3,960	60.00
1995	3,497	81,266	70,826	18,469	201,343	8,786	119	3,061	45.00
1996	2,412	188,412	31,828	12,123	300,135	5,245	236	2,685	41.00
1997	2,724	84,115	2,993	38,794	145,290	1,936	0	1,761	30.00
Averages									
60-97	3,484	59,977	38,600	67,607	43,068	27,809	314	2,157	41.37
88-97	2,537	98,810	72,893	78,563	127,681	13,154	166	2,757	41.70
1998	634	47,413	24,606	85,269	192,057	2,800	0	2,907	39.00

<sup>a</sup> S Chum and F Chum refer to Summer and Fall runs of these fish, fish harvested prior to week 34 are considered summer chum, and fish harvested in week 34 and beyond are considered fall chum.

Appendix D.2. Stock proportions and catches of sockeye salmon in the Alaska District 111 commercial drift gillnet fishery, 1983-1998. Data based on analysis of scale patterns, otolith marks, and incidence of brain parasites.

Week	Little Trapper			Tatsamenie		Total		All Wild		U.S.	
	Kuthai	Wild	Planted	Mainstem	Wild	Planted	Taku	Crescent	Speel	Snett.	Planted
Proportions											
1983							0.755			0.245	
1984							0.758			0.242	
1985							0.838			0.162	
1986	0.061	0.266		0.303	0.204		0.834	0.090	0.076	0.166	
1987	0.078	0.234		0.376	0.031		0.720	0.157	0.123	0.280	
1988	0.118	0.158		0.305	0.082		0.663	0.266	0.071	0.337	
1989 <sup>a</sup>	0.077				0.156		0.848	0.051	0.100	0.152	
1990	0.036	0.197		0.336	0.286		0.855	0.112	0.033	0.145	
1991	0.039	0.297		0.373	0.232		0.941	0.059	0.000	0.059	
1992	0.048	0.220		0.445	0.191		0.904	0.036	0.060	0.096	
1993	0.062	0.328		0.308	0.123		0.822	0.069	0.109	0.178	
1994	0.110	0.356		0.361	0.091		0.917	0.036	0.022	0.058	0.025
1995	0.046	0.214	0.010	0.428	0.153	0.029	0.880	0.018	0.075	0.093	0.026
1996	0.069	0.117	0.010	0.499	0.232	0.014	0.941	0.013	0.032	0.045	0.014
1997	0.067	0.170	0.011	0.282	0.286	0.011	0.826	0.027	0.026	0.053	0.120
Averages	0.067	0.232	0.010	0.365	0.174	0.018	0.834	0.080	0.057	0.154	0.046
1998	0.087	0.158	0.008	0.209	0.245	0.004	0.710	0.026	0.007	0.033	0.257
Catches											
1983							24,025			7,796	
1984							58,543			18,690	
1985							73,809			14,268	
1986	4,489	19,441		22,104	14,900		60,934	6,610	5,516	12,127	
1987	5,893	17,594		28,286	2,352		54,124	11,814	9,274	21,088	
1988	4,595	6,150		11,859	3,192		25,796	10,359	2,746	13,105	
1989 <sup>a</sup>	5,696				11,536		62,805	3,789	7,425	11,214	
1990	4,539	24,952		42,676	36,332		108,499	14,242	4,143	18,385	
1991	4,279	32,564		40,806	25,381		103,030	6,441	0	6,441	
1992	6,543	29,818		60,224	25,853		122,438	4,912	8,060	12,972	
1993	10,662	56,293		52,823	21,118		140,896	11,865	18,622	30,487	
1994	11,638	37,644		38,179	9,585		97,046	3,859	2,319	6,178	2,637
1995	4,788	22,109	1,017	44,278	15,767	3,049	91,008	1,901	7,741	9,642	2,727
1996	13,742	23,307	1,920	99,231	46,148	2,859	187,207	2,544	6,415	8,959	2,848
1997	6,345	16,105	1,031	26,694	27,107	1,006	78,288	2,558	2,510	5,068	11,389
Average	7,047	25,998	1,323	42,469	20,703	2,305	85,896	7,010	6,122	13,095	4,900
1998	6,055	11,018	570	14,560	17,040	250	49,493	1,784	500	2,284	17,900

<sup>a</sup> The Trapper and Mainstem groups were combined in the 1989 analysis and were 45,573 fish.

Appendix D.3. Proportion of wild Taku River sockeye salmon in the Alaskan District 111 commercial drift gillnet catch by week, 1983-1998.a Data based on scale patterns and incidence of brain parasites. Hatchery fish are not included in these numbers.

Year	Week										Total
	25	26	27	28	29	30	31	32	33	34	
1983		0.996	0.842	0.819	0.663	0.527	0.836	0.534	0.719	0.759	0.755
1984	0.970	0.956	0.843	0.670	0.588	0.712	0.728	0.809	0.726		0.758
1985	0.999	0.986	0.928	0.974	0.868	0.706	0.737	0.826	0.801		0.838
1986	0.938	0.953	0.873	0.880	0.852	0.777	0.851	0.757	0.893	0.739	0.834
1987		0.982	0.901	0.884	0.948	0.414	0.619	0.689	0.841	0.731	0.720
1988		0.964	0.886	0.889	0.510	0.643	0.677	0.528	0.478	0.346	0.663
1989	0.943	0.989	0.979	0.852	0.835	0.641	0.681	0.919	0.676		0.848
1990	0.874	0.935	0.904	0.773	0.782	0.863	0.943	0.939	0.878	0.862	0.855
1991	0.988	0.979	0.953	0.979	0.951	0.933	0.936	0.890	0.885	0.875	0.941
1992		0.978	0.985	0.956	0.916	0.943	0.893	0.858	0.766	0.766	0.904
1993		0.961	0.901	0.837	0.856	0.781	0.790	0.829	0.738	0.706	0.822
1994		1.000	0.981	0.973	0.967	0.870	0.835	0.938	0.804	0.901	0.917
1995	0.942	0.889	0.903	0.858	0.872	0.868	0.761	0.759	0.705	0.740	0.841
1996	1.000	0.998	0.909	0.974	0.950	0.991	0.914	0.945	0.879	0.804	0.953
1997	0.992	0.971	0.902	0.856	0.798	0.794	0.831	0.655	0.743	0.750	0.826
Average											
83-97	0.961	0.969	0.913	0.878	0.824	0.764	0.802	0.792	0.769	0.748	0.832
88-97	0.956	0.966	0.930	0.895	0.844	0.833	0.826	0.826	0.755	0.750	0.857
1998		0.964	0.974	0.978	0.971	0.949	0.948	0.942	0.997	0.857	0.955

Appendix D.4. Salmon catch in the U.S. subsistence and personal use fisheries in the Taku River, 1967-1998. The subsistence fishery was open 1967 to 1976 and 1985 and the personal use fishery was open 1989-1998.

Year	Catch				
	Chinook	Sockeye	Coho	Pink	Chum
1967	0	103	221	9	25
1968	3	41	196	19	10
1969	0	122	8	11	0
1970	0	304	0	20	8
1971	0	512	0	42	0
1972	0	554	0	103	7
1973	0	1,227	0	64	14
1974	0	1,431	0	118	5
1975	0	170	0	3	0
1976	0	351	4	22	0
1985	0	2,514	96	44	3
1989	62	1,395	142	1,467	40
1990	57	1,726	224	242	100
1991	47	1,506	162	183	4
1992	34	1,972	143	162	0
1993	17	2,223	46	172	6
1994	36	2,001	168	137	5
1995	37	2,058	202	83	12
1996	87	2,977	163	285	15
1997	33	2,140	56	177	2
Averages					
67-97	21	1,266	92	168	13
89-97	46	2,000	145	323	20
1998	31	2,338	174	464	4

Appendix D.5. Salmon and steelhead trout catch and effort in the Canadian commercial fishery in the Taku River, 1979-1998.

Year	Catch							Effort	
	Chinook		Sockeye	Coho	Pink	Chum	Steelhead	Boat Days	Days Open
	Jack	Large							
1979		97	13,578	6,006	13,661	15,474	254	599	50
1980		225	22,602	6,405	26,821	18,516	457	476	39
1981		159	10,922	3,607	10,771	5,591	108	243	31
1982		54	3,144	51	202	3	1	38	13
1983	400	156	17,056	8,390	1,874	1,760	213	390	64
1984	221	294	27,242	5,357	6,964	2,492	367	288	30
1985	24	326	14,244	1,770	3,373	136	32	178	16
1986	77	275	14,739	1,783	58	110	48	148	17
1987	106	127	13,554	5,599	6,250	2,270	223	280	26
1988	186	555	12,014	3,123	1,030	733	86	185	15
1989	139	895	18,545	2,876	695	42	24	271	25
1990	128	1,258	21,100	3,207	378	12	22	295	28
1991	432	1,177	25,067	3,415	296	2	5	284	25
1992	147	1,445	29,472	4,077	0	7	15	291	27
1993	171	1,619	33,217	3,033	16	15	11	363	34
1994	235	2,065	28,762	14,531	168	18	232	497	74
1995	298	1,577	32,640	13,629	2	1	205	428	51
1996	144	3,331	41,665	5,028	0	0	98	415	65
1997	84	2,731	24,003	2,594	0	1	160	394	47
Averages									
79-97 <sup>a</sup>		1,114	21,240	4,973	3,819	2,483	135	319	36
88-97	196	1,665	26,649	5,551	259	83	86	342	39
1998	227	1,107	19,038	5,090	0	2	176	299	42

<sup>a</sup> Chinook averages are for large fish and jacks combined.

Appendix D.6. Sockeye salmon stock proportions and catch by stock in the Canadian commercial fishery on the Taku River, 1986-1998. Data based on scale pattern analysis.

Year	Kuthai	Little Trapper		Mainstem	Tatsamenie		Total Wild	Total Planted
		Wild	Planted		Wild	Planted		
Proportions								
1986	0.111	0.397		0.350	0.143		1.000	
1987	0.062	0.201		0.649	0.088		1.000	
1988	0.143	0.417		0.343	0.098		1.000	
1989 <sup>a</sup>	0.053				0.203		1.000	
1990	0.112	0.388		0.338	0.163		1.000	
1991	0.064	0.308		0.452	0.176		1.000	
1992	0.092	0.240		0.569	0.099		1.000	
1993	0.126	0.392		0.432	0.049		1.000	
1994	0.158	0.482		0.302	0.058		1.000	
1995	0.047	0.427	0.010	0.373	0.112	0.031	0.959	0.041
1996	0.105	0.221	0.008	0.442	0.215	0.010	0.982	0.018
1997	0.120	0.282	0.019	0.277	0.294	0.008	0.973	0.027
Averages								
86-97	0.099	0.341	0.012	0.411	0.142	0.016	0.993	0.029
1998	0.225	0.207	0.028	0.254	0.283	0.003	0.969	0.031
Catch								
1986	1,629	5,855		5,152	2,103		14,739	
1987	834	2,728		8,793	1,199		13,554	
1988	1,715	5,005		4,122	1,172		12,014	
1989 <sup>a</sup>	990				3,763		18,545	
1990	2,355	8,183		7,131	3,431		21,100	
1991	1,601	7,721		11,327	4,418		25,067	
1992	2,699	7,085		16,764	2,924		29,472	
1993	4,192	13,036		14,347	1,641		33,217	
1994	4,544	13,858		8,684	1,676		28,762	
1995	1,528	13,934	331	12,185	3,659	1,003	31,306	1,334
1996	4,357	9,195	331	18,422	8,959	401	40,933	732
1997	2,891	6,758	456	6,637	7,060	201	23,346	657
Averages								
86-97	2,445	8,487	373	10,324	3,500	535	24,338	908
1998	4,279	3,944	533	4,829	5,397	56	18,449	589

<sup>a</sup> The Trapper and Mainstem groups were combined in the 1989 analysis with 13,792 fish or 74.4% of the catch.

Appendix D.7. Salmon catches in the Canadian aboriginal fishery on the Taku River, 1980-1998.

Year	Chinook		Sockeye	Coho	Pink	Chum	Steelhead
	Jack	Large					
1980		85	150	0	0	15	0
1981							
1982							
1983		9	0	0	0	0	0
1984		0	50	15	0	0	0
1985		4	167	22	0	0	0
1986		10	200	50	0	0	0
1987		0	96	113	0	0	0
1988		27	245	98	0	0	0
1989		6	53	146	0	0	0
1990		0	89	6	0	0	0
1991		0	150	20	0	0	0
1992		121	352	187	0	0	16
1993		25	140	8	0	0	0
1994		119	239	162	4	0	1
1995		70	71	109	0	7	4
1996		63	360	24	0	0	0
1997		103	349	96	0	0	0
Averages							
80-97		40	169	66	0	1	1
88-97		53	205	86	0	1	2
1998		60	239	0	0	0	0

Appendix D.8. Salmon and steelhead trout catch in the Canadian test fishery in the Taku River, 1987-1998.

Year	Chinook		Sockeye	Catch		Pink	Chum	Steelhead
				Coho				
1987			237	807				
1988	72		708	422	52	222		14
1989	31		207	1,011	0	13		26
1990	48		285	472	0	0		20
1991	0		163	2,004	3	295		41
1992	0		38	1,277	0	76		88
1993 <sup>a</sup>	0		166	1,593	0	50		13
1994	There was no Canadian test fishery in 1994.							
1995	There was no Canadian test fishery in 1995.							
1996	There was no Canadian test fishery in 1996.							
1997	The 1 sockeye and 39 coho salmon caught in 1997 were released live.							
Averages								
87-93	25		258	1,084	9	109		34
1998	There was no Canadian test fishery in 1998.							

<sup>a</sup> Incomplete harvest data.

Appendix D.9. Taku River sockeye salmon run size, 1984-1998. Run estimate does not include spawning escapements below the U.S./ Canada border. The early season sockeye expansion is based on the proportion of fish wheel sockeye catch that occurs before the fishery opens.

Year	Above Border M-R		Expansion		Expanded		Canadian Catch	U.S. Catch <sup>a</sup>	Total Run
	Run Estimate	Start Date	Method	Factor	Run Estimate				
1984	133,414	17-Jun	Ave.(88-90&95-96) FW CPUE	0.056	141,254	27,292	113,962	58,543	199,796
1985	118,160	16-Jun	Ave.(88-90&95-96) FW CPUE	0.047	123,974	14,411	109,563	76,323	200,297
1986	104,162	22-Jun	Ave.(88-90&95-96) FW CPUE	0.095	115,045	14,939	100,106	60,934	175,980
1987	87,554	21-Jun	Ave.(88-90&95-96) FW CPUE	0.088	96,023	13,887	82,136	55,154	151,178
1988	86,629	19-Jun	1988 FW CPUE	0.065	92,641	12,967	79,674	25,796	118,437
1989	99,467	18-Jun	1989 FW CPUE	0.128	114,068	18,805	95,263	64,200	178,268
1990	117,385	10-Jun	1990 CPUE	0.002	117,573	21,474	96,099	110,225	227,798
1991	153,773	9-Jun	Ave.(88-90&95-96) FW CPUE	0.007	154,873	25,380	129,493	105,255	260,127
1992	162,003	21-Jun	Ave.(88-90&95-96) FW CPUE	0.032	167,376	29,862	137,514	124,410	291,786
1993	138,523	13-Jun	Ave.(88-90&95-96) FW CPUE	0.026	142,148	33,523	108,625	143,119	285,267
1994	129,119	12-Jun	Ave.(88-90&95-96) FW CPUE	0.019	131,580	29,001	102,579	99,047	230,627
1995	145,264	11-Jun	1995 FW CPUE	0.008	146,450	32,711	113,739	93,066	239,516
1996	132,322	9-Jun	1996 FW CPUE	0.017	134,651	42,025	92,626	190,184	324,835
1997	93,816	3-May	1997 FW CPUE	0.017	95,438	24,352	71,086	80,428	175,866
Averages									
84-97					126,650	24,331	102,319	91,906	218,556
88-97					129,680	27,010	102,670	103,573	233,253
1998	93,728	3-May	No expansion in 1998		93,728	19,275	74,453	51,831	145,559

Appendix D.10. Sockeye salmon escapement estimates of Taku River and Port Snettisham sockeye stocks, 1979-1998. Spawners equals escapement to the weir minus fish collected for brood stock.

Year	Little Trapper		Tatsamenie		Hackett Weir	Kuthai Lake Weir	Nahlin River Weir	Crescent		Speel	
	Escap.	Spawners	Escap.	Spawners				Escap.	Spawners	Escap.	Spawners
1980						1,658					
1981						2,299					
1982											
1983	7,402 <sup>b</sup>	7,402						19,422	19,422	10,484	10,484
1984	13,084	13,084						6,707	6,707	9,764	9,764
1985	14,889 <sup>b</sup>	14,889	13,093	13,093	2,309			7,249	7,249	7,073	7,006
1986	13,820	13,820	11,446	11,446	1,004			3,414	3,414	5,857	5,457
1987	12,007 <sup>b</sup>	12,007	2,794	2,794	910			7,839 <sup>d</sup>	7,839	9,319	9,319
1988	10,637	10,637	2,063	2,063	516		138 <sup>e</sup>	1,199 <sup>d</sup>	1,199	969	710
1989	9,606	9,606	3,039	3,039				1,109 <sup>d</sup>	775	12,229	10,114
1990	9,443	7,777	5,736	4,929			2,515	1,262 <sup>d</sup>	757	18,064 <sup>d</sup>	16,867
1991	22,942	21,001	8,381	7,585				9,208 <sup>a</sup>	8,666	299	299
1992	14,372	12,732	6,576	5,681		1,457 <sup>c</sup>	297 <sup>c</sup>	22,674 <sup>a</sup>	21,849	9,439	8,136
1993	17,432	16,685	5,028	4,230		6,312 <sup>d</sup>	2,463				
1994	13,438	12,691	4,371	3,578		5,427	960				
1995	11,524	11,524	8,000	6,607 <sup>e</sup>		3,310	3,711			16,208 <sup>a</sup>	14,260
1996	5,483	5,483	10,381	8,026 <sup>f</sup>		4,243	2,538			20,000	18,610
1997	5,924	5,924	8,363	5,981 <sup>g</sup>		5,746	1,857			4,999 <sup>i</sup>	
Averages											
83-97	12,134	11,684	6,867	6,081	1,185	4,416	1,810	8,008	7,788	9,593	9,252
88-97	12,080	11,406	6,194	5,172	516	4,416	1,810	7,090	6,649	10,276	9,857
1998	8,717	8,717	5,997	4,735 <sup>h</sup>		1,934	345			13,358 <sup>i</sup>	

<sup>a</sup> Mark-recapture estimates.

<sup>b</sup> Weir count plus spawning ground survey.

<sup>c</sup> Weir counts are incomplete.

<sup>d</sup> Counts may be low due to uncounted fish passage past weir.

<sup>e</sup> In 1995 the weir was moved upstream to Tatsamenie Lake, the count of 8,000 is an expansion (based on past experience) of the 5,780 fish counted there.

<sup>f</sup> The estimated return of 10,381 through the Tatsamenie Lake weir in 1996 is thought to represent approximately 80% of the sockeye run past the old weir location at L. Tatsamenie. This results in a potential run of 12,976 sockeye salmon.

<sup>g</sup> The estimated return of 8,363 through the Tatsamenie Lake weir in 1997 is thought to represent approximately 80% of the sockeye run past the old weir location at L. Tatsamenie Lake resulting in a potential run of 10,454 sockeye.

<sup>h</sup> The estimated count of 5,997 fish through Tatsamenie Lake weir in 1998 does not include an estimated 1,499 fish spawning in the outlet stream i.e. total estimate 7,496.

<sup>i</sup> Minimum estimates of escapement.



Appendix D.11. Aerial survey index escapement counts of large (3-ocean and older) Taku River chinook salmon, 1975-1998.

Year	Kowatua	Tatsatua	Dndidontu	Tseta	Nakina	Nahlin	Total Index Count
1975			15		1,800	274	2,089
1976	341	620	40		3,000	725	4,726
1977	580	573	18		3,850	650	5,671
1978	490	550		21	1,620	624	3,305
1979	430	750	9		2,110	857	4,156
1980	450	905	158		4,500	1,531	7,544
1981	560	839	74	258	5,110	2,945	9,786
1982	289	387	130	228	2,533	1,246	4,813
1983	171	236	117	179	968	391	2,062
1984	279	616		176 <sup>a</sup>	1,887	951 <sup>b</sup>	3,909
1985	699	848	475	303	2,647	2,236	7,208
1986	548	886	413	193	3,868	1,612	7,520
1987	570	678	287	180	2,906	1,122	5,743
1988	1,010	1,272	243	66	4,500	1,535	8,626
1989	601	1,228	204	494	5,141	1,812	9,480
1990	614	1,068	820	172	7,917	1,658	12,249
1991	570	1,164	804	224	5,610	1,781	10,153
1992	782	1,624	768	313	5,750	1,821	11,058
1993	1,584	1,491	1,020	491	6,490	2,128	13,204
1994	410	1,106	573	614	4,792	2,418	9,913
1995	550	678	731	786	3,943	2,069	8,757
1996	1,620	2,011	1,810	1,201	7,720	5,415	19,777
1997	1,360	1,148	943	648	6,095	3,655	13,849
Averages							
75-97	659	940	460	364	4,120	1,715	8,258
88-97	910	1,279	792	501	5,796	2,429	11,707
1998	473	675	807	360	2,720	1,260	6,295

<sup>a</sup> Partial survey.

<sup>b</sup> Extrapolated results.

Appendix D.12. Taku River (above border) coho salmon run size, 1987-1998.

Year	Canadian Catch			Above Border	
	Commercial	Food	Test	Escapement	Rnn
1987	5,599	113	807	55,457	61,976 <sup>a</sup>
1988	3,123	98	422	39,450	43,093 <sup>b</sup>
1989	2,876	146	1,011	56,808	60,841 <sup>c</sup>
1990	3,207	6	472	72,196	75,881 <sup>d</sup>
1991	3,415	20	2,004	127,484	132,923
1992	4,077	187	1,277	84,853	90,394 <sup>c</sup>
1993	3,033	8	1,593	109,457	114,091 <sup>f</sup>
1994	14,531	162	0	96,343	111,036 <sup>g</sup>
1995	13,629	109	0	55,710	69,448 <sup>h</sup>
1996	5,028	24	0	44,635	49,687 <sup>i</sup>
1997	2,594	96	0	32,345	35,035 <sup>j</sup>
Averages					
87-97	5,556	88	690	70,431	76,764
1998	5,090	0	0	61,382	66,472 <sup>k</sup>

<sup>a</sup> Mark-recapture estimate through 9/20 was 43,570. Run through 10/05 estimated using inriver test fish CPUE.

<sup>b</sup> Mark-recapture estimate through 9/18.

<sup>c</sup> Mark-recapture estimate through 10/01.

<sup>d</sup> A second method of estimating the above border run by expanding test fishery CPUE yielded an estimate of 85,053 coho salmon.

<sup>e</sup> Mark-recapture estimate of inriver run size through 9/05 of 50,249 was expanded by dividing by proportion of District 111 CPUE of wild coho (.559)

<sup>f</sup> Inriver estimate through week 37 expanded by dividing by proportion of District 111 CPUE of wild coho (.54409) through week 37.

<sup>g</sup> Inriver estimate through week 39 expanded by dividing by proportion of District 111 CPUE of wild coho (0.8884) through week 39.

<sup>h</sup> Inriver estimate through week 39 expanded by dividing by proportion of District 111 CPUE of wild coho (0.8887) through week 39.

<sup>i</sup> Inriver estimate through week 39 expanded by dividing by proportion of District 111 CPUE of wild coho (0.889) through week 39.

<sup>j</sup> Mark-recapture estimate through statistical week 40 (September 29 to October 04). The coho caught in the test fishery were released.

<sup>k</sup> expansion based on proportion of troll harvest of Taku fish after week 36.

Appendix D.13. Escapement counts of Taku River coho salmon, 1984-1998. Counts are for age-1 fish and do not include jacks. Because of variability between methods, visibility, observers, and timing, these counts are not an index of run strength.

Year	Yehring Creek		Sockeye Creek	Johnson Creek	Fish Creek	Flannigan Slough	Tatsamenie River	Hackett River	Dudidontu River	Upper Nahlin River	Weir
	Weir	Aerial	Aerial	Ar/Foot	Aerial	Aerial	Weir	Weir	Aerial	Aerial	
1984		2,900	275	235	700	1,480					
1985		560	740	150	1,000	2,320	201 <sup>b</sup>	1,031			
1986	2,116 <sup>a</sup>	1,200	174 <sup>c</sup>	70	53 <sup>c</sup>	1,095 <sup>c</sup>	344 <sup>b</sup>	2,723	108	318	
1987	1,627 <sup>a</sup>	565 <sup>c</sup>	980 <sup>c</sup>	150	250	2,100 <sup>c</sup>	173 <sup>b</sup>	1,715	276	165	
1988	1,423	658 <sup>c</sup>	585 <sup>c</sup>	500	1,215 <sup>c</sup>	1,308 <sup>c</sup>	663 <sup>a</sup>	1,260	367	694	1,322
1989	1,570 <sup>d</sup>	600	400	400	235	1,670	712 <sup>a</sup>		115	322	
1990	2,522 <sup>d</sup>	220	193 <sup>c</sup>		425 <sup>c</sup>	414 <sup>c</sup>	669 <sup>a</sup>		25	256	
1991		475 <sup>c</sup>	399 <sup>c</sup>	120	1,378 <sup>c</sup>	1,348 <sup>c</sup>	1,101		458	176 <sup>c</sup>	
1992		1,267 <sup>ef</sup>	594 <sup>f</sup>	654	478	1,288	730				970 <sup>ab</sup>
1993		250	130	90	380	70 <sup>g</sup>	88 <sup>b</sup>				326
1994		500	60	450	200	50 <sup>g</sup>	168				2,112
1995		70	230	170	132	421	62 <sup>b</sup>				
1996		35	28	50	250	278	21 <sup>b</sup>				
1997		500	10	550	600						
Averages											
84-97	1,852	700	343	276	521	1,065	411	1,682	225	322	1,183
88-97	1,838	458	263	332	529	761	468	1,260	241	362	1,183
1998		280		300	450						

<sup>a</sup> Weir count combined with spawning ground count.

<sup>b</sup> Incomplete weir count.

<sup>c</sup> Count is an average of surveys by different observers.

<sup>d</sup> Includes mark-recapture estimate.

<sup>e</sup> Poor survey conditions.

<sup>f</sup> Foot survey.

<sup>g</sup> Surveys conducted before peak abundance on spawning grounds.

Appendix D.14. Canyon Island fish wheel salmon counts and periods of operation on the Taku River, 1983-1998.

Year	Period of Operation	Catch							Steelhead
		Chinook	Sockeye	Coho	Pink	Chum	Pink		
							Even Year	Odd Year	
1984	6/15-9/18	138	2,334	889	20,751	316	20,751		NA
1985	6/16-9/21	184	3,601	1,207	27,670	1,376		27,670	NA
1986	6/14-8/25	571	5,808	758	7,256	80	7,256		NA
1987	6/15-9/20	285	4,307	2,240	42,786	1,533		42,786	34
1988	5/11-9/19	1,436	3,292	2,168	3,982	1,089	3,982		34
1989	5/05-10/01	1,811	5,650	2,243	31,189	645		31,189	38
1990	5/03-9/23	1,972	6,091	1,860	13,358	748	13,358		43
1991	6/08-10/15	680	5,102	4,922	23,553	1,063		23,553	138
1992	6/20-9/24	212	6,279	2,103	9,252	189	9,252		22
1993	6/12-9/29	562	8,975	2,552	1,625	345		1,625	16
1994	6/10-9/21	906	6,485	4,792	27,100	367	27,100		107
1995	5/4-9/27	1,535	6,228	2,535	1,712	218		1,712	61
1996	5/3-9/20	1,904	5,919	1,895	21,583	388	21,583		68
1997	5/3-10/1	1,321	5,708	1,665	4,962	485		4,962	103
Averages									
84-97		966	5,413	2,274	16,913	632	14,755	19,071	60
88-97		1,234	5,973	2,674	13,832	554	15,055	12,608	63
1998	5/2-9/15 <sup>a</sup>	894	4,230	1,777	23,347	179	23,347		119

<sup>a</sup> gillnetting was used to supplement catches from September 16-23

Appendix E.1. Weekly salmon catch and effort in the U.S. commercial fishery in the Alsek River, 1998.

Week	Start Date	Catch					Effort		
		Chinook	Sockeye	Coho	Pink	Chum	Boats	Days Open	Boat Days
23	31-May	90	300	0	0	0	19	1.0	19.0
24	7-Jun	231	503	0	0	0	21	1.0	21.0
25	14-Jun	141	758	0	0	0	22	1.0	22.0
26	21-Jun	65	2,180	0	0	0	20	3.0	60.0
27	28-Jun	15	3,738	0	0	0	21	3.0	63.0
28	5-Jul	0	559	0	0	0	15	1.0	15.0
29	12-Jul	6	1,762	0	0	0	20	2.0	40.0
30	19-Jul	0	1,125	0	0	0	21	1.0	21.0
31	26-Jul	0	564	0	0	0	20	1.0	20.0
32	2-Aug	1	2,539	0	0	0	17	1.0	17.0
33	9-Aug	1	672	17	0	1	10	1.0	10.0
34	16-Aug	0	123	18	0	0	<sup>a</sup>	1.0	<sup>a</sup>
35	23-Aug	0	40	80	1	1	<sup>a</sup>	1.0	<sup>a</sup>
36	30-Aug	0	70	477	0	13	4	3.0	12.0
37	6-Sep	0	27	508	0	0	3	3.0	9.0
38	13-Sep	0	28	1,361	0	50	5	5.0	25.0
39	20-Sep	0	19	1,840	0	80	5	5.0	25.0
40	27-Sep	0	0	474	0	0	3	4.0	12.0
41	4-Oct	0	0	150	0	0	<sup>a</sup>	3.0	<sup>a</sup>
Total		550	15,007	4,925	1	145		41.0	399

<sup>a</sup> Effort is not listed by week, but is included in the season total.

Appendix E.2. Weekly salmon catch and effort in the Canadian aboriginal and sport fisheries in the Alsek River, 1998. Total catches do not include released fish.

Week	Date	Chinook				Sockeye				Coho			
		Sport		Aboriginal	Total <sup>b</sup>	Sport		Aboriginal	Total <sup>b</sup>	Sport		Aboriginal	Total <sup>b</sup>
		Kept <sup>a</sup>	Released <sup>a</sup>			Kept	Released			Kept	Released		
25	14-Jun	0	0	0	0	0	0	0	0	0	0	0	0
26	21-Jun	5	0	0	5	0	0	0	0	0	0	0	0
27	28-Jun	6	3	0	6	0	3	0	0	0	0	0	0
28	5-Jul	26	8	10	36	0	3	1	1	0	0	0	0
29	12-Jul	79	47	32	111	0	17	46	46	0	0	0	0
30	19-Jul	22	17	99	121	0	12	120	120	0	0	0	0
31	26-Jul	0	0	7	7	0	0	9	9	0	0	0	0
32	2-Aug	0	0	0	0	0	0	0	0	0	0	0	0
33	9-Aug	0	0	5	5	0	0	0	0	0	0	0	0
34	16-Aug	0	0	0	0	0	0	0	0	0	0	0	0
35	23-Aug	0	0	0	0	0	0	0	0	0	0	0	0
36	30-Aug	0	0	0	0	0	0	0	0	0	0	0	0
37	6-Sep	0	0	0	0	0	0	0	0	0	0	0	0
38	13-Sep	0	0	0	0	1	0	0	1	0	0	0	0
39	20-Sep	0	0	0	0	3	46	11	14	3	3	0	3
40	27-Sep	0	0	0	0	0	47	124	124	5	3	14	19
41	4-Oct	0	0	0	0	7	150	97	104	18	3	41	59
42	11-Oct	0	0	0	0	7	35	121	128	8	10	17	25
43	18-Oct	0	0	0	0	0	23	0	0	6	12	0	6
Sum		139	75	153	292	18	336	529	547	40	31	72	112
Commercial & Sport		36	119		36								
Village Creek food fish				1	1			38	38			0	0
Total		175	194	154	329	18	336	567	585	40	31	72	112
Food fish above Klukshu Weir <sup>c</sup>				17				11					

<sup>a</sup> Includes estimates of sport catch (kept and released) in Takhanne and Blanchard rivers; estimates based on expanding Dalton Post creel by a factor of approximately 1.558.

<sup>b</sup> Does not include released fish.

<sup>c</sup> The total food fish catch above the Klukshu Weir was 17 chinook, and 11 sockeye. These numbers are included in the weekly catches above. The food fish catches in Village Creek included 38 sockeye and 1 chinook which are included in the total aboriginal catch above.

Appendix E.3. Daily counts of salmon passing through Klukshu River weir, 1998.

Date	Chinook <sup>a</sup>			Sockeye			Coho		
	Daily	Cumulative		Daily	Cumulative		Daily	Cumulative	
		Daily	Prop.		Daily	Prop.		Daily	Prop.
24-Jun	1	1	0.001	0	0	0.000	0	0	0.000
25-Jun	1	2	0.001	0	0	0.000	0	0	0.000
26-Jun	0	2	0.001	0	0	0.000	0	0	0.000
27-Jun	1	3	0.002	0	0	0.000	0	0	0.000
28-Jun	0	3	0.002	0	0	0.000	0	0	0.000
29-Jun	0	3	0.002	0	0	0.000	0	0	0.000
30-Jun	5	8	0.006	0	0	0.000	0	0	0.000
1-Jul	0	8	0.006	0	0	0.000	0	0	0.000
2-Jul	5	13	0.010	0	0	0.000	0	0	0.000
3-Jul	3	16	0.012	0	0	0.000	0	0	0.000
4-Jul	3	19	0.014	0	0	0.000	0	0	0.000
5-Jul	3	22	0.016	3	3	0.000	0	0	0.000
6-Jul	4	26	0.019	9	12	0.001	0	0	0.000
7-Jul	0	26	0.019	1	13	0.001	0	0	0.000
8-Jul	21	47	0.034	17	30	0.002	0	0	0.000
9-Jul	8	55	0.040	0	30	0.002	0	0	0.000
10-Jul	3	58	0.043	1	31	0.002	0	0	0.000
11-Jul	3	61	0.045	0	31	0.002	0	0	0.000
12-Jul	2	63	0.046	0	31	0.002	0	0	0.000
13-Jul	13	76	0.056	1	32	0.002	0	0	0.000
14-Jul	148	224	0.164	3	35	0.003	0	0	0.000
15-Jul	116	340	0.249	4	39	0.003	0	0	0.000
16-Jul	49	389	0.285	29	68	0.005	0	0	0.000
17-Jul	14	403	0.295	0	68	0.005	0	0	0.000
18-Jul	12	415	0.304	0	68	0.005	0	0	0.000
19-Jul	21	436	0.320	2	70	0.005	0	0	0.000
20-Jul	59	495	0.363	5	75	0.006	0	0	0.000
21-Jul	20	515	0.378	23	98	0.007	0	0	0.000
22-Jul	44	559	0.410	0	98	0.007	0	0	0.000
23-Jul	53	612	0.449	14	112	0.008	0	0	0.000
24-Jul	30	642	0.471	2	114	0.009	0	0	0.000
25-Jul	39	681	0.499	5	119	0.009	0	0	0.000
26-Jul	68	749	0.549	9	128	0.010	0	0	0.000
27-Jul	68	817	0.599	2	130	0.010	0	0	0.000
28-Jul	48	865	0.634	4	134	0.010	0	0	0.000
29-Jul	45	910	0.667	4	138	0.010	0	0	0.000
30-Jul	55	965	0.707	2	140	0.010	0	0	0.000
31-Jul	48	1,013	0.743	5	145	0.011	0	0	0.000
1-Aug	40	1,053	0.772	3	148	0.011	0	0	0.000
2-Aug	29	1,082	0.793	7	155	0.012	0	0	0.000
3-Aug	14	1,096	0.804	2	157	0.012	0	0	0.000
4-Aug	7	1,103	0.809	2	159	0.012	0	0	0.000
5-Aug	25	1,128	0.827	3	162	0.012	0	0	0.000
6-Aug	20	1,148	0.842	0	162	0.012	0	0	0.000
7-Aug	11	1,159	0.850	2	164	0.012	0	0	0.000
8-Aug	20	1,179	0.864	3	167	0.012	0	0	0.000
9-Aug	15	1,194	0.875	1	168	0.013	0	0	0.000
10-Aug	9	1,203	0.882	1	169	0.013	0	0	0.000
11-Aug	10	1,213	0.889	4	173	0.013	0	0	0.000
12-Aug	13	1,226	0.899	249	422	0.032	0	0	0.000
13-Aug	33	1,259	0.923	66	488	0.036	0	0	0.000
14-Aug	3	1,262	0.925	19	507	0.038	0	0	0.000
15-Aug	17	1,279	0.938	90	597	0.045	0	0	0.000
16-Aug	3	1,282	0.940	5	602	0.045	0	0	0.000
17-Aug	3	1,285	0.942	0	602	0.045	0	0	0.000
18-Aug	3	1,288	0.944	1	603	0.045	0	0	0.000
19-Aug	5	1,293	0.948	4	607	0.045	0	0	0.000
20-Aug	6	1,299	0.952	239	846	0.063	0	0	0.000
21-Aug	0	1,299	0.952	2	848	0.063	0	0	0.000
22-Aug	0	1,299	0.952	10	858	0.064	0	0	0.000
23-Aug	14	1,313	0.963	73	931	0.070	0	0	0.000

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## Appendix E.3. (page 2 of 2)

Date	Chinook			Sockeye			Coho		
	Daily	Cumulative		Daily	Cumulative		Daily	Cumulative	
		Daily	Prop.		Daily	Prop.		Daily	Prop.
24-Aug	3	1,316	0.965	6	937	0.070	0	0	0.000
25-Aug	4	1,320	0.968	186	1,123	0.084	0	0	0.000
26-Aug	6	1,326	0.972	6	1,129	0.084	0	0	0.000
27-Aug	29	1,355	0.993	64	1,193	0.089	0	0	0.000
28-Aug	1	1,356	0.994	1	1,194	0.089	0	0	0.000
29-Aug	0	1,356	0.994	0	1,194	0.089	0	0	0.000
30-Aug	1	1,357	0.995	3	1,197	0.089	0	0	0.000
31-Aug	0	1,357	0.995	0	1,197	0.089	0	0	0.000
1-Sep	2	1,359	0.996	980	2,177	0.163	0	0	0.000
2-Sep	4	1,363	0.999	492	2,669	0.199	0	0	0.000
3-Sep	0	1,363	0.999	3	2,672	0.200	0	0	0.000
4-Sep	0	1,363	0.999	112	2,784	0.208	0	0	0.000
5-Sep	0	1,363	0.999	25	2,809	0.210	0	0	0.000
6-Sep	0	1,363	0.999	16	2,825	0.211	0	0	0.000
7-Sep	0	1,363	0.999	755	3,580	0.267	0	0	0.000
8-Sep	0	1,363	0.999	47	3,627	0.271	0	0	0.000
9-Sep	0	1,363	0.999	60	3,687	0.275	0	0	0.000
10-Sep	0	1,363	0.999	94	3,781	0.282	0	0	0.000
11-Sep	0	1,363	0.999	231	4,012	0.300	0	0	0.000
12-Sep	1	1,364	1.000	1,829	5,841	0.436	0	0	0.000
13-Sep	0	1,364	1.000	468	6,309	0.471	0	0	0.000
14-Sep	0	1,364	1.000	273	6,582	0.492	0	0	0.000
15-Sep	0	1,364	1.000	6	6,588	0.492	1	1	0.001
16-Sep	0	1,364	1.000	0	6,588	0.492	0	1	0.001
17-Sep	0	1,364	1.000	1,243	7,831	0.585	9	10	0.005
18-Sep	0	1,364	1.000	53	7,884	0.589	1	11	0.006
19-Sep	0	1,364	1.000	19	7,903	0.590	0	11	0.006
20-Sep	0	1,364	1.000	2	7,905	0.590	0	11	0.006
21-Sep	0	1,364	1.000	0	7,905	0.590	0	11	0.006
22-Sep	0	1,364	1.000	2	7,907	0.590	0	11	0.006
23-Sep	0	1,364	1.000	1	7,908	0.591	1	12	0.006
24-Sep	0	1,364	1.000	5	7,913	0.591	0	12	0.006
25-Sep	0	1,364	1.000	2	7,915	0.591	0	12	0.006
26-Sep	0	1,364	1.000	7	7,922	0.592	0	12	0.006
27-Sep	0	1,364	1.000	0	7,922	0.592	0	12	0.006
28-Sep	0	1,364	1.000	0	7,922	0.592	0	12	0.006
29-Sep	0	1,364	1.000	0	7,922	0.592	0	12	0.006
30-Sep	0	1,364	1.000	3	7,925	0.592	0	12	0.006
1-Oct	0	1,364	1.000	860	8,785	0.656	7	19	0.010
2-Oct	0	1,364	1.000	382	9,167	0.685	11	30	0.016
3-Oct	0	1,364	1.000	8	9,175	0.685	1	31	0.016
4-Oct	0	1,364	1.000	14	9,189	0.686	1	32	0.017
5-Oct	0	1,364	1.000	47	9,236	0.690	1	33	0.017
6-Oct	0	1,364	1.000	1,424	10,660	0.796	499	532	0.277
7-Oct	0	1,364	1.000	833	11,493	0.858	596	1,128	0.587
8-Oct	0	1,364	1.000	139	11,632	0.869	155	1,283	0.668
9-Oct	0	1,364	1.000	78	11,710	0.874	23	1,306	0.680
10-Oct	0	1,364	1.000	162	11,872	0.887	19	1,325	0.690
11-Oct	0	1,364	1.000	222	12,094	0.903	27	1,352	0.704
12-Oct	0	1,364	1.000	13	12,107	0.904	2	1,354	0.705
13-Oct	0	1,364	1.000	15	12,122	0.905	1	1,355	0.705
14-Oct	0	1,364	1.000	5	12,127	0.906	0	1,355	0.705
15-Oct	0	1,364	1.000	106	12,233	0.914	13	1,368	0.712
16-Oct	0	1,364	1.000	723	12,956	0.968	250	1,618	0.842
17-Oct	0	1,364	1.000	221	13,177	0.984	251	1,869	0.973
18-Oct	0	1,364	1.000	106	13,283	0.992	28	1,897	0.988
19-Oct	0	1,364	1.000	108	13,391	1.000	24	1,921	1.000
Totals		1,364			13,391			1,921	
Adjustments				200	200 <sup>b</sup>		40	40 <sup>b</sup>	
Catch above weir		17			11			0	
Total Escapement		1,347			13,580			1,961	

<sup>a</sup> Jack chinook included in the counts.

<sup>b</sup> Estimated fish holding below weir during removal.

Appendix E.4. Salmon catch and effort in the U.S. commercial fishery in the Alsek River, 1960-1998.

Year	Catch					Effort	
	Chinook	Sockeye	Coho	Pink	Chum	Boat Days	Days Open
1960	Data not available						
1961	2,120	23,339	7,679	84	86	1,436	80.0
1962	2,276	14,475	8,362	93	133		76.0
1963	131	6,055	7,164	42	34	692	68.0
1964	591	14,127	9,760	144	367	592	68.0
1965	719	28,487	9,638	10	72	1,016	72.0
1966	934	29,091	2,688	22	240	500	64.0
1967	225	11,108	10,090	107	30	600	68.0
1968	215	26,918	10,586	82	240	664	68.0
1969	685	29,259	2,493	38	61	807	61.0
1970	1,128	22,654	2,188	6	26	670	52.3
1971	1,222	25,314	4,730	3	120	794	60.5
1972	1,827	18,717	7,296	37	280	640	65.0
1973	1,757	26,523	4,395	26	283	894	52.0
1974	1,162	16,747	7,046	13	107	699	46.0
1975	1,379	13,842	2,230	16	261	738	58.0
1976	512	19,741	4,883	0	368	550	58.5
1977	1,402	40,780	11,817	689	483	882	57.0
1978	2,441	50,580	13,913	59	233	929	57.0
1979	2,525	41,449	6,158	142	263	1,110	51.0
1980	1,382	25,522	7,863	21	1,005	792	42.0
1981	779	23,641	10,232	65	816	585	40.0
1982	532	27,423	6,534	6	358	555	33.0
1983	94	18,293	5,253	20	432	479	38.0
1984	60	14,326	7,868	24	1,610	429	33.0
1985	213	5,940	5,490	3	427	279	33.0
1986	481	24,791	1,344	13	462	517	34.0
1987	347	11,393	2,517	0	1,924	388	40.5
1988	223	6,286	4,986	7	908	324	34.0
1989	228	13,513	5,972	2	1,031	367	38.0
1990	78	17,013	1,437	0	495	374	38.0
1991	103	17,542	5,956	0	103	530	49.0
1992	301	19,298	3,116	1	120	404	46.0
1993	300	20,043	1,215	0	49	383	40.0
1994	805	19,639	4,182	0	32	416	61.0
1995	670	33,112	14,184	13	347	926	53.5
1996	771	15,182	5,514	0	165	438	47.5
1997	568	25,879	11,427	0	34	611	56.0
Averages							
61-97	843	21,569	6,438	48	379	639	52.4
88-97	405	18,751	5,799	2	328	477	46.3
1998	550	15,007	4,925	1	145	399	41.0



Appendix E.5. Salmon catch in the U.S. subsistence and personal use fisheries in the Alsek River, 1976-1998. Catches are those reported on returned permits

Year	Catch		
	Chinook	Sockeye	Coho
1976	13	51	5
1977	18	113	0
1978			
1979	80	35	70
1980	57	41	62
1981	32	50	74
1982	87	75	50
1983	31	25	50
1984			
1985	16	95	0
1986	22	241	45
1987	27	173	31
1988	13	148	9
1989	20	131	34
1990	85	144	12
1991	38	104	0
1992	15	37	44
1993	38	96	28
1994	60	47	20
1995	51	167	53
1996	60	67	28
1997	38	273	26
Averages			
76-97	40	106	32
88-97	42	121	25
1998	63	158	42

Appendix E.6. Salmon catches in the Canadian aboriginal and sport fisheries in the Alsek River, 1976-1998.

Year	Chinook			Sockeye			Coho		
	Aboriginal	Sport	Total	Aboriginal	Sport	Total	Aboriginal	Sport	Total
1976	150	200	350	4,000	600	4,600	0	100	100
1977	350	300	650	10,000	500	10,500	0	200	200
1978	350	300	650	8,000	500	8,500	0	200	200
1979	1,300	650	1,950	7,000	750	7,750	0	100	100
1980	150	200	350	800	600	1,400	0	200	200
1981	150	315	465	2,000	808	2,808	0	109	109
1982	400	224	624	5,000	755	5,755	0	109	109
1983	300	312	612	2,550	732	3,282	0	16	16
1984	100	475	575	2,600	289	2,889	0	20	20
1985	175	250	425	1,361	100	1,461	50	100	150
1986	102	165	267	1,914	307	2,221	0	9	9
1987	125	367	492	1,158	383	1,541	0	49	49
1988	43	249	292	1,604	322	1,926	0	192	192
1989	234	272	506	1,851	319	2,170	0	227	227
1990	202	555	757	2,314	392	2,706	0	75	75
1991	509	388	897	2,111	303	2,414	0	227	227
1992	148	103	251	2,592	582	3,174	0	213	213
1993	152	171	323	2,361	329	2,690	0	37	37
1994	289	197	486	1,745	261	2,006	8	69	77
1995	580	1,044	1,624	1,745	682	2,427	83	527	610
1996	448	650	1,098	1,204	157	1,361	56	9	65
1997	232	298	530	484	36	520	5	0	5
Averages									
76-97	295	349	644	2,927	441	3,368	9	127	136
88-97	284	393	676	1,801	338	2,139	15	158	173
1998	154	175	329	567	18	585	72	40	112

Appendix E.7. Klukshu River weir counts of chinook, sockeye, and coho salmon, 1976-1998. The escapement count equals the weir count minus the aboriginal fishery catch above the weir and brood stock taken.

Year	Chinook <sup>a</sup>		Sockeye				Coho <sup>b</sup>	
	Count	Escape. <sup>c</sup>	Early <sup>d</sup>	Late	Total	Escape. <sup>c</sup>	Count	Escape.
1976	1,278	1,153	181	11,510	11,691	7,941	1,572	
1977	3,144	2,894	8,931	17,860	26,791	15,441	2,758	
1978	2,976	2,676	2,508	24,359	26,867	19,017	30	
1979	4,404	2,454	977	11,334	12,311	7,051	175	
1980	2,637	2,487	1,008	10,742	11,750	10,850	704	
1981	2,113	1,963	997	19,351	20,348	18,448	1,170	
1982	2,369	1,969	7,758	25,941	33,699	28,899	189	
1983	2,537	2,237	6,047	14,445	20,492	18,017	303	
1984	1,672	1,572	2,769	9,958	12,727	10,227	1,402	
1985	1,458	1,283	539	18,081	18,620	17,259	350	
1986	2,709	2,607	416	24,434	24,850	22,936	71	
1987	2,616	2,491	3,269	7,235	10,504	9,346	202	
1988	2,037	1,994	585	8,756	9,341	7,737	2,774	
1989	2,456	2,289	3,400	20,142	23,542	21,636	2,219	
1990	1,915	1,742	1,316	24,679	25,995	24,607	315	
1991	2,489	2,248	1,924	17,053	18,977	17,645	8,540	8,478
1992	1,367	1,242	11,339	8,428	19,767	18,269	1,145	1,145
1993	3,302	3,220	5,369	11,371	16,740	14,921	788	788
1994	3,727	3,628	3,247	11,791	15,038	13,892	1,232	1,232
1995	5,678	5,394	2,289	18,407	20,696	19,817	3,614	3,564
1996	3,599	3,382	1,502	6,818	8,320	7,891	3,465	3,465
1997	2,989	2,829	6,565	4,931	11,496	11,303	307	302
Averages								
76-97	2,703	2,443	3,315	14,892	18,207	15,598	1,515	
88-97	2,956	2,797	3,754	13,238	16,991	15,772	2,440	
1998	1,364	1,347	597	12,994	13,591	13,580	1,961	1,961

<sup>a</sup> Counts include jack chinook salmon.

<sup>b</sup> Weir was removed prior to the end of the coho run.

<sup>c</sup> The chinook and sockeye escapements into Klukshu Lake are calculated from the weir count minus fish harvested above the weir site minus brood stock taken. The remainder of the food fishery harvest occurred below the weir, at Village Creek, and Blanchard and Takhanne Rivers.

<sup>d</sup> Includes sockeye counts up to and including August 15.

Appendix E.8. Alek River sockeye counts from U.S. and Canadian aerial surveys and from the electronic counter at Village Creek, 1985-1998.

Year	U.S. Aerial Surveys <sup>a</sup>				Canada Aerial Surveys <sup>b</sup>		Village Creek Counter
	Basin Creek	Cabin Creek	Muddy Creek	Tanis River	Tatshenshini River	Neskataheen Lake	
1985	2,600			2,200			
1986	100		300	2,700	536	750	1,490
1987	350	220		1,600			1,875
1988	500			750	433	456	433 <sup>c</sup>
1989	320			680	1,689	1,700	9,569
1990	275	300		3,500			7,500 <sup>d</sup>
1991				800			5,670 <sup>e</sup>
1992	1,000	10		350			11,485 <sup>f</sup>
1993	4,800			900			3,135 <sup>g</sup>
1994	250			600	366		4,007 <sup>h</sup>
1995	2,700			350			4,041
1996	325			650			1,583
1997	600			350			1,900
Averages							
85-97	1,152	177	300	1,187	756	969	4,391
88-97	1,197	155		893	829	1,078	4,932
1998				110			826

<sup>a</sup> Surveys not made every year at each tributary.

<sup>b</sup> Includes several streams from Lo-Fog to Goat Creek.

<sup>c</sup> Incomplete count due to machine malfunction.

<sup>d</sup> Estimated count based on absolute electronic records (5,313) and the total number of non-operational days.

<sup>e</sup> Estimated count based on absolute electronic records (3,981) and the total number of non-operational days.

<sup>f</sup> Counts were estimated during the non-operational days by averaging the counts recorded three days before and before and three days after the malfunction.

<sup>g</sup> Estimated count based on absolute electronic records (2,101) and the total number of non-operational days.

<sup>h</sup> Estimated count based on absolute electronic records (3,921) and the total number of non-operational days.

Appendix E.9. Aerial survey index counts of Alsek chinook salmon escapements, 1984-1998.

Year	Blanchard River	Takhanne River	Goat Creek
1984	304	158	28
1985	232	184	
1986	556	358	142
1987	624	395	85
1988	437	169	54
1989	<sup>a</sup>	158	34
1990	<sup>a</sup>	325	32
1991	121	86	63
1992	86	77	16
1993	326	351	50
1994	349	342	67
1995	338	260	5 <sup>b</sup>
1996	132	230	12
1997	109	190	
Averages			
84-97	301	235	49
88-97	237	219	37
1998	71	136	39

<sup>a</sup> Not surveyed due to poor visibility.

<sup>b</sup> Late survey date which missed the peak of spawning 1995

Appendix E.10. Aerial survey counts of coho salmon from U.S. lower Alsek River tributaries, 1984-1998.

Year	Combined U.S. Tributary Counts
1985	450
1986	1,100
1987	100
1988	1,900
1989	1,990
1990	1,600
1991	500 <sup>a</sup>
1992	1,010 <sup>a</sup>
1993	800 <sup>a</sup>
1994	975 <sup>a</sup>
1995	1,050
1996	1,350
1997	No surveys due to poor weather conditions
Averages	
85-97	1,069
88-97	1,242
1998	500 <sup>a</sup>

<sup>a</sup> Few systems surveyed.