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REPORT OF THE TRANSBOUNDARY RIVER TECHNICAL COMMITTEE

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Prepared for Members of the Pacific Salmon Commission  
and Northern Panel

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EXECUTIVE SUMMARY  
1987 TRANSBOUNDARY TECHNICAL REPORT  
1986 SEASON REVIEW

## 2.1 Stikine River

The expected large return of sockeye to the Stikine River in 1986 did not materialize. Analysis of catch and escapement information is incomplete so a numerical run size estimate is not available at this time. Catches in U.S. fisheries in Districts 106 and 108 were about 146,000 and 4,200, respectively. The Canadian catch totaled 17,400. Escapement through the Tahltan Lake weir was 20,300, which is below average.

Coho catches in District 106 and 108 were 194,000 and 7,400, respectively. The District 106 catch was a record high and included an estimated 38,700 hatchery fish as well as Stikine and non-Stikine natural stocks. The Canadian fishery took about 2,300 coho, close to the Treaty allocation of 2,000. Escapement surveys in 1986 were extremely limited due to poor weather and there is little comparative information from past years.

The catches of chinook in both U.S. and Canada were limited due to conservation measures implemented to rebuild runs. In District 106 about 1,700 chinook were caught (mainly immatures) while only 102 were taken in District 108. The Alaskan sport fishery took an estimated 2,800. The Canadian catch was about 2,900, which was above the 1979-85 average of 1,700. The Little Tahltan River chinook index escapement of 1,254 was below the recent average.

Fisheries in the Frederick Sound portion of District 108 and the North Arm of the Stikine targeted on good chum returns noted in these areas. The seasonal District 108 catch of chum was 5,900 which was above the 1979-85 average of 2,400. In Canada, about 300 chum were taken as an incidental catch.

The District 108 pink catch was 4,900 compared to the 1979-85 average of 7,600. The Canadian catch was about 100.

## 2.2 Taku River

The sockeye return to the Taku River was about average in 1986 with a preliminary run size estimate of 166,000 which is 26,000 below the 1985 run of 192,000. A total of 72,780 sockeye were taken in the U.S. District 111 gillnet fishery of which 60,700 are estimated to be of Taku origin. The Canadian in-river fishery harvested 14,700 sockeye. The run into the river was estimated from a mark-recapture program at 105,000 which, after subtracting the Canadian catch, implies a potential spawning escapement of 90,300 which is above the interim goal of 71,000 to 80,000.

The coho catch of 30,400 in the District 111 gillnet fishery was slightly below average in 1986, while in Canada an incidental catch of 1,800 was taken. Escapements to both lower and upper river areas generally appeared to be good. The District 111 gillnet fishery took about 2,600 chinook,



including 515 adults, while 275 adult chinook were caught in the Canadian fishery. Above average chinook escapements occurred although the total is well below the interim escapement goal. The District 111 chum catch of 59,000 in 1986 was below average and was comprised of about 30,000 summer chum and 29,000 fall chum. Only a minor chum catch (110) was taken in Canada. No spawning surveys for chum were undertaken. The Alaskan District 111 pink harvest of about 16,000 was far below the 1979-1985 average of 191,000 while the Canadian catch was only 58. Pink escapements were far below the interim goal.

### 2.3 Alsek River

The 1986 return of sockeye to the Alsek River was expected to be above average. The actual return was slightly above average for the recent years. The U.S. fisheries in Dry Bay harvested a total of 24,900 sockeye and Canadian fisheries in the upper drainage harvested 2,200 sockeye. The 1986 sockeye escapement is estimated to be 41,000 fish which is within the escapement goal range of 33,000-58,000. The early run sockeye return to Klukshu Lake was weak as expected. Although little fishing effort occurred on this part of the run, the escapement was only approximately 400 fish.

The coho return to the Alsek River was extremely weak in 1986. The U.S. Dry Bay set gillnet fishery harvested only 1,344 fish (poorest on record since 1930) and was closed two weeks earlier than normal. Limited observations indicated that coho escapement levels were poor.

During 1986, efforts were continued to rebuild Alsek River chinook stocks and fishing effort on this species was minimized. The index escapement count of 2,700 chinook in the Klukshu system was slightly above the recent 5 year average, but indicates that the drainage escapement goal range was not reached.

## FORECASTS FOR 1986

### 3.1 Stikine River

Escapements of sockeye in the predominant brood years that will contribute to the 1987 return appear to have been within or above the the interim goal range. The total return of sockeye is expected to be slightly above average. No projection of the 1987 coho return can be made due to the lack of escapement surveys as well as very limited inriver catch information during the parent years. The 1987 chinook return is expected to be average for recent years and conservation measures to rebuild these stocks should continue.

### 3.2 Taku River

Based on available parent year catch and escapement information, an above average return of sockeye is expected in 1987. Based only on parent year catch information, the 1987 coho return is expected to be below average. Based on analysis of younger age class returns at the Nakina carcass weir,

the adult return of chinook in 1987 is expected to be above average. Poor parent year catches indicate a below average chum return may develop in 1987. The 1987 pink return is expected to be above average.

### 3.3 Alsek River

Above average escapement levels of sockeye in the parent years should produce an above average return. Average returns of chinook and coho are expected. Early season restrictions to rebuild early sockeye and chinook runs should be continued.

### 4.0 Review of Research Programs

Since 1982 research on the Transboundary rivers has centered primarily on sockeye salmon stock identification and escapement estimation on the Stikine and Taku Rivers. Additional research has been directed at evaluating escapements of other species, as well as assessing stock and habitat utilization in the drainages. A brief outline of accomplishments is outlined as follows:

1. Sockeye scale pattern analysis, electrophoretics, freshwater age, and parasite prevalence have been used to identify Stikine and Taku River stocks and other Alaskan and Canadian stocks in U.S. and Canadian fisheries.
2. On the Stikine River, Tahltan and non-Tahltan sockeye salmon stocks can be identified using scale patterns, parasite prevalence, egg diameter, and electrophoretic characteristics.
3. The relationship between smolt production and spawning stock size has been examined at Tahltan Lake to improve our knowledge of production potential.
4. Lake enrichment has been undertaken at Tahltan Lake to increase the growth and survival of juvenile sockeye.
5. Test fisheries and hydroacoustics (sonar) technology used in conjunction with test net catches for species allocation has been used to estimate escapements on the Stikine River.
6. Juvenile sockeye were marked with a temporary fluorescent dye in a pilot project designed to determine if the productivity of lower Stikine River stocks is limited by spawning or rearing habitat.
7. Timing of some sockeye stocks through Sumner Strait, Clarence Strait, and District 111 have been determined through scale studies and parasite prevalence.
8. Mark-recapture methods have been used to provide in-season escapement estimates of sockeye salmon in the Taku River.

9. Radio tagging with remote sensing capabilities was used in 1986 to increase our knowledge of migration patterns and distribution of Taku River salmon stocks.
10. Coho coded wire tagging was initiated on the Taku and Stikine Rivers in 1986 to provide information on ocean migrations and harvests in ocean fisheries.
11. Stock assessment of Taku River coho salmon was investigated through an in-river test fishery conducted in 1986.
12. Studies of rearing habitat and habitat utilization were conducted to increase our understanding of the productive capacity of the lower Taku River.
13. A study of the physical and biological characteristics of the Dry Bay area in the Alsek River drainage and the use of this area by smolts emigrating from the drainage was undertaken in 1986.
14. Chinook coded-wire tagging programs have been initiated on the Alsek River to provide information on ocean migrations and harvests in ocean fisheries.
15. Stock assessment of Alsek salmon stocks has involved a number of annual monitoring programs (Klukshu River weir, aerial surveys, catch monitoring) as well as an electronic counter which operated on Village Creek in 1986.

#### 5.0 Data and Program Needs

We believe the highest priority for 1987 is to improve the accuracy and precision of those existing projects designed to provide managers with inseason assessment of run strength. Should funds become available, the Committee identified, but did not prioritize, several new projects that would enhance our ability to realize Treaty management objectives. As in previous years, assessments of the number of fish returning to the Trans-boundary Rivers and contributions that these stocks make to various fisheries were most frequently identified. The need to better understand carrying capacity of habitat and the lack of base line information on natural stock production in systems where enhancement is contemplated was also noted.

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Transboundary River Technical Committee - Terms of Reference

In order to implement the concept of cooperative management of Transboundary stocks for 1985 and beyond with the view to:

- a. optimizing natural production with shared benefits;
- b. examining enhancement potential;
- c. developing a biological data base; and
- d. determining methodology for future in-season management;

The Transboundary Technical Committee will undertake the following:

- (1) compile and evaluate, to the extent possible, all relevant fisheries performance data and determine the current status of Transboundary salmon stocks;
- (2) identify the total allowable catch and proposed management strategies for 1985 and beyond including:
  - i. escapement needs and how they will be determined,
  - ii. run expectations and how they will be determined,
  - iii. sampling design for stock separation on the Stikine and Taku rivers and in District 106 and District III;
- (3) provide an updated list of current and proposed enhancement opportunities and their impact on natural Transboundary salmon stocks;
- (4) provide an updated prioritized list of research needs;
- (5) review and interpret to the extent possible results from biological programs; and
- (6) report to the Governments of the United States and Canada annually.



### 2.1 Stikine River

The Stikine River supports all five species of salmon as well as steelhead trout. Within the Canadian portion of the watershed sockeye, coho and chinook are the dominant species while chum, pink and steelhead occur in smaller numbers. Salmon production in the U.S. section is known to be much smaller for sockeye and chinook salmon and is thought to be smaller for coho salmon. Pink and chum salmon spawn predominantly in the U.S. portion of the drainage.

Alaskan commercial fisheries harvesting Stikine River salmon include drift gillnet fisheries in Districts 106, 108 and to a lesser extent, other fisheries in the northern boundary area as well as troll fisheries located primarily in the northern portions of Southeast Alaska. Management of the District 106 and 108 fisheries is directed at sockeye early in the season, pink in mid-season and coho late in the season. Directed fisheries occur occasionally in District 108 on summer chum salmon. Management actions are taken to minimize the harvest of adult chinook and occasionally feeder chinook salmon. Sport fisheries centered near Wrangell and Petersburg also harvest Stikine River salmon.

In Canada, Stikine salmon are harvested in a commercial fishery which extends from the international boundary to about 60 km upstream, in Indian food and commercial fisheries in the vicinity of Telegraph Creek and in a limited sport fishery. Sockeye and coho are the main species taken in the commercial fishery while the Indian food fishery traditionally harvests mainly sockeye and chinook. Steelhead and chinook are the primary species of interest to the sport fishery although access to the stocks is very limited.

Harvest sharing and management objectives for transboundary stocks are outlined in Annex IV, Chapter 1 of the Treaty. Provisions for the Stikine River were established for 1985 and 1986 which allow Canada to harvest annually:

1. 35% of the total allowable catch of sockeye originating in the Canadian portion of the Stikine River, or 10,000 such sockeye, whichever is greater.
2. 2,000 coho.
3. Incidental catches of other species.

The Treaty also obligates both countries to take appropriate management actions to rebuild chinook salmon stocks by 1995.

In 1986, the basic management objectives of the Alaskan District 106 and District 108 drift gillnet fisheries were as follows:

1. Minimize the harvest of chinook salmon to rebuild the stocks and achieve escapement goals by 1995 and stay within the Board of Fisheries guidelines for Southeast Alaska chinook catch limitations.

2. Manage the sockeye fisheries to at least achieve the escapement goal of 35,000 to 40,000 fish at Tahltan Lake and a drainage escapement goal of 58,300 to 65,000 and harvest Alaskan sockeye stocks while achieving desired escapements.
3. Provide for existing subsistence fisheries, primarily on sockeye salmon.
4. Manage hatchery returns of chinook and coho salmon in a manner that prevents overharvesting of wild stocks. Conduct hatchery harvests in terminal areas that maximize the harvest of hatchery fish.
5. Manage the pink fishery to provide for optimum spawning escapement.
6. Manage the coho fishery to provide for good escapements in index systems.

The management objectives of the Alaskan troll fishery near the terminal area of the Stikine River were as follows:

1. Minimize the harvest of spawning chinook salmon returning to the Stikine River in order to rebuild the stocks and achieve the Treaty escapement goal by 1995.
2. Provide for a limited troll fishery in a portion of Wrangell Narrows in District 106 on hatchery chinook. Provide for troll fisheries in Districts 106 and 108 in terminal hatchery harvesting areas for coho.

Sockeye management is relatively complex and is based on a number of factors including pre-season expectations of run strength, sonar counts, Stikine River index fishery, test fishing, stock separation through scale and parasite analysis, fishing effort, catch per unit effort (CPUE) and Canadian fishery performance. Pink salmon management is based on predicted run strength, CPUE in the fisheries, and observed escapement in and off the mouths of salmon streams. Management of coho salmon is based upon catch rates in the troll fishery, incidental harvest of coho during the pink salmon fishery, CPUE and in-season estimates of hatchery fish in non-terminal gillnet fisheries.

During the 1986 season, the District 106 drift gillnet fishery was open from June 15 to September 23 for 32 days of fishing and produced a preliminary total harvest of 734,000 fish. This fishing time and harvest compares to 1979-85 averages of 29 days and 548,000 fish. An additional 18,000 fish were harvested in 1986 in the Crystal Lake Hatchery terminal areas.

The District 108 gillnet fishery in 1986 was open for 28 days and produced a preliminary total harvest of 23,000 fish. This fishery time and harvest compares to the respective 1979-85 averages of 14 days and 21,000 salmon.

The primary management objectives of Canada in 1986 were:

1. Achieve a minimum catch of 10,000 sockeye or 35% of the total allowable catch, whichever was greater, while providing spawning escapements of 58,300 to 68,000 to the entire watershed.



2. Harvest 2,000 coho.
3. Minimize the incidental catch of chinook salmon.

Sockeye management in Canada is also complex and is based on a number of factors including pre-season expectations of run strength, test fishing, stock separation through analyses of egg diameter, scale characteristics, electrophoretics and parasite incidence, Alaska fishery performance and associated Alaskan stock contribution data, Canadian fishery performance and associated CPUE data and escapement goals. In-season management of sockeye in the Canadian fishery in 1986 was based on weekly projections of run size and total allowable catch.

After the projection of the TAC was made each week, a lower Stikine River guideline harvest to date was calculated by: taking 35% of the projected TAC; subtracting out an estimated up-river harvest; and then apportioning the remainder (which constituted the seasonal guideline harvest of the lower river fishery) by the appropriate run timing model. The estimates were expected to be conservative since in-season contribution information in other Alaskan fisheries is unknown.

In-season projections of Tahltan Lake escapement were also made based on the stock composition estimates derived from egg diameter measurements in lower Stikine samples. These data were combined with lower Stikine catch information to estimate the total catch to date of Tahltan stocks in the lower river. The catch was then expanded by the estimated harvest rate to give a total to date stock projection. Timing information was then applied to the calculation to predict the total Tahltan return to the river, the total in-river catch of Tahltan sockeye and the total escapement.

Management of the other stocks in the Stikine River was governed by the provisions of the Treaty. The opening of the fishery was delayed to conserve chinook and the fishery was closed once the coho harvest had reached approximately 2,000.

The lower Stikine commercial fishery was opened for a total of 13.5 days in 1986, substantially below the 22.5 days fished in 1985 and only 30% of the previous five year average of 44.9 days. An average of 18 fishermen participated in the fishery each week compared to the previous five year average of 11 fishermen. The total harvest in the lower Stikine commercial fishery was 16,454 which constitutes 59% of the 1979-85 average of 27,796.

In the upper Stikine commercial fishery, an average of three fishermen fished one day per week for seven weeks and harvested a total of 960 fish. This is slightly above the 1979-85 average catch of 790.

The Telegraph Creek Indian food fishery recorded a slightly above average total harvest of 5,820 (1979-85 average = 5,513).

### 2.1.1 Sockeye:

The 1986 allowable harvest expectation for the Stikine River was approximately 100,000 sockeye. This was based upon the higher than average Tahltan escapement of the major brood year of 50,800 fish in 1981.

The harvest of sockeye in the District 106, District 108, Canadian food, and the Canadian commercial fisheries, and the Tahltan Lake weir count for recent years are shown below:

	<u>1986<sup>1/</sup></u>	<u>1979-1985</u>	<u>1971-1978</u>
Canadian Commercial Harvest			
Lower River	12,411	16,424 <sup>2/</sup>	0 <sup>3/</sup>
Upper River	815	672 <sup>2/</sup>	1,200 <sup>3/</sup>
Canadian Food Harvest	4,208	4,659	2,875
Alaska District 108 Harvest <sup>4/</sup>	4,185	4,875	17,766
Alaska Section 6A Harvest <sup>5/</sup>	85,243	80,633	36,024
Alaska Section 6B, C and D Harvest	60,466	55,886	18,954
Tahltan Lake Weir Escapement	20,280	31,662	22,508

<sup>1/</sup> 1986 figures are preliminary

<sup>2/</sup> 1984 commercial fishery closed; average is 1979-83 & 85

<sup>3/</sup> 1975-78 average only; no commercial harvest prior to 1975

<sup>4/</sup> 1974, 75, 76, 78, 83, 84, 85, and 86 directed sockeye fishery closed for at least 5 weeks

<sup>5/</sup> 1978 and 1984 fishery closed first 5 weeks

Analyses of the 1986 Stikine sockeye run size are still in progress. In-season and preliminary post-season indicators suggest the return was less than expected. Directed commercial harvests occurred on Stikine stocks in both Alaska and Canada. By the third week of fishing in Alaska Districts it became apparent that the sockeye return was much weaker than anticipated and restrictions were implemented in the U.S. fishery. All of District 108 was closed for three weeks, with the Wrangell side of District 108 remaining closed for a total of 5 weeks. All of District 106 was closed for one week with Sumner Strait remaining closed for an additional week. Prior to the closures, fishing times were also restricted in both District 106 and 108. Following the District-wide closures of both districts, only Clarence Strait was open for one day of fishing the following week. The fishery was restricted to two days per week for the three weeks after the entire District 106 was reopened. District 108 was only reopened in a portion of Frederick Sound to harvest chum salmon. A total of 145,709 sockeye were harvested in all of District 106 and 4,185 sockeye were harvested in District 108. Of the District 106 total, 85,243 sockeye were taken in Sumner Strait with only 18,000 of these taken during the first 5 weeks of the fishery compared to a 1979-1985 average harvest of 51,000 sockeye.

The Canadian lower river commercial fishery was opened for one to two days each week from June 25 through August 28. Fishing time was only 60% of that permitted in 1985 (30% of the previous 5 year average) and was restricted due to concerns for a lower than expected return. The lower river fishery harvested a total of 12,411 sockeye which is 25% below the 1979-1985 average of 16,424 (average excludes 1984 when fishery was closed for the season).

The upper Stikine fisheries harvested a total of 5,023 sockeye; 4208 were taken in the Indian food fishery and 815 were caught in the small commercial fishery near Telegraph Creek. The Indian food fishery catch was below the 1979-85 average of 4,659 whereas the upper Stikine commercial catch was slightly above average.

A total of 20,280 sockeye were counted through the Tahltan Lake weir in 1986. This is similar to the long term average however considerably below the recent 1979-1985 average of 31,662.

In-river Assessment of Stock Strength. Two factors are critical to accurately estimate the escapement of sockeye salmon to spawning areas other than Tahltan Lake. First, it is necessary to estimate the fraction of the daily run that is bound for Tahltan Lake versus that bound for other spawning areas. Second, it is necessary to know the fraction of the total return entering the river (or passing a given location in the river) each day.

The fraction of the run contributed by Tahltan Lake vs non-Tahltan Lake fish was estimated from data collected at the Canadian test fishery site and from the Canadian lower river commercial fishery. Estimates from these sites were made using scale patterns, egg diameter and a combination of parasite-genetic-freshwater age data. Overall, estimates of stock composition agree quite well, although differences early in the season were large enough to warrant examination of samples collected at the Canadian test fishery site with alternative data sets. We regret that this comparison is not available yet; we expect however, to have this comparison completed shortly.

The fraction of the run passing through the river each day was also estimated at several locations. While these data sets also agree fairly well, subtle differences exist during the time interval when the run was changing from mostly Tahltan to mostly non-Tahltan Lake fish. We are currently trying to resolve discrepancies in the alternative data sets and plan to provide our analyses as soon as possible in an Appendix to this report.

Marine Assessment of Stock Strength. Matched scale-parasite data and matched scale-parasite-electrophoretic data were collected from commercial and test fishery catches, respectively, in District 106 in 1986. Stock composition estimates are available for the commercial catch samples based on the analysis of scale patterns. However, the matched scale, parasite, and electrophoretic data collected in the test fishery has only just been supplied to Canada. Results from an analysis of parasite, electrophoretic and freshwater age data are expected by mid to late February. Because these data were requested by Canada to verify estimates based on scale analysis, and because some of these estimates appear anomalous in light of interpretation of run size in the Stikine River and run timing information from test fisheries from the Nass and Skeena test fisheries, the Committee has decided to reserve judgement on sockeye stock composition results for District 106 until the additional data have been analyzed. The matched parasite, electrophoretic and freshwater age data are expected to provide independent contribution estimates for Tahltan Lake, Meziadin Lake, a "typical trans-boundary" stock group, a "typical Skeena" group, a "typical Alaskan-coastal B.C." group and a "typical upper-Fraser" group. Unique estimates for Stikine "river sockeye" stocks are not expected as these will be included in

the typical Skeena group. Both methods of analysis will be applied to the identical mixed stock samples. Since these samples were collected from test fisheries operating in the Sumner Strait portion of District 106 they will not be directly applicable to the commercial catch or the District as a whole including Clarence Strait. Thus, this analysis will not provide stock composition estimates of sufficient resolution to determine catch allocations in District 106. However, it should either support the credibility of the scale pattern analysis or indicate that revisions in the scale pattern analysis or a new analysis incorporating matched scale-parasite samples collected from commercial fishery is required to determine if 1986 catches of Stikine bound sockeye can be identified. Results from both methods of analysis will be provided as an Appendix to this report once completed.

#### 2.1.2 Coho:

The pre-season expectation for Stikine coho was for a below average run with total Canadian stock projection of 34,000 to 50,000 fish.

The following gillnet harvests of coho were recorded in the Stikine River and its approaches in recent years:

	<u>1986<sup>1/</sup></u>	<u>1979-1985</u>	<u>1971-1978</u>
Canadian Commercial Harvest	2,280	7,390 <sup>2/</sup>	17 <sup>3/</sup>
Alaska District 108 Harvest <sup>4/</sup>	7,439	6,105	16,045
Alaska District 106 Wild Harvest <sup>5/</sup>	156,501	44,319	42,459
Alaska District 106 Hatchery Harvest	38,658		
Alaska Terminal Sport Catch	N/A	N/A	N/A

<sup>1/</sup> 1986 figures are preliminary

<sup>2/</sup> 1984 commercial fishery closed; average is 1979-83 and 1985

<sup>3/</sup> 1975-78 average only; no commercial harvest occurred prior to 1975

<sup>4/</sup> 1975 and 1979 directed fishery closed

<sup>5/</sup> 1973 and 1979 directed fishery closed

Fishing effort for coho in District 108 was minimal and the entire district was open for three days each week beginning in early August. In August both total catch and catch per unit of effort (CPUE) were just above average. By September both total catch and CPUE started to drop so the fishery was closed on September 11 for the year. The total coho catch for District 108 was 7,439 fish.

The District 106 fishery was initially opened for a normal three day fishing week. The harvest in Section 6A was 103,828 coho and in Section 6B and 6C, 88,509 coho were caught. An additional 18,000 coho were harvested in the Crystal Lake Hatchery terminal areas. The total District 106 coho catch of 195,159 constituted a record harvest and was substantially above the 1979-85 average of 44,319.

The directed commercial fishery in District 106 began on August 31 when a record 40,285 coho were caught in one week. Approximately 77,500 coho were harvested during the directed fishery. Hatchery contributions, which occurred from all the inside hatcheries, were high in southern Southeast Alaska

in 1986. Hatchery contributions are estimated to be 38,658 fish or 20% of the harvest.

A total of 2,278 coho were caught in the Canadian commercial fishery. The first coho catches occurred at the end of July and the fishery was closed on August 28 after the coho catch had reached the 2000 fish level specified in the Treaty Annex.

### 2.1.3 Chinook:

The pre-season expectation for Stikine chinook salmon was for a below optimum escapement. Restrictions in commercial gillnets were implemented to reduce incidental harvests. The harvest of chinook salmon in terminal and in-river fisheries and index escapements during recent years are as follows:

	<u>1986<sup>1/</sup></u>	<u>1979-1985</u>	<u>1971-1978</u>
Canadian Comm. Fishery (Lower River)	1,171	981 <sup>8/</sup>	144 <sup>2/</sup>
Canadian Comm. Fishery (Upper River)	145	105 <sup>9/</sup>	
Canadian Food Fishery	1,595	779	530 <sup>10/</sup>
Canadian Sport Fishery	N/A	N/A	N/A
Alaska District 108 <sup>3/</sup>	102	300	4,391
Alaska District 106 <sup>4/</sup>	1,707	1,384	1,761
Alaska Sport Fishery (all areas combined) <sup>5/</sup>	2,800	2,080	N/A
Little Tahltan River Index Escapement <sup>6/</sup>	1,201	1,850	633 <sup>7/</sup>
Little Tahltan River Weir Counts (excludes 536 jacks)	2,893		

<sup>1/</sup> 1986 figures are preliminary

<sup>2/</sup> No commercial harvest prior to 1975

<sup>3/</sup> Directed fishery eliminated in 1978

<sup>4/</sup> Primarily immature feeders

<sup>5/</sup> Creel census data only available for 1983, 1984, 1985 and 1986

<sup>6/</sup> From aerial surveys and carcass weir counts

<sup>7/</sup> 1975-78 average

<sup>8/</sup> 1984 commercial fishery closed; average is 1979-83 and 1985

<sup>9/</sup> Excludes 1979 & 1984

<sup>10/</sup> Excludes 1971, 1972, 1974

No directed chinook fisheries were conducted in Alaska on Stikine stocks. The terminal District 108 area remained closed until June 15. When it was opened, the area around the mouth of the Stikine River was closed to decrease the incidental harvest of chinook. The District 108 fishery harvested 102 fish compared to a 1978-85 average of 300. The District 106 fishery harvested 1,707 primarily small feeder chinook compared to a 1979-85 average of 1,384.

The Canadian lower Stikine incidental chinook catch was 1,171 (including 365 jacks) compared to the 1979-85 average of 981. Gillnet mesh sizes were restricted to less than 146 mm until July 28 to reduce the incidental catch of chinook salmon.

The catches in the upper Stikine fisheries were also above average with 1,595 chinook harvested in the Indian food fishery and 145 taken in the Telegraph Creek commercial fishery. Respective 1979-85 average for these fisheries are 779 and 105.

The total chinook escapement to the Little Tahltan River was determined by a weir count was 3,429 including 2,893 adults and 536 jacks. The 1986 adult count was slightly below the 1985 escapement of 3,146. However, the jack escapement was stronger than that recorded for 1985 i.e., 316.

The peak aerial index count of Little Tahltan chinook was 1,201 compared to the 1979-85 average of 1,850. This was 43-59% below the target index values. The aerial count represented 38% of the adult weir count.

#### 2.1.4 Chum and Pink:

Pink or chum expectations were not developed for 1986.

The harvests of chum and pink salmon in District 108 and the Canadian Fishery for recent years are listed below:

	<u>Chum Salmon</u>		
	<u>1986<sup>1/</sup></u>	<u>1979-1985</u>	<u>1971-1978</u>
Canadian Commercial Harvest	295	642 <sup>2/</sup>	0
Canadian Food Harvest	12	4	0
Alaska District 108 Harvest	5,928	2,253	4,521

<sup>1/</sup> 1986 figures are preliminary

<sup>2/</sup> 1984 commercial fishery closed; average is 1979-83 and 1985

	<u>Pink Salmon</u>		
	<u>1986<sup>3/</sup></u>	<u>1979-1985</u>	<u>1971-1978</u>
Canadian Commercial Harvest	107	1,932 <sup>4/</sup>	0
Canadian Food Harvest	1	53	0
Alaska District 108 Harvest	4,901	7,660	8,482

<sup>3/</sup> 1986 figures are preliminary.

<sup>4/</sup> 1979-83 and 1985 average. Fishery not opened in 1984.

No fisheries are targeted on the small stocks of pink and chum salmon that occur in the Canadian portion of the Stikine River. In Alaska, six days of fishing occurred from the end of July to the middle of August on good chum returns that were observed in the Frederick Sound portion of District 108 and the North Arm of the Stikine. The catch totaled 5,928 compared to a 1979-85 average chum catch of 2,253.

## 2.2 Taku River

The Taku River produces significant numbers of all five species of Pacific salmon and steelhead trout. Alaskan fisheries for Taku River salmon include

the District 111 drift gillnet fishery, troll fisheries primarily located in Icy Straits and outer coastal areas (Districts 113, 114, 116), and a sport fishery located around the Juneau area. The lower Taku River subsistence fishery which occurred in 1985 was not permitted in 1986. The principal Canadian harvest is in a commercial set and drift gillnet fishery which occurs in the lower river. Sport harvests of chinook, coho and steelhead occur in a limited number of headwater tributaries. A native food fishery operates intermittently in the Canadian portion of the river although harvest is usually small. Management efforts directed on the Alaskan gillnet fishery focus primarily on sockeye during the summer and on chum and coho salmon during the fall. Canadian gillnet management regimes are focused on sockeye salmon. Coho and chum salmon were harvested during directed fisheries prior to the Treaty. Regulations for the Alaskan troll fishery to conserve chinook and coho salmon are in place as are regulations to conserve chinook in the sport fisheries of both countries.

Conservation and harvest sharing objectives for Transboundary River salmon stocks are outlined in Annex IV, Chapter I of the Treaty. Provisions for the Taku River established for 1985 and 1986:

- 1) Permit Canada to annually harvest 15% of the total allowable catch of sockeye originating from the Canadian portion of the Taku River;
- 2) Allow Canada to incidentally harvest chinook, pink, chum and coho salmon during the directed sockeye salmon fishery;
- 3) Obligate both parties to take appropriate management actions to obtain salmon escapement levels commensurate with the interim goals established by the Transboundary Technical Committee.

The management regime of the District 111 gillnet fishery consists of two basic components: management of sockeye salmon; and fall chum and coho salmon management. Each component is managed on the basis of catch per unit effort and total catch and effort data. Weekly fishing time is determined by comparing current data with a historic data base. Above average CPUE values may justify extensions in fishing time, whereas below average values generally result in restricted openings. At times, special measures for coho, chinook and pink salmon conservation are implemented.

The basic management objectives of the Alaskan District 111 drift gillnet fishery in 1986 were as follows:

- 1) To achieve the interim spawning escapement goal of 71,000 to 80,000 Canadian origin Taku sockeye salmon while harvesting 85% of the total allowable catch;
- 2) To conserve Snettisham sockeye in order to achieve an escapement goal of 34,000 (12,000 Speel plus 22,000 Crescent);
- 3) To provide U.S. fishermen with opportunities to selectively harvest Port Snettisham Hatchery-produced summer chum and coho salmon.

Complex regulations were also imposed in the Alaskan sport and troll fisheries with the objective of increasing escapements of Taku chinook and coho

salmon. These included delayed troll openings in the chinook salmon season, closures in the Juneau vicinity sport fishery for chinook and mid-season troll closures during the coho season.

During the 1986 season the Alaskan District 111 drift gillnet fishery was open from June 15 to September 16 with weekly fishing periods totaling 29.5 days. Total 1986 fishing time was only slightly below the average fishing time allowed during the past 10 years. Initial fishing effort during the summer sockeye season was very low, but increased substantially during the late July as vessels moved from Districts 106 and 115. During the summer fishery, effort ranged from 49 to 107 boats with an overall fishing effort equal to the ten year average. In addition to the directed fishery on Taku River sockeye, five 24 hour fishing periods were allowed in the area south of Port Snettisham to determine hatchery chum contributions outside the normal sockeye fishing areas.

As a result of an extremely low chum price fewer vessels participated in the fall Taku-Snettisham coho and chum fishery. Weekly fishing effort in District 111 ranged from 27 to 89 boats during the fall fishing period, representing a 31% overall decrease in effort compared to the 10 year average.

The management objectives of the Canadian in-river fishery were to achieve the interim escapement goal of 71,000 to 80,000 Canadian sockeye and to harvest 15% of the total allowable catch. Conservation actions were taken to limit net and recreational harvests of chinook salmon to continue the chinook rebuilding program specified in the Treaty.

Canadian management decisions were based on weekly projections of total run size and total allowable catch. The weekly projection of the seasonal TAC was made using the following calculation:

$$TAC = \frac{E(w) + CC(w) + AC(w-1) (0.85)}{pRT(w)} - Eg$$

Where:

- TAC = projected total allowable catch for season.
- E(w) = total escapement to date, i.e., to week (w).
- CC(w) = total Canadian catch to date, i.e., to week (w).
- AC(w-1) (0.85) = total Alaskan catch to the preceding week (w-1) discounted by 0.15 to account for Snettisham contribution.
- pRT(w) = estimated proportion of run through to week (w) determined from the average in-river run timing (based on CPUE data from the Canadian fishery). Two scenarios were tested: one, assuming run timing was similar to the average, and, two assuming the run was delayed by one week (as suggested by the 1986 District 111 CPUE data).
- Eg = system wide escapement goal. A value of 75,000 was used reflecting to midpoint in the interim range of 71,000 to 80,000.



From the weekly total allowable catch projections, a Canadian total guideline harvest was estimated by applying the 15% allocation specified in the Treaty. The season guideline harvest was then apportioned by run timing to provide weekly harvest guidelines.

The Canadian fishery was monitored on a daily basis by a resident assistant Fisheries Officer who relayed information to the DFO Whitehorse office. This information was then collated and exchanged with ADF&G during the weekly telephone contacts.

The Canadian in-river fishery was open from June 30 to August 20 with a total of 17 fishing days - one more than in 1985. An average of nine fishermen participated in the fishery. Total effort of 148 boat days was the lowest recorded since 1979 excluding 1982, when severe restrictions were imposed on the fishery under an interim U.S. - Canada agreement.

As in past years, both set and drift gillnetting techniques were utilized with the majority of the catch taken in drift gillnets. Mesh sizes were restricted to less than 150 mm until July 28th to minimize the incidental catch of chinook salmon.

The Canadian Taku River gillnet fishery landed a total of 17,000 fish including about 14,700 sockeye, 1,800 coho, and minor numbers of other species. The sockeye and coho catches were both similar to harvests in 1985, while catches of all other species were below their respective 1985 levels and all except sockeye were below average. This was expected for coho, chum, and steelhead since the fall fishery has been severely curtailed since implementation of the Treaty.

#### 2.2.1 Sockeye:

The pre-season 1986 expectation for Taku sockeye salmon was for an average to below average return. Canadian and Alaskan catches of Taku area sockeye recorded in 1986 are presented below with recent average values:

	<u>1986</u>	<u>1979-1985</u>	<u>1969-1978</u>
Canadian Fishing Harvest	14,739	17,607 <sup>1/</sup>	0
Alaskan District 111 Harvest	72,780	82,203	58,242
Alaska Taku River Subsistence	0	1,200 <sup>2/</sup>	700 <sup>3/</sup>

<sup>1/</sup> Excludes 1982 because of restricted fishery

<sup>2/</sup> 1985 Only

<sup>3/</sup> Fishery closed from 1977 through 1984

The total 1986 District 111 sockeye harvest of 72,780 is below the 1979-1985 average of 82,203 sockeye. Alaskan scale pattern analysis indicated that 16.6% (12,080 sockeye) of the District 111 sockeye catch was of Port Snettisham origin. In spite of large area and time closures in Port Snettisham and Stephens Passage, Port Snettisham sockeye escapements were poor totaling 9,272 from weir counts of 5,858 at Speel Lake and 3,414 at Crescent Lake. These systems contributed 8.1% of the combined District 111 river mouth escapements (105,000 to the Taku River and 9,300 to Snettisham).

Combining the Snettisham escapement counts with the District 111 catch apportionment data derived from scale analysis, a total stock estimate of 21,300 Snettisham sockeye is obtained. The harvest rate on the Snettisham stock using this data was 56.3%. By contrast the harvest rate in the District 111 fishery on Taku-origin stocks based on scale analysis results and in-river tagging estimates was only 36.6%. It is unclear why the District 111 fishery would have a significantly higher exploitation rate on Snettisham stocks than Taku stocks considering the extra protection afforded through regulations for Snettisham sockeye conservation. This might be explained by greater availability of the Snettisham stocks to the District 111 fishery. Snettisham stocks must travel longer distances through the fishery to their respective rivers as compared to Taku River stocks. For 1986 an independent analysis of sockeye age and parasite information suggests a lower contribution of Snettisham sockeye than did scale pattern analysis. Further verification of the scale analysis results by other techniques is desirable to determine the best method of estimating Snettisham sockeye contribution in the District 111 fishery.

Sockeye CPUE in District 111 was low during the initial weeks of the summer fishery. By statistical week 28, historically a peak week of the fishery, cumulative sockeye CPUE was 46% below the 1976-85 average. Consequently, fishing time during early weeks was restricted and normal or additional fishing time was not allowed until late July when it became apparent through increased fishing success that the sockeye run strength was improving. In-river population estimates had been showing average to above average run strength throughout July.

Canyon Island fishwheel sockeye catches were monitored to provide information on sockeye run timing, but not run strength. Water levels are known to affect the fishwheel catches, thus fishwheel catches alone are not necessarily good indicators of run strength. In 1986, for example, the catch of sockeye in the wheels was substantially higher than in 1984 and 1985 yet the estimated escapement derived from tagging in 1986 was below the 1984 and 1985 levels.

A total of 5,808 sockeye were caught by the fishwheels at Canyon Island of which 4,746 were tagged and 701 subsequently recovered in the Canadian fishery. In-river sockeye abundance estimates were generated on an in-season basis using tagging and recovery data, however estimates were not available until approximately two weeks after fish passed through the District 111 fishery. The final tagging estimate based on recoveries in Canadian fisheries was  $105,000 \pm 15,000$ . Subtracting the Canadian catch gives a potential spawning population of  $90,300 \pm 15,000$ . This is above the interim escapement goal of 71,000 to 80,000 sockeye. By comparison, total escapement estimates as determined by previous tagging studies are listed below:

<u>YEAR</u>	<u>POPULATION EST.</u>	<u>CANADIAN CATCH</u>	<u>POTENTIAL SPAWNING ESCAPEMENT</u>
1981	36,300-43,600	10,900	25,400-32,700
1983	127,000-148,000	17,100	109,900-130,900
1984	133,400	27,200	106,200
1985	118,200	14,200	104,000
1986	105,000	14,700	90,300

Extensive aerial surveys for sockeye were not conducted in 1986 as emphasis shifted to monitoring by counting weirs. Escapement counts at weired systems in the Taku and Snettisham drainages for 1983 through 1986 are as follows:

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Little Trapper Lake (Taku)	7,502	13,084	14,889	13,820
Little Tatsamenie Lake (Taku)	N/A	N/A	13,015	11,368
Hackett River (Taku)	N/A	N/A	2,309	1,004
Crescent Lake (Snettisham)	14,456	6,707	7,249	3,414
Speel Lake (Snettisham)	10,362	9,764	7,073	5,858

In summary, post-season analysis of the total return of Taku River sockeye indicates the following:

1. A total in-river run of 105,000 and a potential escapement of 90,300 (population estimate minus Canadian catch);
2. An Alaskan estimated commercial gillnet catch of 60,700 Taku bound fish. Based on scale pattern analysis, an estimated 16.6% (12,080 fish) of the total District 111 fishery sockeye harvest was of Port Snettisham origin.
3. A Canadian catch of 14,700.

These data suggest a total run size of 165,700. With an interim escapement objective of 71,000 to 80,000 the actual total allowable catch (T.A.C.) of sockeye at this return level was in the range of 85,700 to 94,700. Under the provisions of the Treaty, Canada was entitled to 15% of the T.A.C. or 12,855 to 14,205 of the above stated range. The actual Canadian harvest of 14,700 therefore represented 15.6% - 17.2% of the 1986 T.A.C. of the Taku sockeye.

Alaskan fisheries were entitled to 85% of the T.A.C. of Taku sockeye which is equivalent to 72,845 to 80,495 using the before mentioned run size estimate and escapement goals. The estimated U.S. catch of 60,700 Taku sockeye actually represented from 64.1% to 70.8% of the post-season estimate of the T.A.C. The fact that the actual catch in the U.S. fishery was below the respective entitlement (as determined by the post-season analysis) may have benefited the escapement. Although the total estimated escapement was above the interim escapement goal range of 71,000-80,000 it must be emphasized that this range is an interim goal which will be revised once sufficient spawner: return data becomes available.

This table summarized the performance of Alaskan and Canadian fisheries on Taku River sockeye salmon under the Treaty.

	<u>1986</u>	<u>1985</u>
A. Total U.S. District 111 Gillnet Sockeye Catch .....	72,780	87,199
1. Estimated Port Snettisham Contribution <sup>1/</sup> .....	- 12,080 (16.6%)	- 4,280 (16.2%)
2. Estimated U.S. Harvest of Taku Stocks .....	60,700 (83.4%)	73,073 (83.8%)
B. Estimated Total In-river Population .....	105,000	118,200
C. Canadian In-river Sockeye Harvest .....	14,739	14,200
D. Estimated total run (A <sub>2</sub> + B) .....	165,700	191,273
E. Estimated total Escapement D-(A <sub>2</sub> + C) ...	90,261	104,000
F. Interim Escapement Goal .....	71,000 to	80,000
G. Estimated T.A.C. (D.-F.) (post-season)...	85,700-94,700	111,273-120,273
H. Canadian Entitlement @ .15 T.A.C. ....	12,855-14,205	16,691-18,041
I. Actual Estimated Canadian Harvest % .....	15.6% - 17.2%	11.8% - 12.7%
J. U.S. Entitlement @ .85 T.A.C. ....	72,845-80,495	94,582-102,232
K. Actual Estimated U.S. Harvest % .....	64.1% - 70.8%	60.8% - 65.7%

<sup>1/</sup> Based on ADF&G scale pattern analysis.

#### 2.2.2 Coho:

The pre-season expectation for Canadian origin Taku River coho was for a total run of 59,000 to 82,000, although it was acknowledged that our ability to predict coho returns is hindered by lack of good escapement information. The interim spawning escapement goal was from 27,500 to 35,000.

During 1986, the following gillnet catches of coho salmon were recorded in Taku Inlet and Taku River fisheries:

	<u>1986</u>	<u>1979-85</u>	<u>1969-78</u>
Canadian Fishery	1,783	5,256 <sup>2/</sup>	0
Alaska District 111 Gillnet	30,411	32,028	35,127

<sup>2/</sup> excludes 1982

The 1986 District 111 harvest of 30,411 coho is 5% below the 1979-85 average. However, based on good early coho escapements in the lower Taku River,

this catch is probably reflective of low effort levels during the fall fishery due to good fishing in other districts, instead of poor run strength. Coho CPUE was above average during most of the fall fishery, although fishing periods were limited during the fall season due to considerations for poor chum salmon returns. No additional fishing time was granted this year in Port Snettisham to harvest hatchery coho since they were needed for brood stock.

The Canadian fishery harvested 1,783 coho salmon incidentally in the directed sockeye salmon fishery.

The Hackett River weir was extended to cover the period of coho salmon migration in 1986 with 2,700 coho enumerated (compared to 1,000 coho counted in 1985). Lower river escapements appeared to be good, although only limited surveys were conducted. An aerial count of 1,330 coho was obtained from Flannigan's Slough which is located just upstream of the U.S./Canada border. Port Snettisham was not surveyed for coho escapements. An attempt was made to obtain a total escapement estimate for the Canadian portion of the river as reported in the Research Section. A summary of coho index surveys and weir counts is shown below.

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Little Tatsamenie Lake	-	-	106(w) <sup>*1/</sup>	61(w) <sup>*</sup>
Hackett River	-	-	1,031(w) <sup>2/</sup>	2,723(w)
Flannigan's Slough	350	1,480	2,320	1,330
Yehring Creek	2,110	2,900	560	2,116(w) <sup>*</sup>
Dudidontu River	-	-	-	798
Nahlin River	-	-	-	319

<sup>1/</sup> (w)\* incomplete weir count  
<sup>2/</sup> (w) = weir count

### 2.2.3 Chinook:

A strong return of chinook salmon was expected in 1986 from above average escapements in 1980-1982 (i.e. the three principal brood years). The target escapement range of 25,600 to 30,000 was expected to be achieved but no harvestable surplus was expected and therefore efforts to minimize terminal area catches were implemented.

Catch information for 1986 appears below:

	<u>1986</u>	<u>1979-85</u>
Alaskan District 111 Gillnet	2,606(515) <sup>3/</sup>	2,291(328) <sup>3/</sup>
Alaskan Sport	N/A	N/A
Canadian In-river Gillnet (adults)	275	187
Canadian Sport	N/A	N/A
Canadian Subsistence	N/A	N/A

<sup>3/</sup> (large spawner estimate)

Alaskan and Canadian chinook salmon catches occur incidentally in the sock-eye gillnet fisheries. Usually only a small portion of the latter half of the chinook run is subjected to gillnet harvest; most of the chinook salmon spawners have migrated through the gillnet fishing areas prior to the season opening.

During the 1986 season a total of 2,606 chinook salmon were caught in the District 111 drift gillnet fishery. Based on fish ticket information and past years sampling approximately 515 of these are considered to have been Taku River spawners. Large catches of feeder chinook occurred in District 111 during late June and July and prompted night closures during statistical weeks 26, 29, and 30. Chinook catches during periods with night closures were approximately 50% smaller than for those periods without night restrictions.

The in-river Canadian fishery harvested 275 chinook. A one week delayed opening for sockeye conservation and restricted mesh sizes helped to minimize the in-river harvest.

Chinook escapements were very good in the Taku River drainage, being the third largest observed since 1975. The returns to the Nakina River were primarily 4 and 6 year old fish with very few 5 year olds. The chinook counts through the Little Tatsamenie and Hackett River weirs were 615 and 643 respectively which are several hundred fish above 1985 escapements. Chinook counts at these weir sites are incomplete due to the lateness of weir installations.

The ADF&G management chinook index escapement goal for the Nakina and Nahlin Rivers is 11,500 age 3 and 4 ocean salmon. Enumeration of chinook salmon spawning in these index areas probably represents the best annual indicators of chinook salmon abundance because of water clarity and ease of surveying. In 1986 a total of 5,480 were observed in aerial index surveys in these two rivers. This is the best escapement since 1981 and is 37% above the recent 10 year average escapement index. In spite of the above average escapement in 1986 the observed escapement in these two index rivers represented only 48% of the ADF&G management goal. Records of historical chinook escapements appears in Table 14.

#### 2.2.4 Chum:

A below average fall chum salmon return was anticipated in 1986 although it was recognized that historically fall chum returns to Taku River have been somewhat erratic. Summer run stocks comprise an extremely small portion of the Taku River chum salmon return. Chum salmon catches in District 111 and in the Canadian in-river fishery were as follows:

	<u>1986</u>	<u>1979-85</u>	<u>1969-78</u>
Canadian Fishery Harvest	110	7,328 <sup>1/</sup>	0
Alaskan District 111 Harvest (Total)	58,566	82,312	82,181 <sup>2/</sup>
Alaskan District 111 Fall Harvest (wk 34 on)	28,794	54,647	61,670 <sup>2/</sup>

- <sup>1/</sup> excludes 1982 because of restricted fishery  
<sup>2/</sup> excludes 1975 when fall fishery was not opened

The 1986 District 111 summer chum salmon catch of 29,772, occurring through statistical week 33, is above the 1976-1985 10 year average catch of 20,837. In-season tag recoveries indicate Port Snettisham hatchery contributed 12,000 chum (40%) of this catch. The majority of the summer chum were caught incidentally to the sockeye salmon fishery in District 111. In July, during the five additional 24 hour fishing periods in Section 11C (lower Stephens Passage), a total of 6,700 chums were caught. This area was opened to evaluate the extent of the Snettisham hatchery chum contribution in areas not normally fished for sockeye salmon. The magnitude of the 1986 chum catch in this area is similar to 1985, indicating the majority of the returning Snettisham hatchery chum migrate from the north and pass through the traditional sockeye salmon fishing areas.

The 1986 District 111 fall chum harvest (beginning statistical week 34) of 28,794 fish is the third smallest fall chum catch in 10 years, and is 47% below the 1979-1985 average. Although fishing effort was minimal, chum CPUE was very low indicating chum run strength was weak. District 111 closed for the season on September 16 (Statistical week 38).

The Canadian fishery harvested only 110 chum salmon which were taken incidentally during the latter part of the sockeye salmon season. This number is substantially below the 1979-1985 average of 7,328 but was not expected to be higher due to Treaty provisions which restricted targeted fisheries to sockeye which have earlier timing than chum.

Due to the early removal of the fishwheels and the lack of a Canadian fall chum fishery, no population estimate could be made in 1986. No surveys were conducted in the known spawning areas, but escapement was suspected to be below average based on the poor District 111 fishery performance.

#### 2.2.5 Pink:

A below average pink salmon return to the Taku River was forecast in 1986 with an estimated allowable catch of 115,000 fish. The interim spawning escapement goal is between 150,000 and 250,000.

Pink salmon catches in Alaskan and Canadian gillnet fisheries in 1986 were as follows:

	<u>1986</u>	<u>1979-85</u>	<u>1969-78</u>
Alaskan District 111 Harvest	16,481	190,676	72,718
Canadian Harvest	58	9,095	0

The 1986 total District 111 pink harvest of 16,481 was far below the pre-season expected catch of 115,000 fish. The Canadian in-river harvest of 58 pink salmon occurred incidentally to the sockeye salmon fishery. The total escapement for the Taku River is unavailable, but based on aerial surveys, foot surveys, and Nakina weir carcass counts, the 1986 escapement was well below the 150,000-250,000 escapement goal. The low return is supported by the Canyon Island fishwheel catch of 7,300 in 1986 compared to 27,700 in 1985. Stephens Passage pink catches and escapement were also depressed.

## 2.3 Alsek River

Salmon fisheries for Alsek River salmon include an Alaskan set net fishery in Dry Bay at the mouth of the Alsek, and Canadian Indian food and sport fisheries in the upper Tatshenshini River and tributaries. Sockeye and coho are the target species in the Dry Bay fishery with small numbers of chinook and chum taken incidentally. Under the terms of the U.S./ Canada Treaty, both countries were required to take appropriate management actions in 1986 to continue the process of rebuilding early sockeye and chinook stocks to achieve escapement goals.

The 1986 Dry Bay fishery was open a total of 34 days which was well below the 1976-1985 average of 43.7 days but about average for the past five years. The total Dry Bay salmon catch of approximately 27,000 fish was over twice the 1985 catch of 12,200 and 75% of the 1976-1985 average of 36,000.

In Canada, restrictions implemented to protect early sockeye and chinook in the sport and Indian food fisheries included delayed openings, weekly closures and reduced catch limits. The 1986 Canadian salmon catch was approximately 2,500 total fish, slightly higher than the 1985 harvest level of 1,700 fish but only 47% of the 1976-1985 average of 5,300 fish.

### 2.3.1 Sockeye:

The 1986 outlook for sockeye returns to the Alsek River system based on brood year spawning escapements, sex composition and assumptions about productivity and age composition of returns was for an above average run of 83,000 fish. The early portion of the 1986 return was weak as anticipated and little fishing pressure occurred on that portion of the run. The remainder of the return was slightly above the recent year average but less than the pre-season projection.

In Alaska, the opening in the Dry Bay set gill net fishery was delayed by two weeks, until June 16. This conservation measure has been implemented annually since 1983. Maximum effort in Dry Bay during the sockeye season was 26 units which was average. Fishing time was limited to two days per week during the first seven weeks of the fishery (through July). Sockeye catches during the early weeks of the fishery indicated average sockeye run strength, but slightly more effort was on the river than in recent years due to the Situk and East River closures. By mid-July, after four weeks of fishing, an estimate of the total run size was made using historical fishery performance. It was estimated that continuing with the current level of time and effort, the system escapement goal would be achieved. After late July, a three day weekly fishing period was provided during the remainder of the sockeye season. The 1986 Dry Bay sockeye set net harvest of 24,800 was approximately four times the 1985 harvest and 90% of the 1976-1985 average. The 1986 Dry Bay subsistence catch was estimated to be less than 100 sockeye.

The sockeye harvest in the Indian food and recreational fisheries in Canada was restricted prior to August 15 to protect early run stocks. The sockeye retention in the recreational fishery was reduced to zero. The opening of the Indian food fishery was delayed to July 20; thereafter and until August 15 it was restricted to a one day per week fishery. Normal fishing time was allowed after this date and amounted to three days per week. The total



Canadian sockeye harvest was approximately 2,300 which was below recent five and ten-year averages of 3,000 and 4,300, respectively.

Alsek catch and escapement information are recorded below compared to historic levels:

	<u>1986</u>	<u>1981-85 Average</u>	<u>1976-85 Average</u>
Alaska Commercial Dry			
Bay Fishery	24,850	18,161	26,800
Alaskan Subsistence	100	100	100
Canadian Sport Fishery	300	550	600
Canadian Subsistence Fishery	1,900	2,420	4,300
Klukshu River Weir Index			
Escapement	24,800	21,177	19,600

In spite of conservation measures, the early run sockeye escapement prior to August 15 was only 400 fish in 1986 compared to 1000 fish in 1981. The early run escapement has been extremely poor in three of the last five years.

The escapement of approximately 24,400 fish of later run sockeye in 1986 was slightly above the parent year of 20,000. The 1986 Klukshu Weir count was 24,850 sockeye. Assuming Klukshu represents 60% of the total Alsek sockeye escapement, the total Alsek River escapement approximated 41,000. This escapement estimate falls within the escapement goal range of 33,000 - 58,000. The estimated return (catch plus escapement) to the mouth of Alsek River in 1986 appears to have been in the order of 68,000 implying an overall harvest rate of 40%.

This is the second year that an inseason total run estimate was made by U.S. managers using historical exploitation rates and cumulative catches. The 1986 model suggested in mid-July that at the current effort levels and two day fishing periods an escapement to Klukshu Lake of 22,000 fish should be attained. This estimate proved to be extremely accurate as it was during 1985.

#### 2.3.2 Coho:

The 1986 Dry Bay coho harvest of 1,344 was extremely poor. It was the lowest annual harvest recorded since 1930 when complete records begin. Fishing effort was below average and ranged from 3 to 11 fishermen participating each week. Normal three-day weekly fishing periods were allowed during the short three-week coho season. During the last week only two days were allowed. The fishery closed early on September 17, while other Yakutat fisheries remained open through the first week of October. Alsek River coho contribute to the ocean troll fishery, but to an unknown degree. Coded-wire tag returns in 1986 from fry tagged in adjacent Yakutat foreland streams may give some insight to the Alsek coho ocean exploitation. Coho escapements in the Dry Bay and upriver areas appeared to be poor in 1986.

Limited coho catches occurred in the Canadian sport fishery. The estimated catch amounted to less than 50 fish.

### 2.3.3 Chinook

Brood year escapement for chinook suggested that the 1986 return would be below average with a pre-season estimated total run of 9,900. Since recent average escapements have been lower than the goal range of 7,200 to 12,500 it was recommended that efforts be continued to rebuild Alsek chinook stocks. (Some discrepancies exist between agency goals reported in Transboundary and Chinook Technical Committee documents. Resolution of these differences is expected during the review of goals currently being conducted.)

Management in Dry Bay directed at improving early run sockeye returns also benefited late returning Alsek chinook stocks. Additionally, a new regulation was implemented in-season that prohibited the use of gill net mesh larger than 6 inches from the season opening through July 31.

Chinook catches in the Canadian recreational and Indian food fisheries totalled 230, below recent five and ten-year averages of 420 and 400, respectively. Some of the reduction in chinook harvests can be attributed to the early season restrictions to protect sockeye.

The 1986 Klukshu Weir index escapement of 2,709 chinook was above the 1976-1985 average of 2,400. Assuming Klukshu River accounts for approximately 50% of the Alsek escapement, the implied 1986 watershed escapement was 5,416.

The 1986 Alsek River chinook harvest and historical comparison are as follows:

	<u>1986</u>	<u>1981-85 Average</u>	<u>1976-85 Average</u>
Alaska Commercial Dry			
Bay Fishery	478	332	1,000
Alaskan Subsistence Fishery	50	50	50
Canadian Sport Fishery	128	290	300
Canadian Subsistence Fishery	102	130	100
Klukshu River Weir Index			
Escapement	2,709	2,030	2,400

Factors responsible for the lack of response of Alsek chinook to conservation measures taken since 1981 are not known. Several possibilities exist. Information from other transboundary and Southeast Alaska chinook systems indicate a strong trend for greater responses from the more southerly stocks. This appears to be due to the fact that the more southerly stocks were being harvested by Southeast Alaska marine fisheries prior to the rebuilding programs at a higher rate than the more northerly stocks, and therefore benefited to a greater extent from fishery restrictions. Conversely, the more northerly stocks appear to have benefited less. A general northerly migration pattern of juvenile, ocean rearing chinook has been demonstrated by micro-wire tagging of natural and hatchery stocks. This results in the more southerly stocks being more available to Southeast Alaskan fisheries, both as mature and immature fish. Thus, if Alsek stocks had not been contributing significantly to the Southeast Alaskan troll fishery, restrictions of that fishery would not be expected to increase

returns of chinook salmon to the river. This would not, however, explain the decline in average returns to the river since the rebuilding program began. Possibilities for causes of the decline include reduced survival due to less favorable environmental conditions, increased predations, impacts from high seas fisheries, or some combination of these factors. No quantitative information is available on these factors.

### 3.0

### 1987 EXPECTATIONS AND MANAGEMENT RECOMMENDATIONS

Forecasts of returns of salmon to the Transboundary Rivers, in most cases, are based upon incomplete data since neither total system escapements nor outmigrant survival rates are known. Return projections are described in general terms based upon: 1) index escapements in portions of the drainages; 2) commercial harvests during parent year returns; 3) the incidence of jacks that returned in 1986; and 4) expansion of tagged to untagged ratios in catch samples.

#### 3.1 Stikine River

##### 3.1.1 Sockeye:

The annual returns of sockeye to the Stikine River have consisted of three to six year old fish, with age 5 composing approximately 70% of the return. Sockeye escapements to the Stikine River have been indexed since 1959 through the operation of an enumeration weir at the outlet of Tahltan Lake. Counts have averaged 20,919 sockeye (1959-86), and have ranged from a low of 1,500 in 1965 to a high of 67,000 in 1985. Recent five and ten year averages have been 33,979 (1982-86) and 30,766 (1977-86). The more recent averages are much higher than the long term average, indicating a trend of increasing returns.

The major contribution to the 1987 Stikine sockeye return is expected to originate from the 1982-brood year. The sockeye escapement to Tahltan Lake in 1982 was 28,257. Stock separation research conducted in recent years has indicated that on average, Tahltan stocks compose 40% of the in-river run. The total escapement in 1982 is estimated to have been between 48,000 and 78,000. The total escapement in 1983 is estimated to have been between 45,000 and 61,000. Both dominant brood year escapements appeared to be within or above the interim escapement goal range. Assuming an average production from the dominant 1982, and 1983 brood-years, the total return is expected to be slightly above average.

##### 3.1.2 Coho:

Stikine coho contribute to catches in Alaskan troll and gillnet fisheries and to the Canadian in-river gillnet fishery. Stock separation techniques to determine the degree to which Stikine coho are intercepted in Alaskan waters have not been developed. Escapement data is poor due to the lack of stock monitoring programs. The only indicator of brood year, in-river run strength was the 1983 Canadian in-river catch and effort data since no in-river fishery occurred in 1984. Due to the lack of data no reasonable forecast of the 1987 coho returns can be made.

##### 3.1.3 Chinook:

Extensive escapement monitoring of chinook salmon in the total Stikine watershed has not been conducted. There does exist a good record of index aerial estimates of peak escapement for the Little Tahltan River. This system is believed to be one of the major chinook spawning areas and may represent up to 25% of the Canadian escapement although this has not been verified. Comparison of aerial survey estimates with actual weir counts,

indicate that peak aerial counts constitute roughly 50% of total escapement. Thus the peak aerial survey estimates of escapement to the Little Tahltan River were multiplied by 8 to give estimates of total escapement.

Based on average age composition data, the progeny from the 1981 to 1983 brood years will be the major contributors to the 1987 return. Escapements in 1981 and 1982 were judged "above average", whereas a poor aerial escapement index in 1983 was recorded. An above average chinook return to the Stikine River is expected in 1987. This is due to above average parent index escapements in 1981-82, and an above average survival rate of progeny from the 1982 brood year as indicated by strong jack returns to the Stikine and other systems in 1985.

#### 3.1.4 Management Recommendations:

The near average expected return of Stikine River sockeye suggests harvestable surpluses will be available for the commercial fishery. However, the returns should be carefully monitored in-season to estimate run strength and the fishing patterns adjusted to meet escapement goals and allocation requirements. Conservation measures to rebuild chinook stocks should be continued. Insufficient data exists to provide an overall coho forecast and therefore careful in-season monitoring of the run strength will be necessary to ensure escapement goals are met.

### 3.2 Taku River

#### 3.2.1 Sockeye:

Based on the historical average age composition of Taku sockeye returns, the 1987 production should originate from the progeny of the 1981 to 1983 escapements, with the returns from the 1982 brood predominating. Unfortunately, no monitoring of sockeye escapement occurred in 1982, however the catch in District 111 (83,500) was above recent five and ten year averages of 65,800 (1981-85) and 76,200 (1976-85). The other significant contributing brood year to the 1987 return will be 1983 when an escapement estimate of 110,000-131,000 was generated from tagging data. Combining the available information from the dominant 1982 and 1983 brood years indicates the 1987 sockeye return will be better than average. Combining the information with escapement estimates from other contributing brood years (1981, 1984) and assuming an average production of 4.46 returns per female, provides an estimated 1987 total return of 221,000. This constitutes a better than average return.

#### 3.2.2 Coho:

The only available indicators of relative run strength of Taku coho have been the Canadian in-river and Alaska District 111 gillnet catches. Additional catches occur in the Alaska troll fishery, however, interception estimates are not available. Based upon information from the 1983 and 1984 Canadian and U.S. gillnet fisheries the coho return to the Taku River is expected to be average to below average.

### 3.2.3 Chinook:

An average to above average run of Taku chinook salmon is anticipated in 1987. Although the 1981 index escapement was substantially above average, overall survival appeared to be below average (based on Nakina River carcass sampling data). A corresponding effect is expected on 6-year fish in 1987. The returns of 5-year fish from an average escapement in 1982 is expected to be above average due to good survival as reflected in strong jack returns.

### 3.2.4 Chum:

As with coho, there is little brood year escapement data available for Taku chum salmon. The only available indicator of run strength for the 1987 brood years was the gillnet catch in District 111.

Taku chum salmon returns on average are composed of approximately 75% four and 25% five year old fish. Therefore the 1987 return should originate from the 1982 and 1983 brood years. The District 111 catches in 1982 and 1983 were 37,300 and 15,200 respectively, which are considerably below both the 1981-85 average of 64,600 and the longer term 1977-86 average of 73,300. Based on this comparison of catch data, a below average return is expected in 1987.

### 3.2.5 Pink:

Pink salmon return at age 2 and therefore the 1987 return will originate from the record escapement observed in 1985. Tagging estimates of the Nakina River pink escapement were in excess of 1 million in 1985. An above average return is expected in 1987.

### 3.2.6 Management Recommendations:

The preseason indications of Taku River run strength can be summarized as follows: a good outlook for the summer fishery target species and a somewhat poorer expectation for the fall fishery. As with most Transboundary species, forecasts have been developed with incomplete brood year data. Careful monitoring of the runs in-season must be undertaken and fishing patterns will be adjusted as necessary. The rebuilding of chinook escapements should again be an objective of the early season management.

## 3.3 Alsek River

### 3.3.1 Sockeye:

The primary contribution to the 1987 Alsek sockeye return will originate from the 1982 and 1983 brood years. In these years, Klukshu weir counts of 33,700 (1982) and 20,500 (1983) were recorded, both of which exceed the 1976-86 average of 20,000. An above average return is therefore anticipated.

Early season restrictions in fishing time and/or effort should be continued in 1987 to continue the rebuilding program of early run sockeye.

### 3.2.2 Coho:

Very little escapement information exists for Alsek River coho salmon. Only a partial count of coho escapement has been obtained at the Klukshu weir due to ice formation and the onset of winter prior to the completion of coho migration. The coho count at Klukshu has averaged 800 during the period 1976-86. The brood year counts were 300 (1983) and 1,400 (1984) indicating the possibility of an above average return of 3 year olds but a below average 4 year old component.

The other rough indicator of coho run strength is the Dry Bay commercial catch which has averaged 7,100 over the period 1981-85. Catches in 1983 and 1984 were 5,300 and 7,900 respectively, again suggesting an overall average return.

### 3.3.3 Chinook

Chinook escapements to the Klukshu tributary of the Alsek River for the principal brood years of the 1987 return (1981-83) were about average. Consequently, an average return of chinook is anticipated in 1987.

Recent chinook returns have been well below expectations. Reasons for this are unclear, particularly when one considers that major restrictions have been imposed in both the U.S. Alsek River fishery and the Canadian fishery.

### 3.3.4 Management Recommendations:

Restrictions to protect the early timing segment of the sockeye run to the Alsek River should be continued in 1987. The chinook run also requires rebuilding and conservation measures directed at this species should be continued.

The Committee identified five categories of research that support treaty management of transboundary river stocks of Pacific salmon. Run Reconstruction are those activities which are associated with counting the catches and escapements of the annual return and partitioning those counts into stock of origin and brood year. Stock Assessment are those activities other than run reconstruction which address patterns of stock distribution and abundance in natal rivers or marine waters. These studies add to our general knowledge of the biology of a stock and fishery impacts. Research designed to better estimate optimum Escapement Goals may approach the problem from several perspectives. Among the approaches are spawner-recruit analysis; smolt production resulting from various numbers of spawners; and quality and quantity of habitat important to different stages in the life history of the stocks. Forecast research explores analytical approaches to the analysis of run reconstruction or stock assessment data to assist industry and managers in pre-season planning. In-season Management decisions regarding appropriate time and areas to fish require knowledge of the strength of the annual run.

In the following section, we have very briefly summarized research activities of the Parties as they relate to these five categories of research. The brief format is intended to relate the broad spectrum of research in progress, not to present interim results or conclusions. When a research activity has been completed, an abstract of the published report will be provided. Research topics of special interest to the Panel will be presented, when completed, in written and/or oral form.

#### Stikine River

##### Run Reconstruction:

The Alaska Department of Fish and Game (ADF&G) initiated a side scan sonar developmental program in 1983 and it has run each year (except 1985). Significant technical problems have been encountered in estimating total escapement but relative counts have been used to estimate the fraction of the run passing through the lower river each day.

The problem of estimating the proportion of the catch that is bound for various spawning areas within the Stikine River is extremely complex in non-terminal fisheries. In 1986, we obtained matched scale, genetic and parasite data from both in-river and marine harvest areas. We believe that concurrent analysis of these data will provide more accurate and precise estimates of the contribution Stikine River sockeye salmon make to various interception fisheries. We expect preliminary results of this analysis to be available this spring.

Intensive sampling of commercial catches in Alaska and Canada for scales to use in stock identification continued in 1986. Preliminary results of this study are available.

##### Stock Assessment:

In 1986, juvenile coho salmon were caught and coded micro-wire tagged(CWT) by the DFO in a pilot study to obtain additional information on ocean



migration patterns and relative rates of exploitation. Field personnel encountered a number of operational problems in 1986 and these experiences will help in the design of future operations.

#### Escapement Goals:

To better estimate optimum spawning escapement for Tahltan Lake sockeye salmon the D.F.O. has collected data since 1984 to examine the relationship between smolt production and spawning stock size. We also believe that these data will improve the accuracy and precision of our forecasts.

The smolt enumeration program is closely linked to a lake enrichment (fertilization) program designed to improve growth and survival of juvenile fish. This research which began in 1985, should assist us in determining factors that limit sockeye salmon production in Tahltan Lake.

To assess whether the productivity of Stikine River sockeye salmon stocks is limited by spawning or rearing habitat a pilot study was initiated by D.F.O. in 1986. Juvenile fish rearing in the river were marked with temporary fluorescent grit to examine patterns of migration and growth, duration of residence, and density in side channels of the lower Iskut River. We expect that these studies will continue in 1987 and that results will be reported in 1988.

#### Management Systems:

Test fisheries were used to develop indices of abundance. Two in-river test fisheries have operated, one on the U.S. side at Kakwan Point and one on the Canadian side immediately above the international border. Fish caught by Canadian in-river and Alaska marine test fisheries were sampled for scales and tissues (brains, heart, muscle, liver and eye) for use in stock identification and post-season run reconstruction. A report detailing results of the Kakwan Point test fishery is in preparation and will be available by this spring. A progress report for the Canadian fishery is in preparation. A third test fishery in Alaska District 106 and 108 has been operated since 1984 and was expanded in 1986. A progress report on this program will also be available this spring.

#### Taku River

##### Run Reconstruction:

Scale pattern analysis was used to identify individual Taku River sockeye salmon stocks (Kuthai Lake, Little Trapper Lake, Tatsamenie Lake, and river spawners) and those from the Snettisham drainage (Crescent Lake and Speel Lake) in Alaska District 111 catches. Individual Taku River stocks were also identified in Canadian in-river commercial harvests and Canyon Island fishwheel catches. Differential run timing of these stocks was discovered and this result was corroborated with data from adult spaghetti and radio-tagging experiments. A report will be available this spring.

Other biological characteristics are useful for identifying Taku River and Snettisham stocks. For example, the prevalence of a brain parasite is higher in Snettisham stocks than in most Taku River stocks. Stock composition

estimates based on scale patterns and brain parasite data will be generated for District 111 and the in-river fishery this spring. Additional baseline electrophoretic sampling from major stocks in the two drainages was continued in 1986 but no fishery samples are available for analysis.

#### Stock Assessment:

Development of an abundance index for adult coho salmon was explored using a combination of in-river Canadian test fishery catches, adult tag recovery data and Alaska District 111 catches. A report on this approach will be available next fall.

Coho salmon fry were captured and coded-wire-tagged in both headwater and lower river locations. Adult returns of these tagged fish will provide information on migration routes, timing, and relative harvest in Alaskan and in-river Canadian fisheries.

A radio telemetry program was undertaken by the National Marine Fisheries Service. Information was collected on the in-river distribution of sockeye salmon and the feasibility of radio-tagging coho salmon. A radio tracking system featuring recording units with satellite transmission capabilities was tested. Although some technical problems were encountered, they are being corrected. When perfected, this system will provide an efficient method for collecting telemetry data from remote areas of the transboundary rivers. A report is in preparation.

#### Escapement Goals:

Mainstem Taku River spawning areas identified in the sockeye radio tagging program were classified into channel and habitat types. Habitat types were sampled in U.S. areas for rearing juvenile salmon. Analysis of these data will aid in understanding the habitat utilization of the mainstem river areas and in determining optimum escapement goals for the mainstem component of the Taku River run.

#### Forecasting:

Age data for use in forecasting future chinook salmon returns continued to be collected at the Nakina River carcass weir. Analysis of previous weir counts indicates that the return of 2-ocean chinook is a reliable indicator of subsequent return of 3- and 4-ocean fish.

#### Management Systems:

In-season estimates of the Taku River sockeye salmon escapement were generated in 1986 from Canyon Island tagging and Canadian fishery recapture data. Escapement estimates based on these data were available with a lag time of approximately two weeks from the time fish migrated through District 111.

## Alsek River

### Run Reconstruction:

No research programs currently exist to develop estimates of the total return of Pacific salmon to the Alsek River.

### Stock Assessment:

In 1986, a chinook salmon coded-wire-tagging program was undertaken on the Alsek River to determine the migration routes and relative exploitation rates in non-terminal fisheries. Because only 6,000 juveniles were tagged we doubt that much information will result from this years tagging effort.

DFO counted the sockeye salmon escapement during 1986 into Village Creek, a tributary of the Tatshenshini River, using a battery powered conductivity bridge device. The counter was calibrated to distinguish upstream and downstream movements of a specific size range of fish (around the mean size of sockeye). A total of 2,021 upstream migrants were enumerated while the downstream count registered 696. This technique may prove to be useful in assessing escapement in remote spawning areas.

### Escapement Goals:

No research programs focused on defining escapement goals for Alsek River salmon stocks in 1986.

### Management Systems:

Conservative management regimes are currently used to increase chinook salmon escapement and the early component of the Klukshu sockeye return. This approach is monitored through the operation of an adult weir which has been in operation on the Klukshu River since 1976.

## 5.0

### DATA AND PROGRAM NEEDS FOR THE TRANSBOUNDARY RIVERS

The Committee has identified the following additional projects that should be considered for implementation to improve the data bases on transboundary river salmon stocks. These suggested projects are not prioritized. The Committee believes that the highest priority should be to improve current programs, especially those designed to provide managers with assessments of run size in-season.

On the Stikine and Taku Rivers, methods to determine overall coho run size should be developed. Index streams should be identified and surveyed annually to assess coho escapements. Coho spawning and rearing distributions in each drainage should be identified.

The Alsek River and Yakutat area chinook stocks have not responded well to management actions to rebuild stocks indicating that the impacts on these stocks may be occurring in distant high seas fisheries. More intensive microwire tagging of rearing chinook in the Alsek should be undertaken to determine if this is occurring.

Partial habitat inventories have been made for the Taku and Stikine Rivers. Complete drainage inventories should be undertaken. These inventories will provide information on stock distribution and escapement needs and provide the bases for habitat protection measures in future years.

On the Taku River an attempt should be made to better define the chum salmon population size and spawning distribution.

The distribution and timing of Alsek River sockeye stocks is not well understood. Stock I.D. potential to provide better information should be examined. If stock I.D. work is not successful, an adult tagging program may be needed.

On the Stikine, Taku and Alsek Rivers, index escapement counts of sockeye and chinook require qualification to estimate system-wide escapements. Stock identification and/or tagging studies may be required.

In systems where enhancement activities are actively being considered, baseline data regarding natural stock production is needed.

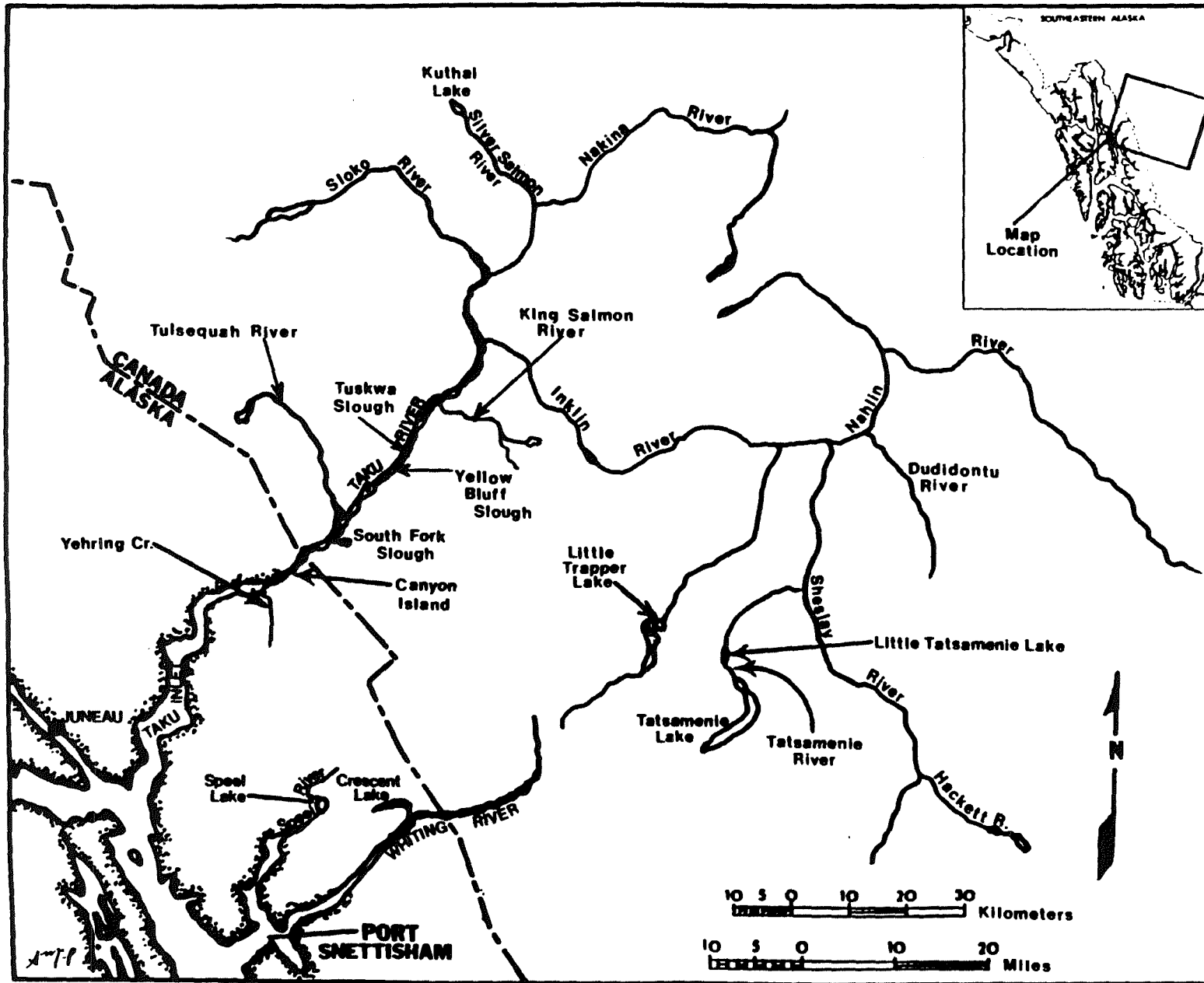


Figure 2. Taku River and Port Snettisham drainages.

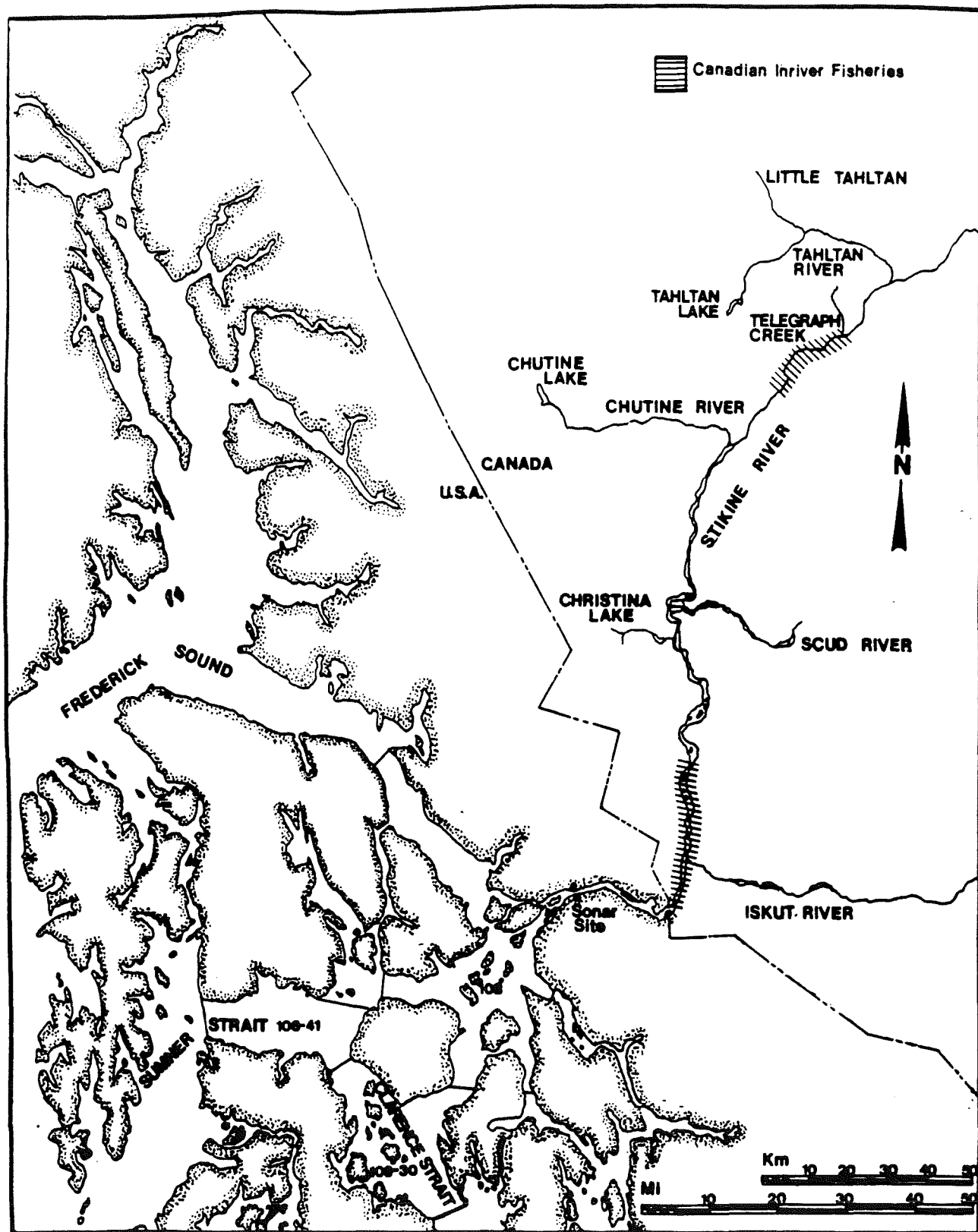


Figure 3. Stikine River drainage.

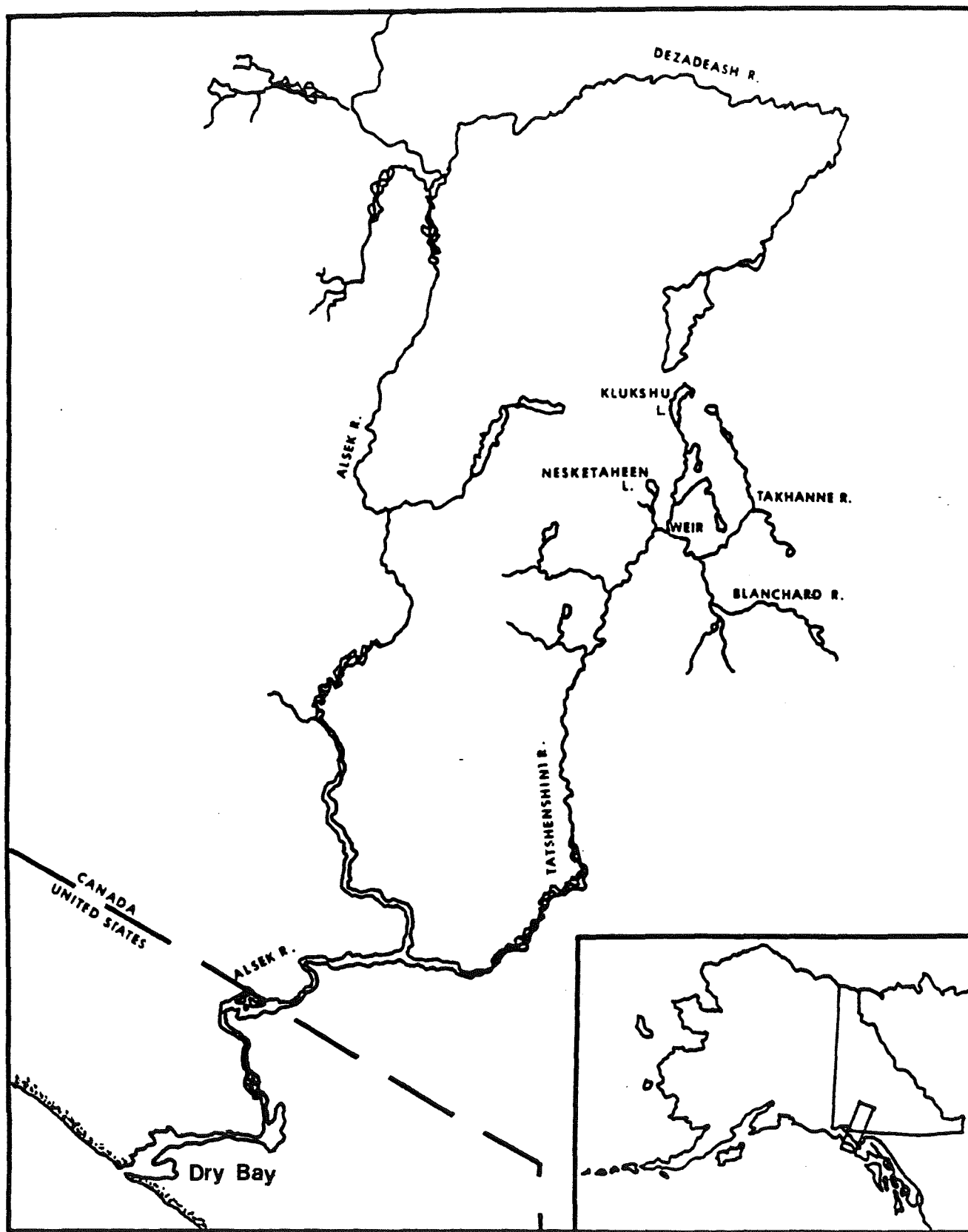


Figure 4. Alsek River drainage.

Tables 1-25



Table 1. Annual Prince of Wales - District 6 drift gillnet catches in numbers.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total	Days Open	Maximum Number Boats any Week
1961	461	21,036	16,646	130,527	77,459	246,129	57.00	63
1962	1,427	47,440	49,049	294,801	76,386	469,103	53.50	113
1963	1,524	80,893	52,175	515,609	90,217	740,418	51.00	187
1964	2,082	76,504	64,726	443,318	44,221	630,851	49.00	130
1965	1,802	89,939	75,728	628,146	27,658	823,273	52.25	131
1966	1,666	89,855	63,528	405,525	42,331	602,905	74.25	115
1967	1,318	86,385	17,670	91,609	26,370	223,352	27.00	131
1968	1,324	64,758	68,027	172,976	62,931	370,016	53.00	135
1969	877	70,477	10,277	197,455	10,930	290,016	31.00	103
1970	785	42,778	35,470	94,851	32,231	206,115	41.00	66
1971	1,336	53,202	48,085	527,975	37,680	668,278	50.00	131
1972	2,573	101,338	93,427	89,467	72,382	359,187	41.00	123
1973	1,931	72,030	38,449	303,665	87,849	503,924	26.00	190
1974	1,924	57,423	45,677	104,209	50,370	259,603	28.00	153
1975	2,587	32,051	30,962	203,015	23,968	292,583	17.00	133
1976	384	15,481	19,126	139,439	6,868	181,298	22.00	86
1977	671	67,023	8,401	419,107	13,300	508,502	28.00	158
1978	2,682	41,565	55,546	224,629	16,484	340,906	26.50	120
1979	2,720	66,373	31,177	648,212	35,507	783,989	31.40	193
1980	580	107,418	16,580	45,560	26,269	196,407	25.00	153
1981	1,565	182,906	22,613	435,272	34,571	676,927	26.00	154
1982	1,672	193,618	44,965	25,550	18,845	284,650	22.00	125
1983	567	48,942	62,430	208,167	20,144	340,250	32.00	93
1984	892	91,653	41,250	343,090	70,117	542,498	32.00	92
1985 *	1,690	264,987	91,220	584,946	69,661	1,012,504	38.00	149
1986 *	1,707	145,709	195,159	308,484	82,371	733,430	32.00	180

\* Preliminary January 23, 1987

Table 2. Annual Clarence Strait portion of Dist. 6 drift gillnet catches in numbers.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total	Maximum Number Boats any Week
1961	326	10,967	12,839	97,762	51,875	173,769	61
1962	1,177	27,341	35,728	210,633	49,575	324,454	139
1963	1,250	35,462	36,376	379,093	39,723	491,904	129
1964	1,766	23,598	37,316	259,684	21,305	343,669	102
1965	1,123	29,013	45,158	463,577	11,895	550,766	118
1966	975	24,126	32,026	304,645	16,521	378,293	100
1967	342	24,349	7,058	39,206	6,704	77,659	75
1968	306	14,459	21,040	87,095	22,365	145,265	67
1969	289	24,061	4,191	104,998	4,511	138,050	61
1970	365	15,966	20,317	65,790	14,139	116,577	43
1971	660	19,210	23,166	244,174	18,180	305,390	68
1972	826	26,593	32,382	48,816	25,708	134,325	76
1973	391	16,688	13,517	143,221	25,226	199,043	111
1974	692	10,480	16,360	46,918	11,542	85,992	64
1975	2,120	12,732	26,312	173,675	16,206	231,045	134
1976	147	6,162	8,759	119,188	4,567	138,823	60
1977	469	19,615	6,582	368,069	9,060	403,795	158
1978	2,407	40,152	28,731	215,169	13,363	299,822	107
1979	2,262	31,566	15,996	471,817	18,691	540,332	147
1980	375	58,988	5,754	28,594	11,107	104,818	98
1981	967	50,546	9,453	216,909	8,577	286,452	107
1982	1,000	72,140	10,284	15,141	6,719	105,284	88
1983	215	20,788	18,929	133,678	6,542	180,152	40
1984	756	64,281	22,126	243,283	41,656	372,102	53
1985 *	1,137	92,896	39,439	265,552	23,372	422,396	79
1986 *	1,280	60,407	88,509	202,494	33,318	386,008	89

\*Preliminary, January 27, 1987

Table 3. Annual Sumner Strait portion of Dist. 6 drift gillnet catches in numbers.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total	Maximum Number Boats any Week
1961	75	9,471	1,851	26,435	9,657	47,489	14
1962	131	19,692	6,548	45,987	9,544	81,902	31
1963	310	45,305	15,727	135,503	50,380	247,225	80
1964	316	52,943	27,338	183,402	22,913	286,912	72
1965	679	58,736	30,570	162,271	15,763	268,019	65
1966	690	65,656	30,759	96,267	24,233	217,605	63
1967	519	56,069	10,521	52,085	19,364	138,558	71
1968	1,010	50,212	46,111	82,012	39,001	218,346	95
1969	747	46,282	6,557	92,102	6,395	152,083	52
1970	420	26,812	15,153	29,102	18,092	89,579	40
1971	671	33,991	24,727	283,739	19,329	362,457	103
1972	1,729	74,745	59,795	40,619	45,904	222,792	81
1973	1,540	55,230	24,883	159,877	62,311	303,841	117
1974	1,333	46,760	28,767	57,291	37,834	171,985	126
1975	467	19,319	4,650	29,340	7,762	61,538	71
1976	234	9,318	10,167	20,241	2,271	42,231	65
1977	202	47,408	1,785	51,038	4,238	104,671	39
1978	274	1,422	26,762	9,546	3,142	41,146	51
1979	458	34,807	12,087	176,395	16,816	240,563	67
1980	205	48,430	10,826	16,966	15,162	91,589	55
1981	598	132,359	13,158	218,359	25,994	390,468	93
1982	648	121,220	21,387	10,343	11,896	165,494	91
1983	266	28,153	40,746	74,342	12,922	156,429	72
1984	136	27,372	19,124	99,807	28,461	174,900	38
1985 *	549	172,088	50,561	319,379	45,529	588,106	98
1986 *	413	85,243	103,828	105,295	48,278	343,057	103

\*Preliminary, January 27, 1987

Table 4. Annual Stikine (District 8) gillnet catches in numbers of fish.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total	Days Open	Maximum Number of Boats any Week
1960	7,824	13,635	27,479	5,584	8,189	62,711	61	69
1961	7,243	21,557	36,858	52,295	12,535	130,488	63	62
1962	7,491	27,514	38,386	36,325	20,290	130,006	57	78
1963	2,107	9,995	11,697	10,340	11,155	45,294	71	43
1964	2,911	20,299	29,388	114,555	10,771	177,924	80	70
1965	3,106	21,419	8,301	4,729	2,480	40,035	63	39
1966	4,516	36,710	16,493	61,908	17,730	137,357	78	57
1967	6,361	29,226	4,747	4,713	5,955	51,002	58	57
1968	4,604	14,594	36,407	91,028	14,537	161,170	78	89
1969	5,015	19,211	5,791	11,910	2,318	44,245	55	47
1970	3,207	15,120	18,403	20,523	12,305	69,558	54	44
1971	3,717	18,143	14,876	21,806	4,665	63,207	57	42
1972	9,332	51,734	38,520	17,153	17,363	134,102	64	71
1973	9,253	21,373	5,831	6,581	6,674	49,712	39	74
1974	8,197	2,428	16,021	4,188	2,107	32,941	31	65
1975	1,534	0	0	0	1	1,535	8	49
1976	1,123	18	6,056	722	124	8,043	20	35
1977	1,443	48,374	14,405	16,253	4,233	84,708	23	54
1978	531	56	32,650	1,157	1,001	35,395	12	54
1979	91	2,158	234	13,478	64	16,025	5	17
1980	631	14,053	2,946	7,224	6,910	31,764	22	24
1981	283	8,833	1,403	1,466	3,594	15,579	9	27
1982	1,014	6,553	20,261	16,993	744	45,565	21	39
1983	47	178	15,484	4,171	675	20,555	17	26
1984	14	1,290	481	4,960	1,892	8,637	5	8
1985 *	20	1,060	1,926	5,325	1,892	10,223	18	10
1986 *	102	4,185	7,439	4,901	5,928	22,555	28	13

Preliminary January 23, 1987

Table 5. Summary of Canadian Commercial Gillnet Catches, Lower Stikine River, 1979-1986.

Year	Chinook Jacks	Chinook Adults	Sockeye	Coho	Pink	Chum	Steelhead	Total	Days Fished	Boat Days	Average Number Fishermen
1979	63	712	10534	10720	1994	424	264	24711	42		
1980		1488	18119	6629	736	771	362	28105	41	701	17
1981		664	21551	2667	3713	1128	280	30003	32	522	16
1982		1693	15397	15904	1782	722	828	36326	71	1093	15
1983	430	492	15857	6170	1043	274	667	24933	54	458	8
1984								0			
1985	91	256	17093	2172	2321	532	231	22696	22.5	145.5	6
1986	365	806	12411	2278	107	295	192	16454	13.5	239	18
Averages:											
1979-86		1008.6	15851.7	6648.6	1670.9	592.3	403.4	26175.4	39.4	451.2	11
1981-85		906.5	17474.5	6728.3	2214.8	664.0	501.5	28489.5	44.9	554.6	11

Notes:

- a) Jacks not segregated from 1980-1982.
- b) The chinook averages = total chinook catch, i.e., includes jacks.
- c) All averages exclude 1984, the year when the fishery was closed for the season due to poor returns.

Table 6 . Summary of Canadian Commercial Gillnet Catches, Upper Stikine River, 1979-1986.

Year	Chinook Jacks	Adults	Sockeye	Coho	Pink	Chum	Steelhead	Total	Days Fished	Boat Days	Average Number Fishermen
1975		178	270	0	0	0	0	448			
1976		236	733	25	0	0	0	994			
1977		62	1975	32	0	0	0	2069			
1978		100	1500	0	0	0	0	1600			
1979								0			
1980		156	700	40	20	0	0	916			
1981		154	769	0	0	0	0	923	5	11	2
1982		76	195	0	0	0	0	271	4	8	2
1983		75	614	0	0	4	1	694	8	10	1
1984								0	0	0	0
1985		62	1084	0	0	0	0	1146	6	14	2
1986	41	104	815	0	0	0	0	960	7	19	3
Averages:											
1975-86		124.4	865.5	9.7	2.0	0.4	0.1	1002.1	3.0	6.2	1
1976-85		115.1	946.3	12.1	2.5	0.5	0.1	1076.6	2.9	5.4	1
1981-85		91.8	665.5	0.0	0.0	1.0	0.3	758.5	5.8	10.8	2

Notes:

- a) Jacks not segregated from 1975-1985.
- b) The chinook averages = total chinook catch, i.e., includes jacks.
- c) All averages exclude 1979 and 1984. In 1979 the upper Stikine commercial catch data was included with lower Stikine data; In 1984 the commercial fishery was closed for the season.

Table 7. Summary of Canadian Subsistence Catches (Indian Food Fishery),  
Upper Stikine River, 1972-1986.

Year	Chinook Jacks	Adults	Sockeye	Coho	Pink	Chum	Steelhead	Total
1972		0	230	0	0	0	0	230
1973		200	3670	0	0	0	0	3870
1974		0	3500	0	0	0	0	3500
1975		1024	1982	5	0	0	0	3011
1976		924	2911	0	0	0	0	3835
1977		100	4335	0	0	0	0	4435
1978		400	3500	0	0	0	0	3900
1979		850	3000	0	0	0	0	3850
1980		587	2100	0	0	0	0	2687
1981		740	5304	8	144	0	4	6200
1982		618	4948	40	60	0	0	5666
1983		1066	4649	3	77	26	46	5867
1984		702	5327	1	62	0	2	6094
1985	94	793	7287	3	35	4	9	8225
1986	569	1026	4208	2	1	12	2	5820
Averages:								
1972-86		646.2	3796.7	4.1	25.3	2.8	4.2	4479.3
1976-85		687.4	4336.1	5.5	37.8	3.0	6.1	5075.9
1981-85		802.6	5503.0	11.0	75.6	6.0	12.2	6410.4

Notes:

- a) Jacks not segregated from 1975-1985.
- b) The chinook averages = total chinook catch, i.e., includes jacks.

Table 8. Summary of total Canadian catches (user groups combined), Stikine River, 1979-1986.

Year	Chinook		Sockeye	Coho	Pink	Chum	Steelhead	Total
	Jacks	Adults						
1979	63	1,562	13,534	10,720	1,994	424	264	28,561
1980	0	2,231	20,919	6,669	756	771	362	31,708
1981	0	1,558	27,624	2,675	3,857	1,128	284	37,126
1982	0	2,387	20,540	15,944	1,842	722	828	42,263
1983	430	1,633	21,120	6,173	1,120	304	714	31,494
1984	0	702	5,327	1	62	0	2	6,094
1985	185	1,111	25,464	2,175	2,356	536	240	32,067
1986	975	1,936	17,434	2,280	108	307	194	23,234
-----								
Averages: 1/								
1979-86		2,010 2/	20,948	6,662	1,719	599	412	32,350
1981-85		1,826	23,687	6,742	2,294	673	517	35,738
-----								

1/ All averages exclude 1984 when commercial fishery was closed.

2/ Chinook averages include jacks.



Table 9 . Tahltan Lake Adult Sockeye Timing and Weir Counts, 1959 to 1986.

YEAR	WEIR INSTALLED	FIRST SOCKEYE ARRIVAL	DATE WHEN 50% PASSED WEIR	DATE WHEN 90% PASSED WEIR	TOTAL ESCAPEMENT
1959	1/7	3/8	13/8	17/8	4,311
1960	15/7	2/8	24/8	27/8	6,387
1961	21/7	10/8	12/8	17/8	16,619
1962	2/8*	3/8	6/8	9/8	14,508
1963	4/8	5/8	**	**	1,780
1964	23/7	26/7	16/8	25/8	18,353
1965***	20/7	19/8	3/9	8/9	1,471
1966	13/7	4/8	14/8	22/8	21,580
1967	12/7	15/7	22/7	29/7	38,801
1968	11/7	21/7	25/7	8/8	19,726
1969	8/7	12/7	19/7	1/8	11,805
1970	6/7	26/7	2/8	12/8	8,419
1971	13/7	20/7	29/7	13/8	18,523
1972	13/7	13/7	19/7	31/8	52,545
1973	11/7	25/7	31/7	7/8	2,877
1974	4/7	29/7	4/8	18/8	8,101
1975	11/7	26/7	9/8	18/8	8,159
1976	16/7	29/7	1/8	6/8	24,111
1977	7/7	12/7	17/7	11/8	42,960
1978	11/7	11/7	21/7	30/7	22,788
1979	10/7	24/7	2/8	12/8	10,211
1980	4/7	16/7	24/7	12/8	11,018
1981	1/7	17/7	25/7	4/8	50,790
1982	3/7	11/7	20/7	30/7	28,257
1983	28/6	6/7	23/7	6/8	21,256
1984	20/6	21/7	26/7	3/8	32,777
1985	29/6	19/7	1/8	7/8	67,326
1986	10/7	28/7	4/8	11/8	20,280

\* QUESTION AS TO DATE INSTALLED

\*\* DAILY COUNTS UNAVAILABLE

\*\*\* SLIDE YEAR

#### AVERAGES

1959-85	22/7	01/8	11/8	20,892
1981-85	14/7	24/7	5/8	40,081

Table 10. Minimum total run of chinook salmon in the Stikine River drainage.

Year	U. S. Gill Net Through Mid-June	Canadian Gill Net Comm & Food (Jack + Large)	Little Tahltan (Large)	Mainstem Tahltan (Large)	Beatty Creek (Large)	Andrew Creek (Large)	Total Run
1956	7,224	...	493	...	...	4,500	12,217
1957	5,703	...	199	...	...	3,000	8,902
1958	7,215	...	790	...	...	2,500	10,505
1959	8,410	...	198	...	...	150	8,758
1960	4,673	...	346	...	...	287	5,306
1961	5,222	...	...	...	...	103	5,325
1962	4,173	...	...	...	...	200	4,373
1963	203	...	...	...	...	402	605
1964	947	...	...	...	...	400	1,347
1965	1,683	...	...	85	...	...	1,768
1966	1,058	...	...	318	...	75	1,451
1967	3,466	...	800	...	...	30	4,296
1968	2,570	...	...	...	...	...	2,570
1969	1,965	...	...	...	...	...	1,965
1970	224	...	...	...	...	...	224
1971	2,078	...	...	...	...	350	2,428
1972	4,799	0	...	...	...	...	4,799
1973	5,649	200	...	...	...	61	5,910
1974	7,006	0	...	...	...	129	7,135
1975	1,534	1,024	700	2,908	...	260	6,426
1976	1,101	924	400	120	...	468	3,013
1977	274	100	800	0	...	534	1,708
1978	0	400	632	756	...	400	2,188
1979	0	1,625	1,166	2,118	...	382	5,291
1980	0	2,231	2,137	960	122	362	5,812
1981	0	1,558	3,334	1,852	558	629	7,931
1982	0	2,387	2,830	1,690	567	910	8,384
1983	0	2,063	594	453	83	444	3,637
1984	0	702	1,294	...	126	355	2,477
1985	0	2,380	1,598	1,490	147	319(F)	5,934
1986	0	3,088	1,201	1,400	183	707(F)	6,579

Table 11. Annual Taku-Snettisham (District 111) drift gillnet salmon catches in numbers of fish from 1960 to 1986.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total	Open Days	Maximum Number of Boats Fishing Any Week
1960	8,814	42,995	22,379	33,592	42,021	149,801	-	-
1961	7,483	52,927	15,743	49,256	27,276	152,685	-	-
1962	5,931	36,745	15,661	17,280	20,635	96,252	52	48
1963	2,652	24,119	10,855	21,692	20,114	79,432	66	71
1964	2,509	34,140	29,315	26,593	12,853	105,410	56	42
1965	4,170	27,569	32,667	2,768	11,533	78,707	72	36
1966	4,829	33,925	26,065	23,833	35,133	123,785	64	42
1967	5,417	17,735	40,391	12,372	22,834	98,749	53	64
1968	4,904	19,501	39,103	67,365	21,890	152,763	60	71
1969	6,986	41,169	10,802	73,927	15,049	147,933	41.5	49
1970	3,357	50,922	44,960	197,017	110,390	406,646	53	69
1971	6,958	66,181	41,830	31,484	91,145	237,598	51	82
1972	10,955	80,404	49,780	144,339	147,957	433,435	51	115
1973	9,799	85,317	35,453	58,186	109,245	298,000	40	182
1974	2,908	38,670	38,667	57,731	86,687	224,663	30.5	159
1975	2,182	32,513	1,185	9,567	2,678	48,125	15.5	109
1976	1,757	61,749	41,729	14,962	81,803	202,000	25	120
1977	1,068	70,097	54,917	88,578	61,102	275,762	27	156
1978	1,926	55,398	31,944	51,385	36,254	176,907	24	125
1979	3,701	122,148	16,194	152,836	61,197	356,076	28.8	107
1980	2,251	123,451	41,677	296,572	192,647	656,598	30.9	178
1981	1,721	49,942	26,711	254,856	76,438	409,668	29.25	165
1982	3,057	83,625	29,072	109,297	37,608	262,659	35	95
1983	888	31,821	21,455	66,239	15,264	135,667	33	62
1984	1,773	77,233	33,836	145,949	86,741	345,532	41.5	86
1985	2,644	87,199	55,251	308,982	106,291	560,367	46	108
1986	2,606	72,780	30,411	16,481	58,566	180,844	29.5	107
1960-86	4,255	55,673	31,063	89,102	58,953	239,047	42.2	98
1979-85	2,291	82,203	32,028	190,676	82,312	389,510	34.9	114
1981-85	2,017	65,964	33,265	177,065	64,468	342,779	37.0	103
Averages								

\* Preliminary data.

Table 12. Summary of Canadian Commercial Gillnet Catches, Taku River, 1979-1986.  
(Updated October 6, 1986.)

Year	Chinook Jacks	Adults	Sockeye	Coho	Pink	Chum	Steelhead	Total	Days Fished	Boat Days	Average Number Fishermen
1979		97	13578	6006	13661	15474	254	49070	50	599	12
1980		225	22602	6405	26821	18516	457	75026	39	476	12
1981		159	10922	3607	10771	5591	108	31158	31.25	242.75	8
1982		54	3144	51	202	3	1	3455	13	38	3
1983	400	156	17056	8390	1874	1760	213	29849	64	390	6
1984	221	294	27242	5357	6964	2492	367	42937	30	288	10
1985	24	326	14244	1770	3373	136	32	19905	16	178	11
1986	77	275	14739	1783	58	110	48	17090	17	148	9
Averages:											
1979-86		322.0	17197.6	4759.7	9074.6	6297.0	211.3	37862.1	35.3	331.7	9.6
1981-85		395.0	17366.0	4781.0	5745.5	2494.8	180.0	30962.3	35.3	274.7	8.6

Notes:

- a) Jacks not segregated from 1979-1982.
- b) The chinook averages = total chinook catch, i.e., includes Jacks.
- c) All averages exclude 1982, when the fishery was severely restricted.

Table 13. Total counts of Taku River - Port Snettisham weirs, 1977-1986.

Year	Speel Lake		Crescent Lake		Little Trapper Lake	Little Tatsamenie Lake		Hackett River		Nakina River
	Sockeye	Coho	Sockeye	Coho	Sockeye	Sockeye	Coho	Sockeye	Coho	Sockeye
1977			1,173	11						
1978	196	1,380	1,048							
1979		1,811	758	1,579						
1980		746								
1981		1,937								
1982		1,183								
1983	10,484	1,866	19,422		7,582					
1984	9,764		6,787	33	13,884					
1985	7,873		7,249		14,889 1/	13,815 2/	186	2,389	931	1,158
1986	5,857		3,414		13,828	11,368	88	1,884	2,773	784

1/ 12,397 sockeye were counted and an estimated additional 2,492 passed through holes in the weir.

2/ 12,788 sockeye were counted and an estimated additional 315 passed through holes in the weir.

Table 14. Peak escapement counts of chinook salmon in the Taku River tributaries.

Year	Nakina	Kowatua	Tatsamenie	Dudidontu	Tseta	Nahlin	Total
1951	5,000	...	...	400	100	1,000	6,500
1952	9,000	...	...	...	...	...	9,000
1953	7,500	...	...	...	...	...	7,500
1954	6,000	...	...	...	...	...	6,000
1955	3,000	...	...	...	...	...	3,000
1956	1,380	...	...	...	...	...	1,380
1957	1,500*	...	...	...	...	...	1,500
1958	2,500*	...	...	4,500	...	2,500	9,500
1959	4,000*	...	...	...	...	...	4,000
1960	Poor	...	...	...	...	...	Poor
1961	Poor	...	...	...	...	...	Poor
1962	...	...	...	25	81	216	322
1963	...	...	...	...	...	...	...
1964	...	...	...	...	...	...	...
1965	3,050	200 G	50 G	100	18	37	3,455
1966	...	14 G	150 G	267	150	300	881
1967	...	250 G	...	600	350	300	1,500
1968	...	1,100 E	800 E	640	230	450	3,220
1969	...	3,300 E	800 E	...	...	...	4,100
1970	...	1,200 E	530 E	10	25	26	1,791
1971	...	1,400 E	320 E	165	...	473	2,358
1972	1,000	130 G	170 G	103	80	280	1,763
1973	2,000	100 G	200 G	200	...	300	2,800
1974	1,800	235 G	120 G	20	4	900	3,079
1975	1,800	...	...	15	...	274	2,089
1976	3,000	341 G	620 E	40	...	725	4,726
1977	3,850	580 G	573 E	18	...	650	5,671
1978	1,620	490 G	550 E	...	21	624	3,305
1979	2,110	430 G	750 E	9	...	857	4,156
1980	4,500	450 G	905 E	158	...	1,531	7,544
1981	5,110	560 G	839 E	74	258	2,945	9,786
1982	2,533	289 E	387 E	130	228	1,246	4,813
1983	968	171 E	236 E	117	179	391	2,062
1984	1,887	279 E	616 E	...	176a	951b	3,909
1985	2,647	699 E	848 E	476	303	2,236	7,209
1986	3,868	548 E	886 E	413	193	1,612	7,520

a = surveyed only upper 2 miles - partial survey.

b = surveyed only above beaver dam valley - total enumerated = 521 - adjustment made for total area, using spawner distribution data collected in past years as follows: above dams = 54.8%, in dams = 23.2%, and below dams to Telegraph Trail = 22.0%.

G = water glacial.

E = water clear.

\* = counts of total river not conducted - comparison made from carcass weir enumeration.

Index Escapement Goal = 11,500 (Aerial - Nakina + Nahlin).

Survey Expansion Factor = 1/.75.

Tributary Expansion Factor = 1/.60.

Total Escapement Goal = 25,556.

Table 15. Alsek River (Dry Bay Area) Set Gillnet Catches In Numbers Of Fish From 1959 to 1986.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total	Days Open	Maximum Boats Fishing Any Week
1959	969	22,060	19,599	76	146	42,850		
1960	525	16,502	5,932	53	109	23,121	66	18
1961	2,120	23,393	7,679	84	86	33,303	80	35
1962	2,276	14,475	8,362	93	133	25,339	76	20
1963	125	5,199	7,012	12	35	12,383	72	14
1964	591	14,127	9,760	144	367	24,989	68	9
1965	719	28,487	9,638	10	72	38,926	72	20
1966	934	29,091	2,688	22	240	32,975	68	13
1967	225	11,108	10,090	107	30	21,560	68	14
1968	215	26,918	10,586	82	240	38,041	68	13
1969	685	29,259	2,493	38	61	32,536	61	19
1970	1,128	22,654	2,188	6	26	26,002	55.3	16
1971	1,222	25,314	4,730	3	120	31,389	61	15
1972	1,827	18,746	7,296	37	280	28,186	65.5	14
1973	1,754	26,515	4,395	26	283	32,973	52	27
1974	1,162	16,747	6,745	13	106	24,773	46	36
1975	1,379	13,842	2,230	16	261	17,728	58	14
1976	512	19,741	4,483	0	368	25,504	58	20
1977	1,402	40,780	11,817	689	483	55,171	57	20
1978	2,441	50,580	13,913	59	233	67,226	57	29
1979	2,525	41,449	6,158	142	263	50,537	51	38
1980	1,328	25,589	7,866	1,945	1,124	37,906	42	40
1981	761	24,680	10,614	25	472	36,552	33	21
1982	532	27,389	6,534	6	358	34,819	36	24
1983	94	18,546	5,253	20	432	24,345	37	20
1984	60	14,251	7,868	24	1,493	23,696	33	22
1985	213	5,940	5,622	3	427	12,205	33	27
1986*	478	24,791	1,344	13	462	27,088	34	26
<hr/>								
1959-85	1,027	22,718	7,465	138	305	31,653	56.7	21.5
1981-85	332	18,161	7,178	16	636	26,323	34.4	22.8

Averages

\*Preliminary

Table 16. Canadian subsistence and sport harvest of Alsek-Tatshenshini salmon, 1976-1986.

Year	-----Chinook-----			-----Sockeye-----			-----Coho-----		
	IFF	Sport	Total	IFF	Sport	Total	IFF	Sport	Total
1976	100	200	300	3500	600	4100	0	100	100
1977	100	300	400	11700	500	12200	0	200	200
1978	200	300	500	7700	500	8200	0	200	200
1979	100	200	300	3500	500	4000	0	100	100
1980	100	200	300	1100	400	1500	0	200	200
1981	100	200	300	1800	800	2600	0	100	100
1982	100	100	200	4200	800	5000	0	0	0
1983	100	500	600	2400	700	3100	0	100	100
1984	200	500	700	2400	300	2700	0	100	100
1985	150	150	300	1300	150	1450	50	100	150
1986	102	128	230	1952	329	2281	0	3	3
Averages:									
1976-86	122.9	252.5	375.5	3777.5	507.2	4284.6	4.5	109.4	113.9
1976-80	120.0	240.0	360.0	5500.0	500.0	6000.0	0.0	160.0	160.0
1981-85	130.0	290.0	420.0	2420.0	550.0	2970.0	10.0	80.0	90.0



Table 17. Gill net harvest and peak escapement counts of chinook salmon in the Alsek River.

Year							U. S.	Canadian
	Village System	Mi. 112 Creek	Klukshu System	Blanchard System	Takhanne River	Goat Creek	Gill Net Harvest	
1962	...	...	86	...	...	...	2,276	...
1963	...	...	...	...	...	...	125	...
1964	...	...	20	1	...	...	591	...
1965	...	...	100	100	250	...	719	...
1966	...	...	1,000	100	200	...	934	...
1967	...	...	1,500	200	275	...	225	...
1968	...	...	1,700	425	225	...	215	...
1969	...	72	700	250	250	...	685	...
1970	100	...	500	100	100	...	1,128	...
1971	50	60	300	...	...	...	1,222	...
1972	...	32	1,100	...	250	...	1,827	...
1973	...	...	...	...	49	...	1,754	...
1974	14	183	62	52	132	...	1,162	...
1975	17	...	58	81	177	...	1,379	...
1976	...	...	1,244 weir	...	...	...	512	300
1977	...	...	3,144 weir	...	...	...	1,402	400
1978	...	...	2,976 weir	...	...	...	2,441	500
1979	...	...	4,403 weir	...	...	...	2,525	300
1980	...	...	2,637 weir	...	...	...	1,382	300
1981	0	...	2,113 weir	35	11	...	761	333
1982	...	...	2,369 weir	59	241	13	532	200
1983	...	...	2,537 weir	108	185	...	94	600
1984	...	...	1,672 weir	304	158	28	60	700
1985	...	...	1,425 weir	232	184	...	213	300
1986	...	...	2,708 weir	556	358	142	477	...

Index Escapement Goal = 3,200 (W)  
 Survey Expansion Factor = 1  
 Tributary Expansion Factor = 1/0.64  
 Total Escapement Goal = 5,000

Table 18. Klukshu Weir Counts of Chinook, Sockeye and Coho Salmon, 1976 to 1986

YEAR	CHINOOK	SOCKEYE		COHO*
		PRIOR TO 8/15	TOTAL COUNT	
1976	1,244	181	11,691	1,572
1977	3,144	8,931	26,791	2,758
1978	2,976	2,518	26,867	30
1979	4,403	977	12,311	175
1980	2,637	1,007	11,750	704
1981	2,113	997	20,348	1,170
1982	2,369	7,674	33,699	189
1983	2,537	6,047**	20,492	303
1984	1,672	2,769**	12,727	1,402
1985	1,458	539**	18,620	350
1986	2,709	416**	24,850	71
<u>AVERAGES</u>				
1976-86	2,478	2,914	20,014	793
1981-85	2,030	3,605	21,177	683

\* Weir removed prior to completion of run.

\*\*Dry Bay fishery commenced two weeks later than in previous year.

Table 19. Preliminary estimates for required salmon escapement levels in the Canadian portion of the Stikine, Taku, and Alsek Rivers.

Species	River	U.S. Estimate	Canadian Estimate
Chinook	Stikine	19,800 <u>1/</u>	25,000
	Taku	25,600	30,000
	Alsek	7,200 <u>1/</u>	12,500
Sockeye	Stikine	58,300	65,000
	Taku	71,000	80,000
	Alsek	33,000	58,000
Coho	Stikine	38,000	50,000
	Taku	27,500	35,000
	Alsek	5,400	25,000
Pink	Stikine	5,000	6,500
	Taku	150,000	250,000
	Alsek	500	500
Chum	Stikine	3,000	10,000
	Taku	50,000	80,000
	Alsek	500	500

1/ Some differences exist between chinook escapement goals reported by ADF&G in the Transboundary and Chinook Technical reports. Resolution of these differences is expected pending a review of escapement goals currently being conducted.

Table 20. Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska's District 106-30 drift gillnet fishery, 1985.

Dates	Group	Catch By Age Class					Total	90% C.I.		Percent
		1.2	1.3	2.2	2.3	Other		Lower	Upper	
06/16-06/22 (week 25)	Alaska	65	1,382	32	320	22	1,821	1,573	2,069	71.1
	Nas/Skna	25	70	13	174	3	285	105	465	11.1
	Stikine	0	0	0	3	0	3	-65	71	0.1
	Tahltan	0	446	0	0	5	451	214	688	17.6
	Total	90	1,898	45	497	30	2,560			
06/23-06/29 (week 26)	Alaska	374	5,073	306	1,094	62	6,909	5,980	7,838	67.5
	Nas/Skna	148	1,260	124	241	16	1,789	1,019	2,559	17.5
	Stikine	0	0	0	168	2	170	-7	347	1.7
	Tahltan	0	1,353	0	0	12	1,365	449	2,281	13.3
	Total	522	7,686	430	1,503	92	10,233			
06/30-07/06 (week 27)	Alaska	189	4,176	139	296	79	4,879	4,140	5,618	64.7
	Nas/Skna	66	1,660	126	213	34	2,099	1,411	2,787	27.9
	Stikine	0	0	0	0	0	0	0	0	0.0
	Tahltan	0	549	0	0	9	558	-150	1,266	7.4
	Total	255	6,385	265	509	122	7,536			
07/07-07/13 (week 28)	Alaska	417	4,747	378	422	21	5,985	4,887	7,083	51.9
	Nas/Skna	429	4,279	261	178	18	5,165	4,154	6,176	44.8
	Stikine	0	318	0	41	2	361	-337	1,059	3.1
	Tahltan	0	0	0	19	0	19	-80	118	0.2
	Total	846	9,344	639	660	41	11,530			
07/14-07/20 (week 29)	Alaska	174	2,841	345	195	87	3,642	2,611	4,673	34.4
	Nas/Skna	242	3,150	190	389	96	4,067	2,863	5,271	38.4
	Stikine	0	17	0	0	0	17	-617	651	0.2
	Tahltan	12	2,736	0	41	67	2,856	1,457	4,255	27.0
	Total	428	8,744	535	625	250	10,582			
07/21-07/27 (week 30)	Alaska	354	5,611	707	796	76	7,544	5,866	9,222	39.2
	Nas/Skna	455	8,909	782	956	113	11,215	9,580	12,850	58.2
	Stikine	0	403	0	94	5	502	-565	1,569	2.6
	Tahltan	0	0	0	0	0	0	0	0	0.0
	Total	809	14,923	1,489	1,846	194	19,261			
07/28-08/03 (week 31)	Alaska	485	5,157	407	263	37	6,349	4,959	7,739	37.4
	Nas/Skna	859	8,856	464	384	63	10,626	9,235	12,017	62.6
	Stikine	0	0	0	0	0	0	0	0	0.0
	Tahltan	0	0	0	0	0	0	0	0	0.0
	Total	1,344	14,013	871	647	100	16,975			
08/04-08/10 (week 32)	Alaska	168	1,998	263	272	29	2,730	2,447	3,013	70.3
	Nas/Skna	94	829	98	76	12	1,109	829	1,389	28.5
	Stikine	0	0	0	46	0	46	-7	99	1.2
	Tahltan	0	0	0	0	0	0	0	0	0.0
	Total	262	2,827	361	394	41	3,885			
08/11-08/17 (week 33)	Alaska	270	1,618	342	358	52	2,640	2,265	3,015	49.9
	Nas/Skna	235	1,975	266	56	50	2,582	2,209	2,955	48.8
	Stikine	0	0	0	71	1	72	12	132	1.4
	Tahltan	0	0	0	0	0	0	0	0	0.0
	Total	505	3,593	608	485	103	5,294			
08/18-09/28 wks 34-39)	Alaska	179	1,097	224	373	17	1,890	1,568	2,212	36.9
	Nas/Skna	426	1,988	187	522	29	3,152	2,828	3,476	61.5
	Stikine	0	0	0	80	1	81	-5	167	1.6
	Tahltan	0	0	0	0	0	0	0	0	0.0
	Total	605	3,085	411	975	47	5,123			
Fishery Total	Alaska	2,675	33,700	3,143	4,389	482	44,389	41,420	47,358	47.7
	Nas/Skna	2,979	32,976	2,511	3,189	434	42,089	39,173	45,005	45.3
	Stikine	0	738	0	503	11	1,252	-189	2,693	1.3
	Tahltan	12	5,084	0	60	93	5,249	3,416	7,082	5.6
	Total	5,666	72,498	5,654	8,141	1,020	92,979			

Table 21. Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska's District 106-41 drift gillnet fishery, 1985.

Dates	Group	Catch By Age Class					Total	90% C.I.		
		1.2	1.3	2.2	2.3	Other		Lower	Upper	Percent
06/16-06/22 (week 25)	Alaska	207	5,119	129	1,941	62	7,458	6,645	8,271	77.3
	Nas/Skna	17	732	111	322	10	1,192	567	1,817	12.4
	Stikine	0	0	0	0	0	0	0	0	0.0
	Tahltan	0	985	0	0	8	993	207	1,779	10.3
	Total	224	6,836	240	2,263	80	9,643			
06/30-07/06 (week 27)	Alaska	454	7,677	423	824	57	9,435	7,454	11,416	45.2
	Nas/Skna	688	1,866	360	963	27	3,904	2,247	5,561	18.7
	Stikine	0	0	0	268	2	270	-205	745	1.3
	Tahltan	0	6,969	0	229	45	7,243	5,017	9,469	34.7
	Total	1,142	16,512	783	2,284	131	20,852			
07/07-07/13 (week 28)	Alaska	814	8,184	750	1,923	33	11,704	9,468	13,940	44.9
	Nas/Skna	885	5,285	542	1,232	23	7,967	5,729	10,205	30.6
	Stikine	0	0	0	131	0	131	-180	442	0.5
	Tahltan	0	6,251	0	0	18	6,269	3,690	8,848	24.0
	Total	1,699	19,720	1,292	3,286	74	26,071			
07/14-07/20 (week 29)	Alaska	1,294	13,612	583	1,805	89	17,383	14,357	20,409	52.2
	Nas/Skna	674	8,840	601	1,184	58	11,357	8,285	14,429	34.1
	Stikine	0	0	0	281	1	282	-133	697	0.8
	Tahltan	343	3,932	0	0	21	4,296	1,105	7,487	12.9
	Total	2,311	26,384	1,184	3,270	169	33,318			
07/21-07/27 (week 30)	Alaska	1,394	11,224	402	754	173	13,947	11,305	16,589	50.3
	Nas/Skna	714	10,658	415	1,010	161	12,958	10,512	15,404	46.8
	Stikine	0	793	0	0	10	803	-865	2,471	2.9
	Tahltan	0	0	0	0	0	0	0	0	0.0
	Total	2,108	22,675	817	1,764	344	27,708			
07/28-08/03 (week 31)	Alaska	838	10,456	911	848	105	13,158	10,426	15,890	39.3
	Nas/Skna	1,361	17,065	644	1,083	164	20,317	17,583	23,051	60.7
	Stikine	0	0	0	0	0	0	0	0	0.0
	Tahltan	0	0	0	0	0	0	0	0	0.0
	Total	2,199	27,521	1,555	1,931	269	33,475			
08/04-08/10 (week 32)	Alaska	454	3,741	474	420	72	5,161	4,433	5,889	53.5
	Nas/Skna	216	3,291	554	369	63	4,493	3,766	5,220	46.5
	Stikine	0	0	0	0	0	0	0	0	0.0
	Tahltan	0	0	0	0	0	0	0	0	0.0
	Total	670	7,032	1,028	789	135	9,654			
08/11-08/17 (week 33)	Alaska	215	2,030	273	125	4	2,647	2,079	3,215	35.6
	Nas/Skna	404	3,670	310	285	8	4,677	4,107	5,247	62.9
	Stikine	0	0	0	110	0	110	16	204	1.5
	Tahltan	0	0	0	0	0	0	0	0	0.0
	Total	619	5,700	583	520	12	7,434			
08/18-08/24 (week 34)	Alaska	170	755	142	122	18	1,207	1,023	1,391	42.0
	Nas/Skna	233	923	105	267	22	1,550	1,364	1,736	54.0
	Stikine	0	0	0	113	2	115	55	175	4.0
	Tahltan	0	0	0	0	0	0	0	0	0.0
	Total	403	1,678	247	502	42	2,872			
08/25-09/14 (wks 35-37)	Alaska	57	234	52	113	7	463	384	542	43.6
	Nas/Skna	73	382	24	60	8	547	470	624	51.6
	Stikine	0	0	0	50	1	51	8	94	4.8
	Tahltan	0	0	0	0	0	0	0	0	0.0
	Total	130	616	76	223	16	1,061			
Fishery Total	Alaska	5,897	63,032	4,139	8,875	620	82,563	76,720	88,406	48.0
	Nas/Skna	5,265	52,712	3,666	6,775	544	68,962	63,306	74,618	40.1
	Stikine	0	793	0	953	16	1,762	-52	3,576	1.0
	Tahltan	343	18,137	0	229	92	18,801	14,067	23,535	10.9
	Total	11,505	134,674	7,805	16,832	1,272	172,088			

Table 22. Estimated contribution of sockeye salmon (in numbers of fish) originating from the Taku River and Port Snettisham drainages to the District 111 gillnet fishery, 1983.

Dates	Statistical Week	Group	Catch By Age Class					Total	Percent
			1.2	1.3	2.2	2.3	Other		
6/19-25	26	Taku	51	2204	4	59	40	2358	99.6
		Snnettisham	4	0	1	6	0	11	0.4
		Total	55	2204	5	65	40	2369	
6/26-7/2	27	Taku	306	2071	29	427	104	2937	84.2
		Snnettisham	27	454	7	42	20	550	15.8
		Total	333	2525	36	469	124	3487	
7/3-9	28	Taku	438	3066	53	946	226	4729	81.9
		Snnettisham	38	850	13	94	50	1045	18.1
		Total	476	3916	66	1040	276	5774	
7/10-16	29	Taku	103	924	41	226	106	1400	66.3
		Snnettisham	135	425	10	87	54	711	33.7
		Total	238	1349	51	313	160	2111	
7/17-23	30	Taku	40	299	27	85	17	468	52.7
		Snnettisham	52	314	6	33	16	421	47.3
		Total	92	613	33	118	33	889	
7/24-30	31	Taku	272	3894	346	389	533	5434	83.6
		Snnettisham	144	650	82	89	104	1069	16.4
		Total	416	4544	428	478	637	6503	
7/31-8/6	32	Taku	297	1643	476	412	267	3095	53.4
		Snnettisham	157	2108	113	94	233	2705	46.6
		Total	454	3751	589	506	500	5800	
8/7-13	33	Taku	135	907	287	168	153	1650	71.9
		Snnettisham	32	522	6	26	60	646	28.1
		Total	167	1429	293	194	213	2296	
8/14-9/24	34-39	Taku	149	971	299	221	181	1821	75.9
		Snnettisham	36	444	6	34	57	577	24.1
		Total	185	1415	305	255	238	2398	
Total		Taku	1791	15979	1562	2933	1627	23892	1/ 75.5
		Snnettisham	625	5767	244	505	594	7735	2/ 24.5
		Total	2416	21746	1806	3438	2221	31627	

1/ 90% Confidence Interval (23006-24778)

2/ 90% Confidence Interval ( 6849-8621)

Table 23. Estimated contribution of sockeye salmon (in numbers of fish) originating from the Taku River and Port Snettisham drainages to the District 111 gillnet fishery, 1984.

Dates	Statistical Week	Group	Catch By Age Class				Total	90% C.I.		Percent
			1.2	1.3	2.3	Other		Lower	Upper	
6/17-23	25	Taku	207	2359	79	217	2862	2621	3102	97.0
		Snnettisham	25	14	44	7	90	-150	330	3.0
		Total	232	2373	123	224	2952			
6/24-30	26	Taku	359	7683	194	822	9058	8211	9905	95.6
		Snnettisham	43	238	108	26	415	-432	1262	4.4
		Total	402	7921	302	848	9473			
7/1-7	27	Taku	391	8578	224	1196	10389	9004	11774	84.3
		Snnettisham	47	1707	126	52	1932	547	3317	15.7
		Total	438	10285	350	1248	12321			
7/8-14	28	Taku	232	4858	104	1707	6901	5648	8154	67.0
		Snnettisham	290	2978	58	77	3403	2150	4656	33.0
		Total	522	7836	162	1784	10304			
7/15-21	29	Taku	306	4079	181	1850	6416	5116	7716	58.8
		Snnettisham	384	3950	101	60	4495	3195	5795	41.2
		Total	690	8029	282	1910	10911			
7/22-28	30	Taku	143	5184	692	2495	8514	7236	9792	71.2
		Snnettisham	178	2779	387	101	3445	2167	4723	28.8
		Total	321	7963	1079	2596	11959			
7/29-8/4	31	Taku	160	3698	700	2312	6870	5893	7847	72.8
		Snnettisham	200	2296	0	65	2561	1584	3538	27.2
		Total	360	5994	700	2377	9431			
8/5-11	32	Taku	133	2210	445	1134	3922	3460	4384	80.9
		Snnettisham	167	733	0	28	928	466	1390	19.1
		Total	300	2943	445	1162	4850			
8/12-9/22	33-38	Taku	78	1775	517	1351	3721	3211	4231	72.6
		Snnettisham	98	1275	0	34	1407	897	1917	27.4
		Total	176	3050	517	1385	5128			
Total		Taku	2009	40424	3136	13084	58653	55568	61738	75.8
		Snnettisham	1432	15970	824	450	18676	15591	21761	24.2
		Total	3441	56394	3960	13534	77329			

Table 24. Estimated contribution of sockeye salmon (in numbers of fish) originating from the Taku River and Port Snettisham drainages to the District 111 gillnet fishery, 1985.

Dates	Statistical Week	Group	Catch By Age Class				90% C.I.		Percent
			1.2	1.3	Other	Total	Lower	Upper	
6/16-22	25	Taku	34	2094	55	2183	1975	2391	99.9
		Snnettisham	0	0	3	3	-204	210	0.1
		Total	34	2094	58	2186			
6/23-29	26	Taku	101	1899	122	2122	1917	2327	98.6
		Snnettisham	0	21	9	30	-173	233	1.4
		Total	101	1920	131	2152			
6/30-7/7	27	Taku	105	4651	532	5288	4400	6176	92.8
		Snnettisham	86	302	24	412	-469	1293	7.2
		Total	191	4953	556	5700			
7/7-13	28	Taku	279	10184	1258	11721	9864	13578	97.4
		Snnettisham	227	0	85	312	-1534	2158	2.6
		Total	506	10184	1343	12033			
7/14-20	29	Taku	954	13421	3900	18275	15522	21028	86.8
		Snnettisham	423	2167	195	2785	52	5518	13.2
		Total	1377	15588	4095	21060			
7/21-27	30	Taku	195	5207	1998	7400	5976	8824	70.6
		Snnettisham	343	2646	100	3089	1670	4508	29.4
		Total	538	7853	2098	10489			
7/28-8/3	31	Taku	924	6774	3191	10889	9471	12307	73.7
		Snnettisham	363	3382	147	3892	2490	5294	26.3
		Total	1287	10156	3338	14781			
8/4-10	32	Taku	353	3676	2217	6246	5517	6975	82.6
		Snnettisham	10	1225	83	1318	622	2014	17.4
		Total	363	4901	2300	7564			
8/11-10/5	33-40	Taku	503	3571	5714	9788	8978	10598	80.1
		Snnettisham	15	2179	245	2439	1670	3208	19.9
		Total	518	5750	5959	12227			
Total		Taku	3448	51477	18945	73912	69770	78054	83.8
		Snnettisham	1467	11922	886	14280	10178	18382	16.2
		Total	4915	63399	19878	88192			



Table 25. Estimated contribution of sockeye salmon originating from the Taku River (Kuthai Lake, Little Trapper Lake, river spawners, Tatsamenie Lake) and Port Snettisham (Crescent Lake and Speel Lake) drainages to the District 111 gillnet fishery, 1986. PRELIMINARY

Stat Week	Stock	Age Groups			Total	Percent	Percent by Drainage	
		1.2	1.3	Other			Taku	Snettisham
25	Kuthai	165	328	13	506	78.3%	93.8%	6.2%
	Trapper	0	24	7	31	4.8%		
	River	0	13	24	37	5.7%		
	Tatsamenie	0	24	8	32	5.0%		
	Crescent	0	18	3	21	3.3%		
	Speel	0	18	1	19	2.9%		
	Total	165	425	56	646	100.0%		
26	Kuthai	497	543	73	1113	68.9%	95.2%	4.8%
	Trapper	6	139	54	199	12.3%		
	River	0	112	90	202	12.5%		
	Tatsamenie	0	19	6	25	1.5%		
	Crescent	0	7	3	10	0.6%		
	Speel	10	50	7	67	4.1%		
	Total	513	870	233	1616	100.0%		
27	Kuthai	736	705	45	1486	34.1%	87.4%	12.6%
	Trapper	19	1119	252	1390	31.9%		
	River	77	500	327	904	20.8%		
	Tatsamenie	19	0	4	23	0.5%		
	Crescent	19	334	63	416	9.6%		
	Speel	76	53	5	134	3.1%		
	Total	946	2711	696	4353	100.0%		
28	Kuthai	339	251	24	614	6.8%	88.0%	12.0%
	Trapper	142	4792	1060	5994	66.6%		
	River	148	369	414	931	10.3%		
	Tatsamenie	130	182	69	381	4.2%		
	Crescent	74	761	125	960	10.7%		
	Speel	116	0	4	120	1.3%		
	Total	949	6355	1696	9000	100.0%		
29	Kuthai	250	366	25	641	4.8%	85.2%	14.8%
	Trapper	167	4051	920	5138	38.4%		
	River	428	2725	898	4051	30.3%		
	Tatsamenie	341	941	269	1551	11.6%		
	Crescent	374	1074	242	1690	12.6%		
	Speel	263	17	14	294	2.2%		
	Total	1823	9174	2368	13365	100.0%		
30	Kuthai	23	7	0	30	0.3%	77.8%	22.2%
	Trapper	278	1979	422	2679	24.9%		
	River	0	1370	1775	3145	29.2%		
	Tatsamenie	273	1820	427	2520	23.4%		
	Crescent	40	1010	151	1201	11.2%		
	Speel	379	764	50	1193	11.1%		
	Total	803	6950	3015	10768	100.0%		

- continued -

Table 25. Estimated contribution of sockeye salmon originating from the Taku River (Kuthai Lake, Little Trapper Lake, river spawners, Tatsamenie Lake) and Port Snettisham (Crescent Lake and Speel Lake) drainages to the District 111 gillnet fishery, 1986 (continued). PRELIMINARY

Stat Week	Stock	Age Groups			Total	Percent	Percent by Drainage	
		1.2	1.3	Other			Taku	Snettisham
31	Kuthai	0	2	0	2	.0%	85.1%	14.9%
	Trapper	0	2213	534	2747	17.1%		
	River	78	3357	2866	6301	39.2%		
	Tatsamenie	932	2785	905	4622	28.8%		
	Crescent	54	553	146	753	4.7%		
	Speel	672	874	88	1634	10.2%		
	Total	1736	9784	4539	16059	100.0%		
32	Kuthai	6	58	5	69	1.3%	75.7%	24.3%
	Trapper	24	296	119	439	8.2%		
	River	59	475	875	1409	26.2%		
	Tatsamenie	203	1345	596	2144	39.9%		
	Crescent	41	579	149	769	14.3%		
	Speel	196	299	43	538	10.0%		
	Total	529	3052	1787	5368	100.0%		
33	Kuthai	3	0	0	3	0.1%	89.3%	10.7%
	Trapper	10	0	5	15	0.3%		
	River	0	985	1373	2358	47.4%		
	Tatsamenie	166	1205	696	2067	41.6%		
	Crescent	0	0	0	0	0.0%		
	Speel	221	243	66	530	10.7%		
	Total	400	2433	2140	4973	100.0%		
34 - 38	Kuthai	6	0	2	8	0.1%	73.9%	26.1%
	Trapper	18	349	367	734	11.1%		
	River	0	1118	1563	2681	40.4%		
	Tatsamenie	317	438	723	1478	22.3%		
	Crescent	0	482	283	765	11.5%		
	Speel	424	363	179	966	14.6%		
	Total	765	2750	3117	6632	100.0%		
Total	Kuthai	2025	2260	187	4472	6.1%	83.4%	16.6%
	Trapper	664	14962	3740	19366	26.6%		
	River	790	11024	10205	22019	30.3%		
	Tatsamenie	2381	8759	3703	14843	20.4%		
	Crescent	602	4818	1165	6585	9.0%		
	Speel	2357	2681	457	5495	7.6%		
	Total	8629	44504	19647	72780	100.0%		