

**PACIFIC SALMON COMMISSION
TRANSBOUNDARY TECHNICAL
COMMITTEE REPORT**

**SALMON MANAGEMENT AND ENHANCEMENT
PLANS FOR THE STIKINE, TAKU
AND ALSEK RIVERS, 1998**

REPORT TCTR (99)-1

**This plan was finalized at the April 1998 meeting of the
Transboundary Technical Committee**

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ACRONYMS

ADFG	Alaska Department of Fish and Game
DFO	Department of Fish and Oceans, Canada
DIPAC	Douglas Island Pink and Chum, Inc.
NSRAA	Northern Southeast Regional Aquaculture Association
TFN	Tahltan First Nation
TRTFN	Taku River Tlingit First Nation
CAFN	Champagne/Aishihik First Nations

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Forward

There was no Transboundary Management Plan published for 1997 due to a cancellation by the Canadian national section of the planned Transboundary Committee May 1997 meeting in Whitehorse, YT, scheduled to finalize the plans. Research plans for 1997 were finalized at the April 1997 committee meeting in Juneau, AK, and are presented in Appendix A.

INTRODUCTION

Management of transboundary river salmon to achieve conservation, allocation and enhancement objectives, as stipulated by the Pacific Salmon Treaty, requires a co-operative approach by Canada and the United States. It is important that both Parties have a clear understanding of the objectives and agree upon procedures to be used in managing the fisheries, including the criteria upon which modifications of fishing patterns will be based. This document is intended to facilitate co-operative salmon management and research on transboundary stocks of the Stikine, Taku, and Alsek rivers conducted by the Canadian Department of Fisheries and Oceans (DFO), the Tahltan First Nation (TFN), the Iskut First Nation (IFN), the Taku River Tlingit First Nation (TRTFN), the Alaska Department of Fish and Game (ADF&G), and the National Marine Fisheries Service Auke Bay Laboratory (NMFS-ABL).

The report contains, by river system and species, the 1998 salmon forecasts, spawning escapement goals, a summary of harvest sharing objectives, and an outline of management procedures to be used during the conduct of the 1998 fisheries. With the exception of Stikine sockeye salmon, for which a numerical forecast is required by the Pacific Salmon Treaty and by the Stikine Management Model and Taku River sockeye salmon, forecasts are given qualitatively, with reference to brood year escapement data where available. The report also contains joint enhancement plans for fry plants and egg collections in 1998 and proposed transboundary field projects for the year, identifying agency responsibility and contacts for the various functions within the projects.

STIKINE RIVER

Sockeye Salmon

Stock Definitions

Stikine sockeye salmon are, for management, enhancement, and monitoring purposes, subdivided into four stock groups: 1) **wild Tahltan stock** which are those fish originating from naturally spawning sockeye in Tahltan Lake; 2) **enhanced Tahltan stock** which are those fish originating from broodstock collected at Tahltan Lake and whose fry are backplanted into Tahltan Lake; 3) **Tuya stock** which are those fish originating from broodstock collected at Tahltan Lake and whose fry are backplanted into Tuya Lake; and 4) **mainstem stock** which are all remaining sockeye populations in the Stikine River. For management purposes, the collective wild and enhanced Tahltan stocks are referred to as the **total Tahltan stock** or, sometimes, just Tahltan stock.

Preseason Forecast

For 1998, the total run forecast for Stikine sockeye salmon is 218,500 fish. This forecast includes approximately 58,500 wild Tahltan sockeye (27%), 5,000 enhanced Tahltan sockeye

(2%), 111,000 Tuya sockeye (51%), and 44,000 mainstem sockeye (20%). For comparison, the recent ten-year average (1987-1996) total Stikine sockeye run size is approximately 171,000 fish. Preseason forecasts indicate a below average run in 1998 for both the wild Tahltan stock and the mainstem stock. However, for 1998 enhanced fish have added greatly to the expected run size. For most of the past ten years, enhanced fish were either not present or were in low numbers. In 1998, the expected proportion of the Tahltan run attributable to enhanced, planted fry is 7.9%; the proportion of the total Stikine run attributable to enhanced, planted fry is 53%.

The 1998 prediction is based on the following components:

1. the average of a sibling (52,000) and smolt-based (75,000) forecast for the total Tahltan stock (average = 63,500 fish of which approximately 5,000 are expected to originate from the enhanced component based on smolt data);
2. a fry-based (fry to adult survival) forecast for the Tuya run of 111,000 sockeye; and
3. a sibling-based forecast of 44,000 sockeye for the mainstem stock.

The various forecast techniques employed for Stikine sockeye suffer from a relatively short time series of data and, therefore, not surprisingly, there have been wide discrepancies between past forecasts and actual runs. Nevertheless, the 1998 forecasts are useful until we have inseason data with which to revise the forecasts.

Given an escapement goal of 24,000 sockeye for the total Tahltan stock, 30,000 for the mainstem stock, and an expected terminal escapement of 42,000 enhanced Tuya stock, the preseason forecast of total allowable catch (TAC) is 122,500 Stikine sockeye salmon. The 1998 outlook is characterized as below average for the mainstem stock, average or below average for the Tahltan stock, and strong for the return of the enhanced Tuya stock.

Tahltan Sockeye Forecast

The sibling forecast technique used for the Tahltan stock is based on the relationship between the return of age-4 fish in one year and the subsequent total run in the following year. Since enhanced Tahltan fish are free to spawn naturally each year, no distinction is made for wild versus enhanced Tahltan components in this forecast. Using data from both enhanced and wild Tahltan returns, the relationship between the return of age-1.2 (4 year olds with two years in marine waters, also designated as $4_{(2)}$) fish in one year and the subsequent total (all ages) run in the following year is described by the following equation:

$$N_t = 14,191 + 9.4693 \cdot N_{1.2,t-1} \quad [1]$$

where: N_t = total Tahltan run in year(t); and
 $N_{1.2,t-1}$ = total Tahltan age-1.2 return in year(t-1).

The return of age 1.2 Tahltan sockeye in 1997 was estimated to have been approximately 4,000 fish. Using equation [1], a run size of approximately 52,000 Tahltan sockeye is expected in 1998.

The other forecast method employed for Tahltan sockeye is based on smolt data and observed survival rates for individual age classes. Expected rates of return for 1998 age classes are follows: 6.9% of the 0.779 million age 1+ smolt counted in 1995 are expected to return as age 5(2) in 1998; 1.2% of the 1.485 million age 1+ smolt counted in 1996 expected to return as age 4(2) in 1998; 4.5% of the 42,900 age 2+ smolt counted in 1995 expected to return as age 6(3) in 1998; and 2.5% of the 74,300 age 2+ smolt counted in 1996 expected to return as age 5(3) in 1998. Using average smolt-to-adult survival rate data, the 1998 expected return is 75,000 total Tahltan sockeye. The estimated wild component of this forecast is 70,000 sockeye; the estimated enhanced portion is 5,000 sockeye.

The 1998 preseason Tahltan sockeye forecast that will be used for management purposes at the beginning of the season is 63,500 sockeye, the average of the forecasts derived from sibling relationships and smolt data. A run of this magnitude would be below the 1987-1996 10-year average of 90,478 sockeye.

Tuya Sockeye Forecast

The method employed to forecast the 1998 run of Tuya sockeye applied average sockeye fry-to-smolt and smolt-to-adult survivals observed at Tahltan Lake to the estimated number of fry outplanted in Tuya Lake in 1993 (BY1992), 1994 (BY 1993) and 1995 (BY 1994). This gave predicted returns of 7,000 age-4 sockeye, 103,500 age-5 sockeye, and 500 age-6 sockeye for a total forecast of approximately 111,000 Tuya sockeye for 1998.

Mainstem Sockeye Forecast

The method used to produce the mainstem sockeye salmon forecast for 1998 is based on a sibling-forecast technique using regression data from 1983 through 1996. Annual runs were reconstructed using marine catch estimates based on ADF&G scale pattern analysis and lower inriver catch estimates based on a variety of stock identification techniques (SPA, egg diameters, parasite frequency, electrophoretic data); the contribution of mainstem stocks to upper river commercial and aboriginal fisheries was assumed to be 10%. Mainstem escapement was calculated through the subtraction of the reconstructed inriver Tahltan run and the estimated inriver catches of mainstem sockeye from the total inriver run estimates.

Linear regression of age-1.2 mainstem sockeye salmon ($N_{1.2}$) on the following year's total run (catch and escapement, all ages) of mainstem sockeye salmon (N) for the years 1983 to 1997 yielded the following equation:

$$N_t = 26,711 + 5.7836 \cdot N_{1.2,t-1} \quad [2]$$

Based on equation [2] and a preliminary total return estimate of 3,000 age-1.2 mainstem sockeye in 1997, the 1998 sibling forecast for mainstem sockeye salmon is 44,000 fish. Relative to the 1987-1996 10-year average estimated run size of 76,662 sockeye, the 1998 mainstem sockeye component is expected to be below average.

Spawning Escapement Goals

The Transboundary Technical Committee (TTC) has established escapement goals for two of the Stikine sockeye stocks: the total Tahltan and the mainstem stocks. The Tahltan and mainstem stocks are considered to be independent; surpluses or deficits in escapement realized in one stock are not used to balance deficits or surpluses in the other. In theory, the Tuya stock, an enhanced stock with no current available spawning ground, has a spawning escapement goal of zero. In practice, since the Tahltan and Tuya stocks commingle and have the same run timing, they are harvested at the same rate as the Tahltan so as not to over harvest the Tahltan stock.

Spawning escapement goals have been established as ranges which reflect biological data regarding stock productivity, the ability of existing management systems to deliver established goals, the accuracy and precision of estimates of escapement generated by stock assessment programs, and the degree of risk considered acceptable.

Management subjective categories have been defined for various escapement levels. A postseason estimate of escapement that falls within the Green Management Category shall be considered fully acceptable; one that falls within the Yellow Management Category shall be considered acceptable but not desired; and, one that falls within the Red Management Category shall be considered undesirable. The escapement goal ranges by management category represent our best judgement of desired escapement levels.

Tahltan Stock

In 1993 the TTC established an escapement goal of 24,000 fish for the Tahltan stock, which takes into account an escapement goal of 20,000 naturally spawning fish and the approximately 4,000 fish needed for broodstock to meet the objectives of the current Canada/U.S. Stikine enhancement program. Management escapement goal ranges for the various management categories for the Tahltan stock are:

	TARGET = 24k				
Escapement	0 - 12k	13k - 18k	18k - 30k	30k - 45k	>45k
Mgmt. Category	Red	Yellow	Green	Yellow	Red

Mainstem Stock

Management escapement goal ranges for the various management categories for the mainstem stock are:

	TARGET = 30k				
Escapement	0 - 15k	15k - 20k	20k - 40k	40k - 75k	>75k
Mgmt. Category	Red	Yellow	Green	Yellow	Red

Data Exchange

The following data for the Tahltan sockeye stock will be collected and exchanged for use in evaluating escapement goals:

1. spawning escapements, separated by wild and enhanced components;
2. smolt production, separated by wild and enhanced components; and
3. stock specific catches in the various fisheries.

The following relationships for the Tahltan stock will be examined:

1. total run as a function of spawning escapement level;
2. smolt production as a function of the number of spawners and outplanted fry;
3. adult production as a function of the number of smolts; and
4. total run as a function of the return of age-4 sockeye in the previous year.

The following data for the mainstem stock will be collected and exchanged for use in evaluating escapement goals:

1. survey counts of mainstem stock escapements;
2. the mainstem stock component of catches from the various fisheries; and
3. inventory and assessment data regarding the historical pattern of distribution, abundance, and timing of spawning fish.

The following relationships for the mainstem stock will be examined:

1. total escapement as a function of survey counts of escapement;
2. total run as a function of total spawning escapements;
3. total run as a function of the return of age-4 sockeye in the previous year; and
4. relation of total run to patterns of distribution and timing.

Methodology for evaluating escapement goals is being developed by the TTC and will be used in reviewing escapement goals.

Harvest Sharing Objectives

Stock assessment and harvest arrangements for Stikine sockeye stocks are found in Annex IV, Chapter 1, of the Pacific Salmon Treaty as negotiated by the Pacific Salmon Commission in February of 1988, and in two associated joint enhancement Understandings dated February 1988 and February 1989. The 1989 Understanding states that the "Parties agree to manage the returns of Stikine River sockeye to ensure that each country obtains equal catches in their existing fisheries beginning in 1993. In 1993, 1994, and 1995, Canada may also utilize any fish surplus to escapement and broodstock requirements". The 1989 Understanding also requires that the harvest arrangement be evaluated in 1996. This evaluation is ongoing by both the TTC and the Northern Panel.

For management of Stikine harvest in 1998, the TTC interprets this statement to mean that the TAC of Stikine sockeye will be shared 50/50 between the Parties in existing fisheries (as of 1989). However, if the existing fisheries do not manage to catch the entire TAC, terminal catches in Canada taken under "Excess Salmon to Spawning Requirement" (ESSR) licenses will be allowed to avoid over escapement (relative to escapement goal ranges). The provision is being extended to 1998 in the absence of a negotiated agreement for the transboundary stocks for this year.

Management Procedures

United States

The District 106 drift gillnet fishery occurs in the waters of northern Clarence Strait and Sumner Strait, in regulatory Sections 6-A, 6-B and 6-C, and portions of Section 6-D (Figure 1). The District 108 fishery encompasses the waters surrounding the terminus of the Stikine River (Figure 1). Due to their close proximity, management of these fisheries is interrelated, resulting in some major stocks being subject to harvest by both fisheries. Two distinct management areas exist within each district: the Frederick Sound (Section 8-A) and Wrangell (Section 8-B) portions of District 108, and the Sumner Strait (Subdistricts 106-41/42) and Clarence Strait (Subdistrict 106-30) portions of District 106. Fishing gear used in Districts 106 and 108 is similar, with common sockeye net sizes of between 5 and 5 ½ inches (130-140 mm) stretched mesh, 60 meshes deep and 300 fathoms (549 m) long. The sockeye salmon fishery in both districts will be managed in accordance with recent transboundary Pacific Salmon Treaty (PST) annex provisions.

The fishing season will start at noon on Sunday, June 21 (statistical week 26) for a 48- hour open period in Districts 106. District 108 will probably open at the same time rather than open during the second week of June, as has occurred over the past three years.

Management actions during the sockeye fishing season will be based on analysis of commercial gillnet CPUE and stock identification data to determine the availability of Stikine fish. These stock abundance indicators, along with fishery performance and stock composition data obtained from Canadian commercial, test, and subsistence fisheries will be incorporated into the Stikine Management Model. As the season progresses, this model will be the primary tool used to estimate the availability of sockeye salmon for harvest by the Alaskan fishery in District 108.

Management actions to reduce the harvest of Stikine sockeye salmon are expected in 1998 because of the small forecasted run size of Tahltan and mainstem sockeye, relative to the past five years. If inseason forecasts of run strength indicate that conservation actions are needed, the following measures could be implemented: no mid-week openings, no extensions to the early week openings, restrictions in fishing time in District 108, closure of District 108, time restrictions in Sumner Strait, and, finally, closure of Sumner Strait. If the sockeye runs to local Alaskan island systems are determined to be weak, area and time restrictions may be necessary in District 106.

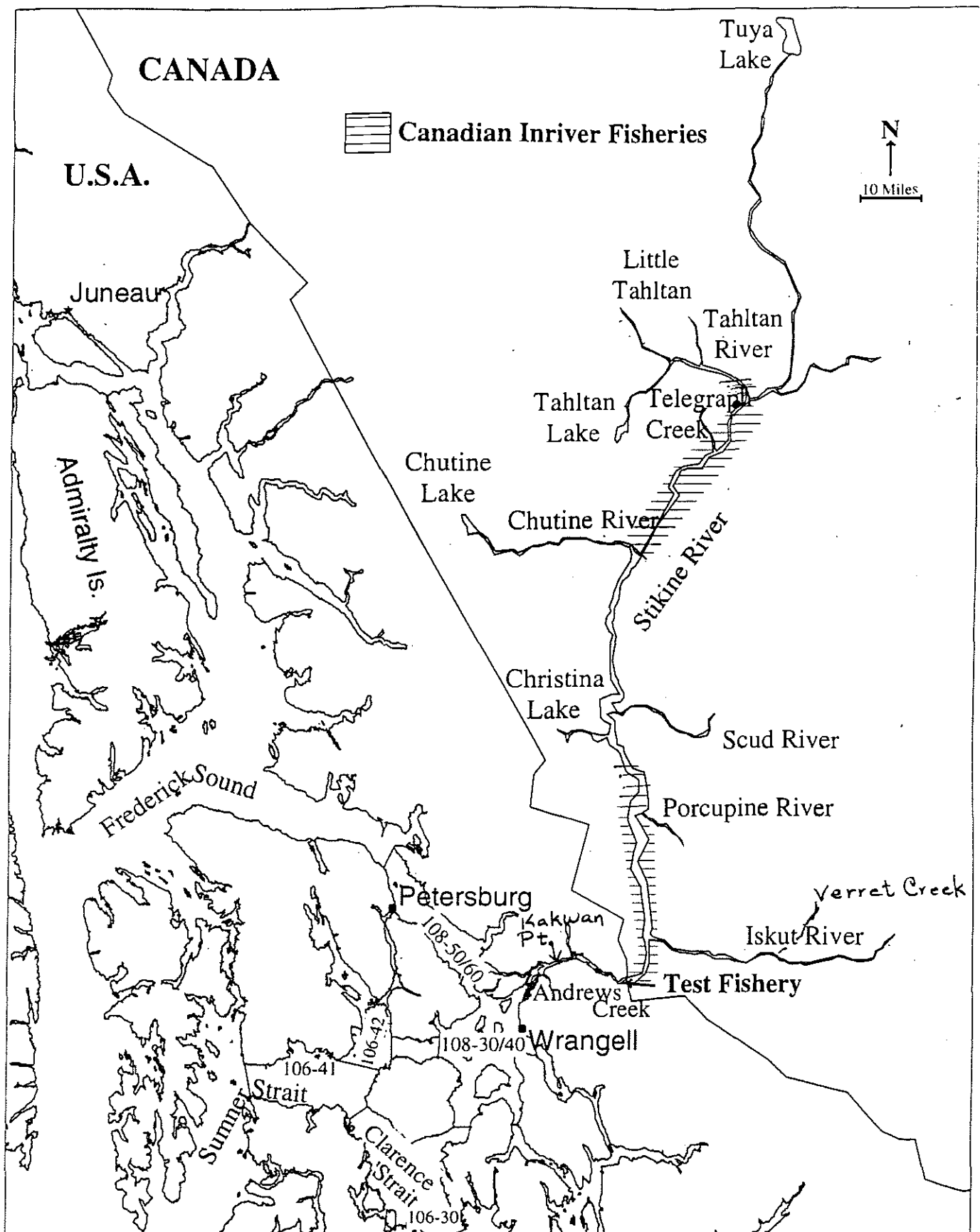


Figure 1. The Stikine River and principal U.S. and Canadian fishing areas.

Should the Tahltan sockeye run appear to be stronger than projected, then fishery extensions and/or mid-week openings will be allowed as necessary to harvest surplus sockeye while meeting the provisions of the PST Transboundary annex. Any such openings or extensions will be based upon the most recent Stikine sockeye model update and the cumulative estimated U.S. harvest. Open areas and fishing time during mid-week openings may not necessarily be the same as the general weekly openings if adjustments are needed to reduce chinook salmon or other species catches.

Weekly announcements for fishery openings throughout Southeast Alaska are made on Thursday afternoons for gillnet fisheries, which begin the following Sunday. Announcements for any mid-week openings will be made on the fishing grounds by 10:00 a.m. of the last day of the regular fishery opening in order to adjust the mid-week period to best follow the most current catch data.

The area adjacent to the Stikine River mouth of the sockeye season will be closed through early July to reduce the incidental harvest of Stikine chinook. Due to the late opening of the gillnet season on June 21, the expected reduced fishing times in District 108 and the expected good run of upper Stikine chinook, the area restrictions during initial openings, implemented over the past three years, will generally be reduced. If fishing effort and the incidental harvest of chinook is high during the first opening then additional area restrictions will again be implemented. To avoid harvesting chinook salmon, the Stikine flats will not open until the first Sunday in July.

Pink salmon should begin entering District 106 in significant numbers by the third or fourth week of July. The early portion of the pink salmon fishery will be managed primarily on CPUE. By mid-August, pink salmon destined for local systems will begin to enter the fishery in greater numbers and at that time, management will be based on observed local escapements. In District 108, chum salmon runs into Frederick Sound are a management consideration beginning the end of June. Chum salmon run strength assessments are based upon CPUE in test and commercial fishery catches.

The coho salmon season will occur during late August and early September. Limited directed fishing in terminal areas is anticipated in District 108. Management of the District 106 fishery will be based predominantly on wild stock CPUE. Substantial contributions from several Alaskan hatcheries are expected to contribute coho salmon in the District 106 and 108 fisheries. Inseason estimates from coded wire tag recovery data will be used to identify the hatchery component of the catch. Only the catch of wild coho will be used for fishery performance evaluation.

Troll fishery regulations for the 1998 experimental chinook fisheries in Frederick Sound and Stikine and Clarence Straits are similar to those used in 1997. During the period May 4 to 31, the experimental fishery in the District 110 portion of Frederick Sound will encompass the waters of District 110 south and east of a line extending from near Turnabout Island to Hobart Bay, and north and west of a line from Boulder Pt. (east entrance to Portage Bay) to Point Highland (north of Farragut Bay). For the remainder of the experimental openings the District 110 area will be expanded southward to the southern boundary of District 110. The District 109 experimental areas along the Kuiu Is. shoreline at Kingsmill Pt. and along the southern Admiralty Is. shoreline east of Pt. Gardner is also in effect in 1998 from May 4 to June 24. A new

experimental fishery was established in the waters of Tebenkof Bay in Lower Chatham Strait. A new experimental area was also established in District 107 that expands the Earl West Cove area west to the longitude of Babbler Pt. The District 107 area will be open beginning May 18.

There will be a news release each Friday throughout the spring experimental fisheries announcing the number of open fishing days for the following week. The summer general chinook fishery is still being formulated and the details are not available at this time.

A personal use fishery in U.S. portions of the Stikine River will be open in 1998 as in recent years. Fishing will be allowed in the main channel of the river between the ADF&G cabin at Kakwan Point upstream to the Canadian border. The fishery is structured to allow the harvest of Tahltan sockeye salmon while limiting the harvest of other sockeye stocks and species. The fishery will be open only from July 1 to July 15, with a limit of 25 sockeye salmon per permit. This fishing period coincides with the peak of the Tahltan sockeye run in the lower river. Gillnet gear restrictions will include a maximum 5 ½ inch stretched mesh size and 15 fathom net length.

A subsistence drift gillnet fishery targeting sockeye salmon and encompassing the waters of Sumner Strait near Point Baker will again be allowed in 1998. The fishery is permitted in the waters of Sumner Strait within three nautical miles of the Prince of Wales shoreline north of "Hole-in-the-Wall" at 56°15'42" N. Lat. and west of the longitude of the western entrance to Buster Bay at 133°29' W. Long. The fishery is restricted to Alaska residents only and will be open each week from Thursday through Saturday during the period June 15 through July 31, with a limit of 25 fish (of any salmon species) per family per year. Gillnet gear restrictions include a maximum net length of 50 fathoms. It is anticipated that approximately 500 sockeye will be harvested in this fishery.

Canada

The Canadian lower Stikine River commercial fishery (Figure 1) will be managed on a weekly basis with management actions driven by results of stock, catch, and escapement projections derived from the Stikine Management Model. Weekly inputs to the model will include: effort data and stock specific catch from Alaska Districts 106 and 108; catch, effort and inseason stock composition data from the Canadian lower Stikine commercial and test fishery; and escapement requirements.

The lower river commercial fishery will open June 14 (statistical week 25). Consideration for Tahltan sockeye stock management objectives should persist from the fishery opening, 12:00 noon June 14, to the end of July. Thereafter, management attention will be focused primarily on mainstem stock objectives. Actual time frames of responses to specific stock compositions will be fine-tuned inseason according to the weekly results of the stock identification program.

The achievement of escapement objectives is the foremost priority in management considerations. Inriver allocation priority will be to fulfill the requirements of the traditional aboriginal fishery. The commercial fisheries, therefore, will be managed to accommodate these fundamental priorities. The area of most intense management will be within the lower Stikine commercial fishery.

Fishing time in the lower Stikine fishery will depend upon stock assessment and international and domestic catch allocation considerations. Fishing periods will be adjusted accordingly. As in recent years, the use of two gillnets, of which only one may be a drift gillnet, will be permitted from the start of the fishing period each week. The maximum allowable net length will remain at 135 meters and there will be a maximum mesh size restriction of 150 mm through mid July to conserve chinook salmon. Fishing boundaries will remain unchanged from those established in 1997, i.e., from the international border upstream to boundary markers located near the Stikine-Flood River confluence, and in the Iskut River to a marker located approximately 2 km upstream from the mouth. In 1997 the upstream fishery boundary in the Stikine River was moved approximately 25 km upstream to increase the available fishery area over previous years. Prior to 1997 the boundary was located near the Stikine-Porcupine confluence.

In the upper Stikine commercial fishery, fishing times will generally follow those of the lower river lagged by one week. As in past years, weekly fishing times in the aboriginal fishery will not normally be restricted.

Restrictive management responses that could be used to reduce the sockeye harvest in the lower Stikine commercial fishery, in order of implementation, include: reducing fishing time, the major tool used in the regulation of the fishery; and, reducing the fishing area by relocating boundaries to protect isolated spawning populations. In the aboriginal fishery, reductions in fishing time would be considered only if no other adjustments could be made in the lower and upper river commercial fisheries.

In the event that a more liberal management regime is justified, extensions to fishing time in the commercial fisheries would be granted, dependent on stock specific escapement and catch considerations.

Summary

Attainment of escapement goals for both the Tahltan and mainstem stocks is the primary objective of Stikine sockeye management. Harvest sharing will be based upon the TAC projections derived from the Stikine Management Model. The TAC estimates will likely change from week to week as the model forecasts a new total run size from the cumulative CPUE each week. Variations in the TAC estimate will likely be larger early in the season, when CPUE is high, than later in the season. Management actions will reflect these week-to-week changes in the TAC estimates. Fishery managers from both countries will keep in weekly contact in order to evaluate the output from the Stikine Management Model and the outcome of their respective management actions.

Inseason Data Exchange and Review

Canada and the U.S. will conduct data exchanges by telephone on Wednesday afternoon or Thursday morning of each week during the fishing season. At that time, current catch statistics and stock assessment data will be updated, exchanged, and reviewed. Management plans for the

next week for each country will be discussed at this time. It is anticipated that additional communications will be required each week. Weekly decision deadlines will be: a) for Districts 106 and 108, 11:00 a.m., Thursday, Alaska Daylight Time; and, b) for the Canadian Stikine fishery, 10:00 a.m., Friday, Pacific Daylight Time. A final weekly summary of the fisheries will be conducted Friday afternoon through a conference call between management offices of DFO and ADF&G.

DFO and ADF&G field personnel will work out an acceptable schedule for the delivery of otolith samples from the lower Stikine River after the fisheries start in June.

Stock Assessment Program

This section summarizes agreements regarding the data which will be collected by each National Section and, when appropriate, procedures that will be used for analysis.

Catch Statistics

The U.S. shall report catches and effort in the following strata for each statistical week:

1. Subdistricts 106-41&42 (Sumner Strait);
2. Subdistrict 106-30 (Clarence Strait); and
3. District 108.

Canada shall report catch and effort statistics in the following strata for each statistical week:

1. the lower river commercial fishery;
2. the upper river commercial fishery;
3. the aboriginal fishery;
4. the lower Stikine River test fishery conducted near the international border.

In addition, ESSR fishery catches will be reported as data become available.

Age Composition of Sockeye in Catches

Scales will be collected and used to age fish. Associated fish length and sex composition data will also be collected. The U.S. shall provide scale samples from Subdistricts 106-41&42, Subdistrict 106-30 and District 108 for each fishing week. Canada shall provide scale samples, matched with length and egg diameter data, collected from the lower river commercial and test fisheries each week. Scale samples may be collected from the upper river commercial and subsistence fisheries; if not, samples collected at the Tahltan Lake weir will be used to characterize the age composition of catches of sockeye salmon in the upper river. Scale impressions will be available to ADF&G.

Stock Composition of Alaska Catches

During the season, the catch of Tahltan and mainstem sockeye in District 106-41/42, and 108 will be based on historical relationships between district-specific harvest rates and run size. For District 106-30 catches, the Tahltan and mainstem contributions to the catch will be based on

historical average contributions from 1986-1997. Catch projections for all marine gillnet districts will be made based on historical migratory timing data. Once stock composition estimates become available from the district and inriver fisheries from thermal mark analyses, catch data will be updated with actual estimates based on inseason results. To do this, the contribution of the Tahltan and mainstem components relative to the Tuya component observed inriver will be used to develop revised stock specific catch estimates for the districts in the previous week.

After the fishing season, SPA will be used to recalculate actual contributions of Tahltan and mainstem sockeye stocks to the catches made each week in each subsection of District 106 (Clarence Strait and Sumner Strait), and District 108. Scales will be collected inseason and the desired sample size from each of these strata is 600 fish per week. It is recognized that small catches in District 108 may preclude temporal stratification at the desired level. A test fishery may be conducted in District 108 to assess run strength and stock composition if the commercial fishery is not open. If test fisheries occur, samples will be collected for stock assessment.

To evaluate the contribution of enhanced sockeye to Alaskan gillnet catches, 400 otolith samples will be collected per week in District 108, and 300 otolith samples will be collected from each sub-area in District 106 for inseason analyses. Besides indicating the relative strength of the enhanced Stikine stocks, results from the otolith sampling will also serve as a check on the validity of the stock composition estimates used to apportion catches in District 106 and 108 in the SMM.

Stock Composition of the Inriver Canadian Catch

Egg diameter data will be used inseason to estimate the combined Tahltan and Tuya component versus the mainstem contribution to the lower river sockeye catches during the fishing season. Tahltan fish generally have smaller diameter eggs compared to mainstem fish. The Tuya component will be determined from the analysis of otolith samples collected each week. Weekly sampling targets are 150 matched egg diameter, scale, and otolith samples and 50 otolith samples matched with scales from male fish. ADF&G will analyze the thermal marks from a subsample of at least 60 fish each week. Arrangements will be made prior to the beginning of the season to ensure timely transfer of samples and notification of results for use in management decisions no later than the week following when the samples are collected.

This will also be the data used postseasonally in conjunction with results from additional thermal mark analyses to estimate Tahltan wild and enhanced, and Tuya enhanced contributions. A total of 350 sockeye salmon will be randomly sampled each week for scales, size and sex. It is necessary to match the scale and egg data by fish to develop postseason stock-specific age-composition estimates, and for the development of postseason scale pattern standards.

Stock Composition and Run Timing in the Canadian Test Fishery

The proportions of Tahltan/Tuya and mainstem sockeye salmon in test fishery catches in the lower Stikine River will be estimated inseason in a similar manner to the commercial fishery.

All sockeye caught using test fishery gear will be sampled for scales and all females for egg diameter (data to be matched with scale samples). If available, up to 150 otoliths matched with scales and egg diameters (for females) will be collected. If the commercial fishery does not open in any one week, samples will be transferred to ADF&G, as per the arrangements made for the commercial samples, for inseason analysis. Additional sampling requirements will include the collection of spaghetti tags applied in the chinook mark-recapture program, and heads from any fish exhibiting adipose clips.

The postseason, sockeye stock composition estimates will be based on egg diameter data and associated thermal mark analyses. As per the commercial fishery, the enhanced portion of the catch will be determined postseasonally from otolith samples.

Spawning Escapement Estimates

An adult enumeration weir will be used to determine the Tahltan sockeye escapement. The age composition will be estimated from scale samples and enhanced sockeye contributions will be determined from otolith samples. Approximately 800 fish will be sampled during the season for scales, length, and sex; 400 otolith samples will be taken at the weir and an additional 400 otolith samples from the spawning grounds. The mainstem escapement will be estimated postseasonally using migratory timing information obtained from CPUE and stock ID data from the commercial and/or test fishery, combined with weekly stock compositions estimated from the commercial and/or test fishery catches. Tuya escapement will be calculated postseasonally in a similar way.

Postseason SPA Standards

Scale pattern standards for Tahltan and mainstem sockeye stocks will be made from scale samples collected inriver. For the Tahltan stock, samples will be taken from both male and female sockeye at the Tahltan Lake weir, and from female sockeye caught in the lower river fisheries having small-diameter eggs. For the mainstem stock, samples will be taken from female sockeye caught in the lower river fisheries having large-diameter eggs. Standards for classifying marine catches will therefore be developed from scale samples collected from the Tahltan Lake weir and from both the commercial and test fishery catches in Canada.

Since the weekly proportion of Tahltan to mainstem sockeye salmon in the commercial or test fishery is used postseasonally to determine both the proportion of these two stocks in the entire run, and, the mainstem escapement, it is important to get the best estimate possible. It is agreed that egg diameters from both the commercial and test fishery sampled fish will be used to determine stock proportions in the test fishery catches for both inseason and postseason analyses.

Data Evaluation Procedures

Historical Database

Although Canadian commercial fishing began in the Stikine River in 1975, the methodology for estimating sockeye run sizes was not well standardized until 1982. Therefore, estimates of run

size after this time are considered to be better than those made prior to 1982. The historical database from 1985 to 1997, used as input to the Stikine Management Model for 1998, is presented in Tables 1 to 4. The 1998 run size estimated by the model at the end of the fishing season will be updated in the fall of 1998 using postseason stock composition data for use in the database in future years.

Stikine Management Model

A model based on the linear relationship between CPUE and run size has been constructed and updated to make weekly inseason predictions of the total run and the TAC during the 1998 season. A description of the original model is given in the Transboundary Technical Committee Report: **TCTR (88)-2, Salmon Management Plan for the Transboundary Rivers, 1988**. The purpose of the model is to aid managers in making weekly harvest decisions to meet U.S./Canada treaty obligations for harvest sharing and conservation of Stikine sockeye salmon.

The model for 1998 is based on CPUE data from 1985 to 1997 from District 106 and the Canadian commercial fishery in the lower river and from 1987 to 1995 from the lower Stikine test fishery. Linear regression is used to predict run size from cumulative CPUE for each week of the fisheries beginning in week 26 for the District 106 fishery and in week 25 for the lower river fishery and the test fishery. The parameters from the linear regressions are presented in Table 5. In the past, three sets of CPUE data have been used to predict the total run. These include:

1. The District 106 cumulative CPUE of Stikine sockeye stocks is used to predict the total run of Stikine sockeye.
2. The cumulative CPUE from the Canadian lower river commercial fishery is used to predict the inriver Stikine sockeye run. The total run is then determined as the inriver run plus the estimated total season catch of Stikine sockeye salmon in District 106 and 108. District catches will be determined from inseason model estimates of weekly Stikine catches for past weeks and using average migratory timing to determine catch for the remainder of the season.
3. Starting in 1995, the cumulative CPUE from the Canadian test fishery has been used to predict the inriver Stikine sockeye. The inriver run estimate was expanded as per item 2 above to project total run size.

The 1998 inseason model predictions of the sockeye run will be based on the second method as described above since weekly regressions of CPUE on run size using the inriver data usually have higher coefficients of correlation compared to those based on the District 106 and test fishery CPUE data for corresponding weeks (Table 5). Run size predictions based on the District 106 data and the test fishery data will continue to be made to verify inseason estimates and provide postseason comparisons.

The TAC of Stikine sockeye salmon for the 1998 season will be determined each week from run size estimates (run size minus escapement goal) according to the following schedule:

1. prior to week 27 (<June 28): the preseason forecast of run size will be used;
2. weeks 27 and after (June 28 to end of season): estimates of run size will be determined each week from the cumulative CPUE of sockeye salmon in the lower river commercial fishery. In the event that the commercial fishery is closed for a given week, the CPUE data from the lower Stikine test fishery will be used. In this case, the average test fishery CPUE from Monday through Wednesday will be used and translated into a comparative commercial CPUE value from the regression of past years commercial on test CPUE.

Separate projections of run size will be made for the total Stikine sockeye run (wild plus enhanced), Tahltan stock (wild plus enhanced), the enhanced Tuya stock, and the mainstem stock. This information will be used inseason to help management and, postseasonally, to help evaluate the performance of the model.

The part of the model that determines total and weekly TAC levels for the U.S. and Canadian fisheries has been formulated in EXCEL 5.0 for use inseason by the fishery managers. This part of the model uses the coefficients from the linear regression model, the established escapement goals, and PST provisions of harvest sharing to determine the total TAC for each country. Estimates of weekly TAC and effort are provided as guidelines for the managers and are derived from the 1985-1997 average run timing of the stocks and the corresponding average CPUE levels of each fishery.

Inseason Use

For 1998, the model predictions will set the TAC levels; however, managers may use additional information on which to make decisions on the openings of their respective fisheries. They will evaluate the output of the model and look for discrepancies with other information they may have on run strength. The information and evaluation will be used to improve the model for the next year.

Postseason Evaluation

After the fishing season is over, the Transboundary Technical Committee will evaluate how well the model performed in predicting the entire run, where discrepancies occurred, and what might have caused them. The committee will also determine whether escapement goals were met according to the Spawning Escapement Goals section of this report. This information is presented in the annual catch and escapement reports prepared by the committee. For 1997, the preliminary evaluation may be found in: **Preliminary Estimates of Transboundary River Salmon Production, Harvest, and Escapement and a Review of Joint Enhancement Activities, 1997**, Transboundary Technical Committee, January, 1998³. The summarized output of the Stikine Management Model during the 1997-fishing season is presented in Table 6.

³ This report will be finalized within about a year's time and published in the PSC series.

Coho Salmon

Preseason Forecast

A qualitative prediction of the 1998 run of coho salmon is that it will be below average in magnitude. This outlook is based on the test fishery CPUE, or extrapolated Stikine test fishery CPUE, of coho salmon in the two principal brood years, 1994 and 1995. Based on a comparison of test fishery CPUE for coho versus CPUE for sockeye, the latter which is well correlated with the inriver sockeye run size, the coho escapement was judged to be above average in 1994 but below average in 1995. The escapement in 1994 was estimated to have been within the interim escapement goal range of 30,000 to 50,000 coho, whereas, in 1995, it did not appear the escapement goal range was achieved.

Escapement Goal

The interim escapement goal range for Stikine coho salmon is 30,000 to 50,000 fish.

Harvest Sharing Objectives

The Pacific Salmon Commission and the governments of Canada and the U.S. are currently negotiating short-term harvest arrangements for 1998. If these negotiations are successful, the new harvest sharing arrangements will be followed.

Stock Assessment Program

Each country shall:

1. report catch statistics for the same strata as sockeye salmon are reported;
2. sample its fisheries for appropriate tags, e.g., spaghetti and/or coded-wire tags; and
3. conduct escapement programs as resources permit.

Management Procedures

United States

If there is a conservation concern, the District 108 fishery will be restricted.

Canada

If there is a conservation concern, the Canadian fishery will be restricted.

Chinook Salmon

Preseason Forecast

The Little Tahltan chinook weir count in 1992, the primary contributing brood year for the 1998 run, was 6,600 large chinook, above the 1987-1996 of 5,535 chinook and 25% above the interim escapement goal of 5,300 chinook for this system. The escapement in 1993, which should also contribute significantly to this year's run, was a record 11,400 chinook. On average, age-6 chinook account for 72% of the age composition of Little Tahltan chinook whereas, age-5 fish comprise 20%. The above-average primary-parent year escapements in 1992 and 1993 suggest that the 1998 chinook run to the Stikine River will be above average.

As a cautionary note, the number of jack chinook through the weir in 1997 was well below average, only 54 jacks in 1997 compared to an average of 222 jacks. Although the database regarding the relationship between jack returns and subsequent cohort returns is insufficient to draw conclusions at this time for the Little Tahltan stock, significant relationships exist for chinook stocks in other drainage systems.

Escapement Goal

The interim index escapement goal is 5,300 chinook salmon (excluding jack chinook) through the Little Tahltan River weir. Management systems have not yet evolved to actively target chinook escapement goals; both countries have adopted conservative management plans with respect to chinook salmon until the rebuilding program and interim escapement goal have been evaluated.

Harvest Sharing Objectives

Both parties are to take appropriate management actions to ensure that escapement goals for chinook salmon bound for the Canadian portions of the Stikine River are achieved in 1998.

Management Procedures

United States

Initial openings in District 108 will be restricted to the outer areas of the district in order to minimize the interception of adult chinook salmon. Chinook salmon catches will also be a management concern in District 106 throughout the season and, if large numbers of small feeder chinook are caught, night closures will be instituted.

Canada

Chinook will be harvested in the commercial fisheries incidentally during the early sockeye fishery. Mesh size restrictions (maximum 150 mm) will be in effect through mid-July to conserve chinook salmon.

Stock Assessment Program

Each country shall:

1. report catch statistics for the same strata as sockeye salmon are reported;
2. sample its fisheries for coded-wire tags; and
3. conduct escapement programs as resources permit.

Table 1. Stikine sockeye run sizes, 1985 to 1997. The 1997 estimates are preliminary.

Year	Inriver Run Size	Inriver Catch	Escape- ment ^a	Marine Catch	Total Run
1985	184,747	26,804	157,943	29,747	214,494
1986	69,036	17,846	51,190	6,420	75,456
1987	39,264	11,283	27,981	4,077	43,342
1988	41,915	16,538	25,377	3,181	45,096
1989	75,054	21,639	53,415	15,492	90,546
1990	57,386	19,964	37,422	9,856	67,242
1991	120,152	25,138	95,014	34,199	154,351
1992	154,542	29,242	125,300	77,394	231,936
1993	176,100	52,698	123,402	104,630	280,730
1994	127,527	53,380	74,147	80,509	208,036
1995	118,611	66,777	51,834	75,078	193,689
1996	184,400	90,148	94,252	188,385	372,785
1997	125,657	68,197	57,460	101,258	226,915
Tahltan sockeye run size					
1985	86,008	18,682	67,326	25,197	111,205
1986	31,015	10,735	20,280	2,757	33,771
1987	11,923	4,965	6,958	2,255	14,178
1988	7,222	4,686	2,536	2,129	9,351
1989	14,110	5,794	8,316	1,561	15,671
1990	23,923	8,996	14,927	2,307	26,230
1991	67,394	17,259	50,135	23,511	90,905
1992	76,681	16,774	59,907	28,218	104,899
1993	84,068	32,458	51,610	40,036	124,104
1994	77,239	37,728	39,511	65,101	142,340
1995	82,627	51,050	31,577	56,028	138,655
1996	95,706	57,545	38,161	147,435	243,141
1997	37,319	25,214	12,105	43,408	80,727
Tuya sockeye run size					
1995					2,802
1996					38,600
1997					66,258

^a Escapement includes fish later captured for broodstock.

Table 2. CPUE for all sockeye salmon and the proportion of Tahltan stock in the catch from the Canadian lower Stikine River commercial fishery from 1985 to 1997.

For periods when the fishery was closed, values were filled in with averaging and interpolation techniques (these values are italicized and underlined in the table). Estimates for 1997 are preliminary.

Week	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Inriver Commercial Fishery CPUE on all sockeye:													
25	<u>3.2</u>	<u>1.7</u>	<u>1.2</u>	<u>1.6</u>	<u>2.0</u>	<u>1.9</u>	<u>2.1</u>	<u>3.1</u>	<u>3.2</u>	<u>3.0</u>	<u>2.9</u>	<u>4.2</u>	3.3
26	67.6	2.8	<u>17.8</u>	<u>24.2</u>	25.5	13.0	14.8	<u>47.5</u>	<u>49.7</u>	<u>45.9</u>	79.9	119.2	57.8
27	<u>108.9</u>	18.8	11.9	21.8	48.1	49.6	120.3	111.1	163.2	45.2	123.2	312.2	150.1
28	100.1	79.8	10.6	35.5	23.1	78.6	121.0	155.0	185.4	164.6	126.0	224.4	130.0
29	260.0	58.1	57.9	69.2	105.5	110.3	114.4	144.0	135.4	147.6	120.1	142.2	90.7
30	147.9	84.7	67.8	71.9	140.8	81.4	53.7	166.0	118.3	145.5	106.5	142.6	131.5
31	104.7	81.9	27.6	61.9	73.9	62.1	83.8	88.3	71.6	111.0	86.0	74.9	128.7
32	73.6	55.6	76.6	89.2	60.8	54.4	31.6	91.5	83.7	81.8	51.3	54.1	90.5
33	58.6	34.1	32.3	33.3	28.4	16.2	15.7	43.2	31.1	42.4	26.3	29.4	21.7
34	18.2	25.9	16.5	23.1	16.4	12.4	1.0	12.5	39.3	32.5	19.1	7.7	25.9
35	10.3	9.4	5.4	11.0	6.2	13.1	4.2	4.5	11.5	10.3	11.7	2.3	12.6
Tahltan as proportion of catch													
25													0.833
26	0.890	0.730			0.650	0.730	0.800				0.970	0.808	0.632
27		0.770	0.740	0.770	0.490	0.800	0.830	0.870	0.793	0.944	0.921	0.731	0.544
28	0.900	0.830	0.880	0.690	0.380	0.690	0.860	0.780	0.831	0.881	0.814	0.555	0.346
29	0.790	0.730	0.660	0.420	0.210	0.350	0.750	0.550	0.677	0.793	0.665	0.429	0.321
30	0.420	0.520	0.240	0.270	0.030	0.250	0.370	0.240	0.464	0.631	0.440	0.256	0.183
31	0.290	0.190	0.110	0.100	0.020	0.060	0.120	0.260	0.342	0.426	0.261	0.201	0.180
32	0.200	0.090	0.050	0.040	0.020	0.030	0.080	0.090	0.149	0.253	0.157	0.125	0.163
33	0.200	0.020	0.040	0.070	0.020	0.030	0.000	0.020	0.073	0.126	0.134	0.102	0.121
34	0.000	0.010	0.070	0.090	0.020	0.030	0.000	0.000	0.166	0.063	0.130	0.037	0.030
35	0.000	0.010	0.080	0.000	0.000	0.000	0.000	0.000	0.000	0.024	0.000	0.000	0.050

Table 2. continued.

Week.	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Tuya as proportion of catch													
25													0.000
26											0.000	0.122	0.279
27											0.030	0.128	0.339
28											0.044	0.164	0.489
29											0.012	0.102	0.237
30											0.010	0.063	0.136
31											0.000	0.013	0.133
32											0.000	0.026	0.120
33											0.000	0.000	0.089
34											0.000	0.037	0.022
35											0.000	0.000	0.037

Table 3. CPUE of all sockeye salmon and the proportion of Tahltan and mainstem stocks in the catch from the U.S. District 106-41/42 commercial fishery from 1985 to 1997.

For periods when the fishery was closed, values were estimated using averaging and interpolation techniques (these values are italicized in the table). Estimates for 1997 are preliminary.

Week.	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
District 106-41 Commercial Fishery: All Sockeye Stocks													
25	91.0	14.1	<i>42.6</i>	<i>34.0</i>	46.8	29.2	51.4	<i>40.3</i>	<i>41.8</i>	<i>47.1</i>	53.9	29.8	40.0
26	<i>106.1</i>	16.9	29.1	22.9	51.9	33.6	117.0	56.6	27.4	61.2	72.9	200.8	99.2
27	162.9	62.9	52.2	58.7	66.1	78.2	52.9	110.2	95.6	96.8	61.1	77.6	96.1
28	173.8	<i>66.2</i>	103.9	66.8	147.1	83.4	98.1	108.8	96.9	131.2	111.3	60.6	64.7
29	114.5	<i>67.4</i>	83.9	103.6	109.4	116.1	73.5	111.4	109.7	165.1	76.6	124.7	60.0
30	110.0	100.5	155.9	87.6	89.4	176.9	95.5	103.6	94.2	104.8	125.3	105.4	70.3
31	293.6	105.7	106.6	59.3	93.4	78.4	74.1	70.2	99.3	95.3	95.3	96.2	53.9
32	69.0	82.1	115.4	92.2	36.2	45.1	40.0	59.6	87.6	47.3	98.3	73.5	25.0
33	100.5	60.1	88.3	67.6	33.5	30.6	65.4	41.0	55.1	65.3	58.5	37.1	30.0
34	37.8	28.3	<i>25.9</i>	20.5	7.7	12.3	16.6	21.3	40.4	36.6	25.8	18.1	34.3
35	12.0	8.6	3.4	11.0	2.9	4.1	4.4	15.8	15.0	9.8	6.9	8.4	30.3
Tahltan as proportion of catch													
25	0.103	0.000			0.032	0.018	0.231				0.390	0.436	0.173
26		0.020	0.013	0.085	0.085	0.026	0.396	0.438	0.460	0.466	0.424	0.672	0.280
27	0.347	0.090	0.013	0.071	0.027	0.025	0.256	0.180	0.410	0.501	0.391	0.459	0.231
28	0.240		0.051	0.050	0.000	0.012	0.099	0.140	0.313	0.380	0.130	0.343	0.160
29	0.129		0.008	0.011	0.000	0.008	0.012	0.030	0.162	0.179	0.018	0.169	0.066
30	0.000	0.000	0.008	0.006	0.000	0.001	0.100	0.010	0.078	0.113	0.003	0.070	0.032
31	0.000	0.037	0.000	0.000	0.000	0.000	0.000	0.016	0.045	0.019	0.005	0.000	0.010
32	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.012	0.013	0.060	0.003	0.021	0.010
33	0.000	0.009	0.000	0.000	0.000	0.000	0.052	0.000	0.057	0.049	0.013	0.000	0.015
34	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.069	0.083	0.000	0.000	0.014
35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.034	0.077	0.000	0.000	0.009

Table 4. CPUE of all sockeye salmon and the proportion of Tahltan and mainstem stocks in the catch from the Canadian lower Stikine River test fishery from 1987 to 1995.

For periods when the fishery was closed, values were estimated using averaging and interpolation techniques (these values are italicized and underlined in the table)

week	1987	1988	1989	1990	1991	1992	1993	1994	1995
CPUE of all sockeye in catch									
25	<u>0.05</u>	<u>0.03</u>	0.42	0.03	0.04	<u>0.31</u>	<u>0.43</u>	<u>0.06</u>	0.67
26	0.13	0.10	0.48	0.38	0.50	0.91	1.25	0.18	1.90
27	0.08	0.60	0.70	1.28	2.92	1.32	2.00	1.47	3.16
28	0.93	0.58	0.37	2.18	2.08	2.75	2.50	2.40	1.47
29	1.18	1.15	1.57	1.70	1.56	2.30	2.75	1.80	1.33
30	1.67	0.92	1.76	1.77	1.48	2.37	3.15	<u>1.77</u>	1.00
31	1.15	2.55	1.16	0.90	1.25	1.75	1.85	<u>1.74</u>	0.96
32	0.76	2.20	0.63	0.70	0.57	1.45	2.20	<u>1.70</u>	0.60
33	0.52	1.15	0.23	<u>0.30</u>	0.50	1.10	1.46	<u>1.67</u>	0.35
34	<u>0.10</u>	0.18	0.10	0.18	0.48	0.50	0.63	1.64	0.55
35.	0.02	0.12	0.03	0.00	0.22	0.07	0.15	1.30	0.39
Proportion Tahltan stock in catch									
25	0.60	0.67	0.76	0.67	0.75	0.94	0.88	1.00	0.90
26	0.77	0.60	0.63	0.89	0.96	0.93	0.89	0.89	0.93
27	0.75	0.68	0.51	0.82	0.88	0.93	0.80	0.90	0.94
28	0.73	0.47	0.24	0.62	0.77	0.83	0.69	0.90	0.93
29	0.51	0.31	0.17	0.41	0.58	0.62	0.66	0.83	0.65
30	0.25	0.16	0.03	0.14	0.39	0.37	0.46	0.82	0.43
31	0.06	0.08	0.00	0.10	0.23	0.18	0.28	0.82	0.22
32	0.08	0.05	0.00	0.11	0.07	0.14	0.10	0.82	0.18
33	0.00	0.06	0.00	0.07	0.06	0.06	0.12	0.81	0.09
34	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.04	0.00
35	0.00	0.00	0.00		0.00	0.00	0.00	0.04	0.00

Table 5. Model parameters from the linear regression of run size on cumulative CPUE for the 1998 Stikine Management Model.

LOWER INRIVER COMMERCIAL FISHERY (1985-1997)					
Stat week	Run fraction	Intercept	Slope	R-sq	Ave. CPUE
TOTAL SOCKEYE SALMON					
25	0.004	-27511.00	55366.10	0.85	2.6
26	0.062	57210.40	1258.94	0.62	43.5
27	0.140	59300.84	385.97	0.66	98.8
28	0.156	45327.61	273.88	0.74	110.3
29	0.170	20591.28	252.46	0.88	119.6
30	0.159	4674.28	226.98	0.89	112.2
31	0.115	-6958.04	214.99	0.90	81.3
32	0.098	-20140.52	212.46	0.89	68.8
33	0.045	-25017.54	209.67	0.90	31.7
34	0.027	-28479.08	208.83	0.89	19.3
35	0.012	-30372.10	208.95	0.89	8.6
TOTAL	1.00				
TAHLTAN STOCK					
25	0.010	-4487.46	17524.66	0.96	3.3
26	0.111	17682.72	884.82	0.72	37.1
27	0.230	16599.22	313.06	0.74	77.3
28	0.241	5809.11	240.09	0.90	80.7
29	0.211	-433.98	200.20	0.97	70.7
30	0.110	-2190.44	181.77	0.96	37.0
31	0.052	-2213.28	172.08	0.96	17.4
32	0.024	-2222.97	167.98	0.95	8.0
33	0.008	-2015.13	166.02	0.95	2.7
34	0.004	-2061.41	165.53	0.95	1.3
35	0.000	-2090.08	165.56	0.95	0.1
TOTAL	1.000				
DISTRICT 106-41/42 FISHERY (1985-1997)					
TOTAL SOCKEYE SALMON					
25	0.084	87340	6446	0.47	12.0
26	0.237	101842	1368	0.54	33.9
27	0.207	84703	1060	0.62	29.5
28	0.150	76875	906	0.65	21.4
29	0.100	77206	787	0.66	14.3
30	0.066	81523	689	0.61	9.5
31	0.053	83221	635	0.59	7.5
32	0.030	83336	614	0.58	4.3
33	0.030	84411	587	0.58	4.3
34	0.022	87123	554	0.55	3.1
35	0.014	89876	527	0.53	1.9
TOTAL	1.000				

Table 5. continued.

Stat week	Run fraction	Intercept	Slope	R-sq	Ave. CPUE
DISTRICT 106-41/42 FISHERY (1985-1997)					
TAHLTAN STOCK					
25	0.096	27550.4	7360.9	0.62	8.2
26	0.314	33272.5	1553.8	0.85	26.8
27	0.246	18295.6	1237.4	0.94	21.0
28	0.184	15875.7	999.7	0.91	15.7
29	0.087	18254.8	876.2	0.89	7.4
30	0.038	18225.2	842.4	0.88	3.2
31	0.011	17469.9	841.9	0.88	0.9
32	0.007	17611.7	834.5	0.88	0.6
33	0.010	17475.1	827.4	0.88	0.9
34	0.006	17660.3	820.5	0.88	0.5
35	0.001	17699.2	818.9	0.88	0.1
TOTAL	1.000				
TEST FISHERY (1986-1994)					
TOTAL SOCKEYE SALMON					
25	0.02	75743.0	141555.3	0.34	0.23
26	0.06	62765.8	46877.8	0.58	0.73
27	0.13	50092.2	22317.3	0.67	1.62
28	0.14	17620.1	20720.4	0.81	1.77
29	0.15	-6832.2	18591.5	0.87	1.81
30	0.15	-28667.6	17173.2	0.88	1.78
31	0.14	-52488.6	16788.4	0.81	1.60
32	0.10	-51132.0	14757.6	0.72	1.22
33	0.06	-41854.7	12923.7	0.65	0.81
34	0.03	-36439.1	11964.9	0.64	0.47
35	0.02	-34102.0	11560.0	0.64	0.22
TOTAL	1.00				
TAHLTAN STOCK					
25	0.04	35083.2	98453.4	0.26	0.19
26	0.11	23821.9	35597.7	0.58	0.65
27	0.23	14340.2	17558.4	0.76	1.41
28	0.22	-1729.2	15641.5	0.91	1.30
29	0.18	-11867.2	14557.0	0.93	0.96
30	0.11	-13928.3	13033.8	0.91	0.69
31	0.06	-12165.7	11741.1	0.84	0.42
32	0.03	-9629.0	10848.4	0.80	0.23
33	0.02	-5848.8	9926.1	0.76	0.16
34	0.00	-5672.6	9867.1	0.76	0.02
35	0.00	-5513.6	9830.5	0.75	0.00
TOTAL	1.00				

Table 6. Evaluation of the Stikine Management Model for the 1997 sockeye fishery as run by both the U.S. and Canada.

Weekly forecasts of run size for 1997 are given along with the predicted total allowable catch (TAC) for Stikine sockeye salmon.

Statistical Week	Start Date	Forecasts		TAC		Cumulative Catch ^a	
		Run Size	TAC	U.S.	Canada	U.S.	Canada
Model Runs Generated by Canada							
25	15-Jun	211,000	133,000	66,500	66,500	4,146	
26	22-Jun	211,000	133,000	66,500	66,500	15,803	4,243
27	29-Jun	223,267	145,267	72,633	72,633	54,018	19,024
28	6-Jul	248,437	170,437	85,218	85,218	79,386	28,814
29	13-Jul	243,542	165,542	82,771	82,771	100,063	38,511
30	20-Jul	229,029	151,029	75,514	75,514	106,554	49,981
31	27-Jul	229,128	151,128	75,564	75,564	109,778	58,495
32	3-Aug	235,644	157,644	78,882	78,882	111,273	60,325
33	10-Aug	238,796	160,796	80,398	80,398	113,237	61,134
34	17-Aug	232,293	154,293	77,146	77,146	114,053	64,772
35	24-Aug	234,066	156,066	78,033	78,033	114,778	64,860
Model Runs Generated by the U.S.							
25	15-Jun	210,896	156,896	78,448	78,448	4,000	100
26	22-Jun	210,896	156,896	78,448	78,448	15,765	1,676
27	29-Jun	217,527	163,527	81,764	81,764	46,688	9,475
28	6-Jul	232,677	178,677	89,339	89,339	72,111	21,763
29	13-Jul	232,639	178,639	89,320	89,320	92,087	31,168
30	20-Jul	234,684	180,684	90,342	90,342	106,143	41,622
31	27-Jul	237,804	183,804	91,902	91,902	109,058	54,780
32	3-Aug	237,524	183,524	91,762	91,762	110,493	60,331
33	10-Aug	238,110	184,110	92,055	92,055	112,999	61,140
34	17-Aug	231,988	177,988	88,994	88,994		
Preliminary End-of -Season Estimate							
		244,193				118,762	65,404

^a Does not include test or ESSR fishery catches.

TAKU RIVER

Preseason Forecasts

Sockeye

The preseason forecast for the 1998 Taku sockeye salmon total run is approximately 238,100 fish; this constitutes an average run size. For comparison, the recent 10-year average (1988-1997) estimated run size is 243,000 sockeye salmon. The 1998 forecast is the average of a sibling-based forecast of 223,900 sockeye, and a forecast of 252,300 sockeye based on stock-recruitment data. If the run comes in as expected, the 1998 TAC will be approximately 163,000 sockeye salmon.

The sibling forecast is based on the historical relationship between the number of age-5 sockeye in year (t) and the number of age-4 sockeye in year (t-1). The relationship for the 1989-1996⁴ period is described as follows:

$$N_{5(t)} = 90,474 + 1.38 \bullet N_{4(t-1)} \quad [3]$$

where: $N_{5(t)}$ = return of age-5 in year(t);
 $N_{4(t-1)}$ = return of age-4 in year(t-1).

The correlation coefficient for this relationship for data from 1989-1996 is $r=0.75$ and it is significant at a level of $\alpha=0.05$. The preliminary estimate of the return of age-4 in 1997 is approximately 45,500 fish, which, when substituted into equation [3] above, gives a predicted age-5 return of approximately 153,300 fish in 1998. On average, approximately 68.5% of the run is composed of age-5 sockeye. Assuming the 1998 age-5 proportion of the run will be average, the predicted 153,300 age-5 return translates into a total run forecast of approximately 223,900 sockeye in 1998.

The 1997 stock-recruitment forecast is based on the historical relationship between the number of spawners (composite of all Taku stocks) and the subsequent returns described by the following equation:

$$\ln (R/S) = 2.19 - 0.0000124 \bullet S \quad [4]$$

where: R = total adult return; and
 S = number of spawners.

Equation [4] above is based on the estimated return of spawners from the 1984 to 1992 brood years and the subsequent age-specific returns from these escapements.⁵ The correlation coefficient for

⁴ The 1997 return was not included, as the stock identifications are not complete due to delay in otolith readings.

this relationship is $r=0.83$ and it is significant at a level of $\alpha=0.05$. The estimated number of spawners was 137,500 in 1992 and 108,600 in 1993 and 102,600 in 1994; calculated returns per spawner for these years based on equation [2] are 1.6, 2.3 and 2.5, respectively. On average 68.5% of the return of each brood year is composed of age-5 fish, and 24% age-4 fish. Assuming that the 1993 and 1994 brood years produce average numbers of age-4 and age-5 fish, the total age-4 plus age-5 return in 1998 is expected to be 233,100 fish; on average, this accounts for 92% of the expected return. Expanded to account for all age groups, the predicted run size for 1998 based on this method is 252,300 sockeye.

The Taku sockeye run in 1995 was very close to the pre-season predictions. Ocean conditions, particularly for the 1996 run, appeared to be exceptionally favorable, however ocean conditions for the 1997 run were not favorable. It is not known if these unfavorable conditions will continue in 1998.

Coho Salmon

Coho salmon runs to the Taku River from 1991 to 1994 appear to have benefited from high marine survivals. This trend does not appear to be continuing and there has been a trend towards declining run strength since 1994.

The estimated spawning escapements in the two primary brood years contributing to the 1998 run were 96,300 fish in 1994, and 55,700 fish in 1995. The escapement in both years exceeded the interim escapement goal range for Canadian-origin Taku coho of 27,500 to 35,000 fish. Taku coho salmon escapement has averaged approximately 72,600 over the 1988 to 1997 period. Based on parent year escapements, the 1998 run would be expected to be average; however, it is likely the continuing trend of decreased marine survival will contribute to a below average run of coho in 1998.

Chinook Salmon

The overall run of Taku chinook salmon is expected to be average to above average in 1998 with a run size of 78,000 chinook; consisting of 10,000 small, 8,000 medium and 60,000 large fish. The return of 5-year-old chinook salmon is expected to be poor in 1998. This forecast was developed by ADF&G using brood year run strength in a manner similar to that used for the 1997 prediction. In 1997, the escapement was forecast to be 80,000 to 132,000 large fish. The preliminary estimate of the 1997 escapement from mark-recapture is 115,000 chinook salmon.

Pink Salmon

An average to above average run of pink salmon is expected in 1998. Pink salmon returning in 1998 will be the product of the 1996 escapement. Although the total pink salmon escapement in

⁵ Escapement estimates for 1981 and for all years after 1984 were based on the Canyon Island mark-recapture program. Annual age-specific returns were estimated assuming the in-river age composition, as determined from sampling in the Canadian commercial fishery, was representative of the entire run.

1996 is unknown, it is believed to have been above average based on the Canyon Island fishwheel catch of 21,583 pink salmon that year. The recent 10-year average fish wheel catch (odd and even years) is 14,000 pink salmon.

Prior to 1993, odd-year runs of Taku pink salmon were dominant cycle years. However, in the last few years, the even-year runs have been dominate.

Chum Salmon

Low fall chum catches and CPUE in the District 111 fishery, Canyon Island fish wheels and Canadian inriver test fishery in 1993 and 1994 suggest that the spawning escapement that will produce the 1998 run was poor. Consequently, a below average to poor fall chum run is expected in 1998.

Escapement Goals

Escapement goals are under review by the TTC, starting with chinook and then coho salmon. Interim escapement goals set by the Transboundary Technical Committee for salmon spawning in Canadian portions of the Taku River are as follows:

Species	Interim Escapement Goal Ranges	
	From	To
Sockeye	71,000	80,000
Coho	27,500	35,000
Chinook (index count)	13,200	13,200
Pink	150,000	250,000
Chum	50,000	80,000

Harvest Sharing Objectives

The Pacific Salmon Commission (PSC) and the governments of Canada and the U.S. have so far been unable to agree to a harvest sharing regime for the Taku wild sockeye and coho salmon for 1998. Government-to-government and Commission talks are still in progress; any negotiated settlements will be incorporated in the inseason management.

It is assumed that both Parties will continue to take appropriate management actions to ensure that the escapement goals for chinook and other species of salmon bound for Canadian portions of the Taku River are achieved in 1998.

Management Procedures

The management co-ordination between U.S. and Canadian fishery managers will involve weekly conferences between designated members or alternates.

United States

The sockeye salmon drift gill net fishery in District 11 will be managed in accordance with provisions of the Pacific Salmon Treaty. A comprehensive PST harvest sharing agreement between the U.S. and Canada has not been reached as of the date this management plan was drafted, hence this management plan is subject to change.

Section 11-B (Figure 2) will open by regulation on the third Sunday in June (June 21) for a 72-hour period. Fishing time in subsequent weeks will be dependent on inseason assessments of sockeye run strength. The fishery will be managed through mid-August primarily on the basis of sockeye salmon abundance. If the sockeye salmon run develops as expected, extended fishing time may occur in July or early August.

Sockeye run strength will be evaluated from fishery CPUE data and from weekly inriver run size estimates derived from the Taku River fish wheel mark-recapture project operated jointly by ADF&G and DFO. Contribution of enhanced stocks of sockeye salmon will be estimated inseason by analysis of salmon otoliths sampled from the commercial harvests. The age and stock compositions of the harvest of naturally spawning sockeye salmon will be determined after the fishing season by analysis of scale pattern and brain parasite incidence data from commercial catch samples.

Harvest rates on Snettisham naturally spawning sockeye salmon in outer portions of Taku Inlet and in Stephens Passage are expected to be sufficient to harvest available surpluses of these stocks. Port Snettisham will again be closed to commercial fishing inside a line from Point Anmer to Point Styleman (Figure 3) through approximately August 15 to limit overall harvest rates on Snettisham sockeye stocks.

Night closures may be imposed to limit incidental catches of immature chinook salmon. Harvests and CPUE of chinook in the Juneau recreational fishery prior to the opening of the gillnet fishery and catches during initial gillnet openings will be evaluated to determine the need for night closures during the 1998 season.

Pink salmon will be harvested in Section 11-B during the summer fishing season. Fishing time for pink salmon in Section 11-C will depend on the strength of runs in lower Stephens Passage, Seymour Canal, and the northern portions of District 10. Pink salmon escapements into most of the areas were outstanding in 1996 and fishing time in Section 11-C is expected in 1998.

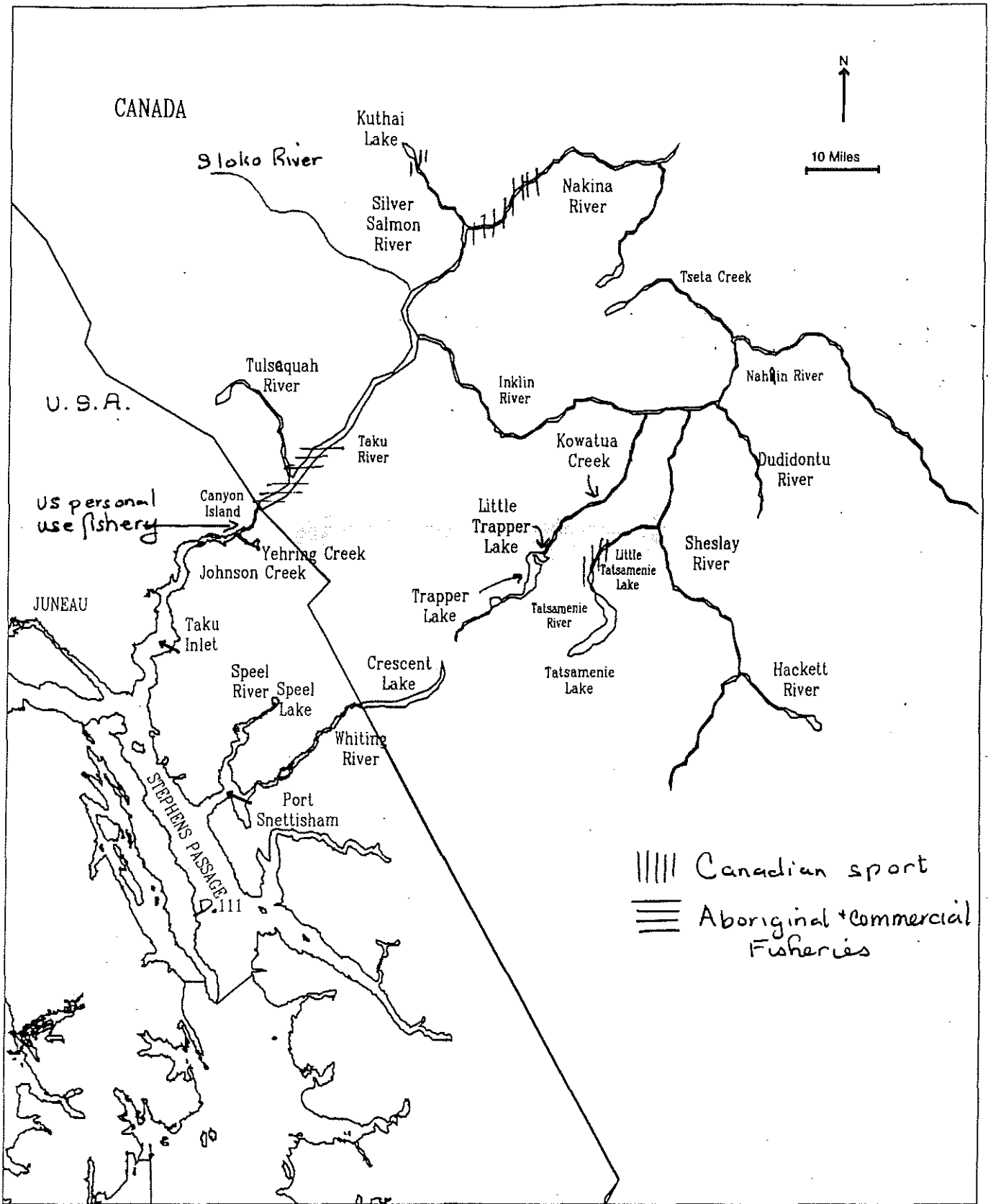


Figure 2. The Taku River and principal U.S. and Canadian fishing areas.

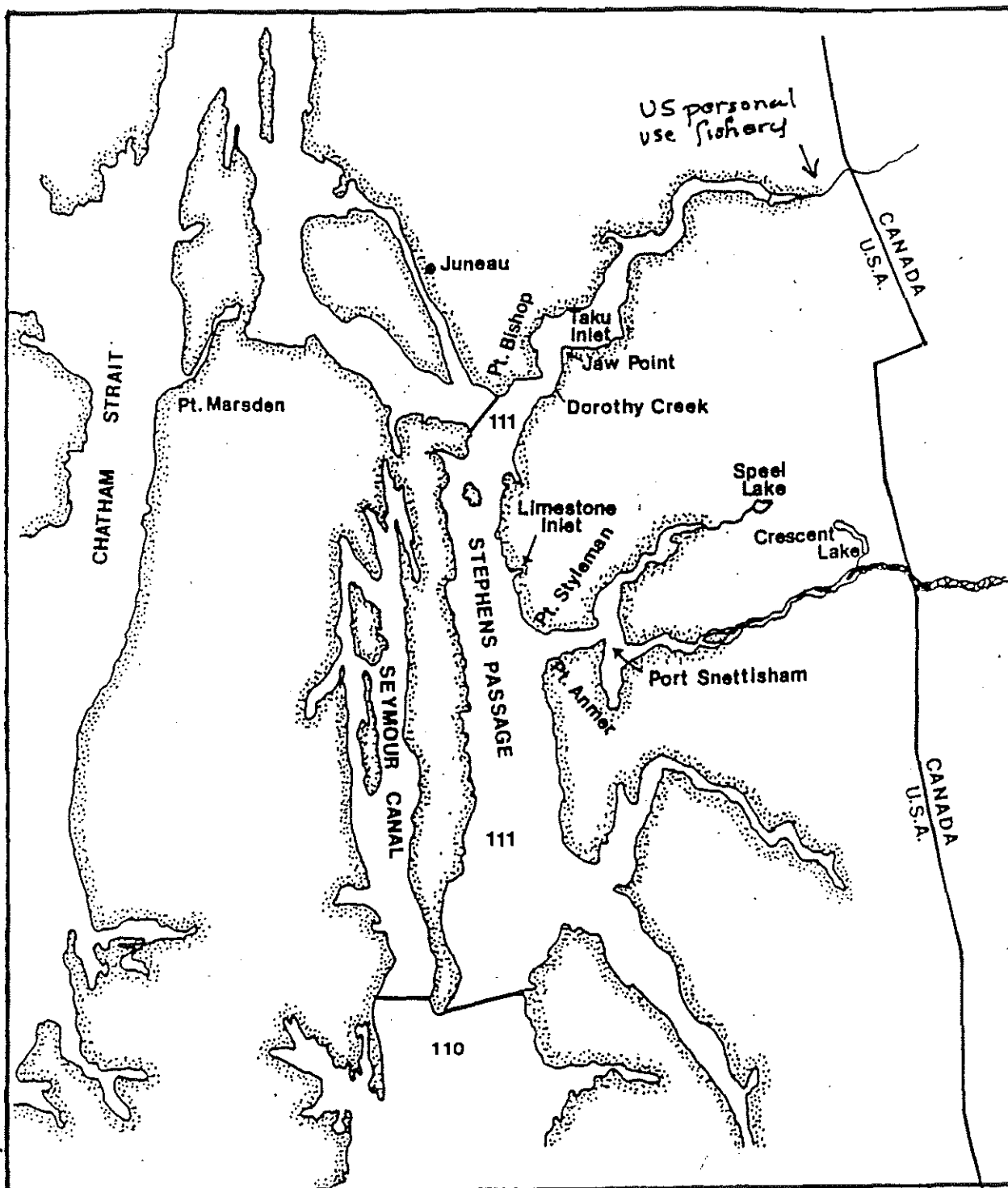


Figure 3. U.S. fishing areas adjacent to the Taku River.

Returns from domestic hatchery programs are expected to contribute significantly to the District 111 fishery in 1998. Extended fishing time is expected in Stephens Passage to maximize the harvest of enhanced chum salmon returning to Limestone Inlet. Substantial runs of summer chum salmon and coho salmon are also expected to DIPAC's Gastineau Channel Hatcheries. Portions of these runs will be available for incidental harvest in the directed wild stock sockeye and coho salmon fisheries. Enhanced sockeye salmon production from Port Snettisham may be substantial in 1998, with approximately 125,000 sockeye expected to return from Port Snettisham smolt and Sweetheart Lake fry releases. Port Snettisham Hatchery returns of sockeye salmon will be harvested in the traditional District 11 sockeye fishery, terminal Special Harvest Areas (SHA's) at the head of Gilbert Bay and Speel Arm, and in a personal use fishery in the creek.

In 1989, the Alaska Board of Fisheries reopened the purse seine fishery in a small area in northern Chatham Strait (Subdistrict 112-16) during the month of July in order to harvest pink salmon stocks migrating northward to Taku River, Lynn Canal and upper Stephens Passage. The area encompasses waters along the western shore of Admiralty Island north of Point Marsden (Figure 3). A harvestable surplus of pink salmon returning to this area is expected in 1998 and a July seine fishery may occur in the Hawk Inlet Shore area. To limit the incidental catch of sockeye, there is a 15,000 sockeye cap prior to August 1 imposed in this fishery; there is no cap after August 1. During August, fishery openings along the Hawk Inlet Shore may extend northward to the latitude of Hanus Reef Light when north-migrating pink salmon stock strength warrants. In addition, if north-migrating pink salmon runs are poor, and south-migrating stocks are strong, seining may be allowed only south of Point Marsden.

Beginning in mid-August, management emphasis of the Taku/Snettisham gillnet fishery will switch to fall chum and coho salmon. Inseason management will be based on evaluation of catch, effort, and CPUE relative to historical levels, analysis of coded-wire-tag recoveries from fishery sampling, and on escapement estimates from the Taku River mark-recapture project.

The chinook sport fishing season will be open in the marine waters near Juneau throughout the year. However, Taku Inlet, north of a line from Point Bishop to Dorothy Creek, will be closed to sport fishing from April 16 through June 14 to protect returning Taku chinook salmon. The daily bag and possession limits are two chinook salmon per person. Further restrictions in the Southeast Alaska sport fishery may be implemented if the sport harvest exceeds the limit necessitated by the Pacific Salmon Treaty.

A personal use fishery in U.S. portions of the Taku River was established by the Alaska Board of Fisheries in 1989 and will operate during the month of July in 1998. A seasonal bag limit of five sockeye salmon per person or ten sockeye salmon per household will be allowed to be taken using set gill nets.

Canada

The Canadian fishery will open 12:00 noon Sunday, June 14 for an initial 48-hour period to target early sockeye runs. A maximum mesh size restriction of 150 mm (approximately 6 inches)

will be in effect through mid-July to conserve chinook salmon during the early season sockeye fishery.

Canadian sockeye management decisions for the Taku River fishery (Figure 2) will be based on weekly projections of total run size, TAC and escapement. The weekly projections will be made using the following calculations:

$$TAC = [(E_w + E_w + AC_{w-1}) / \rho_w] - Eg \quad [5]$$

Where: TAC = the projected total allowable catch for the season;
 E_w = the cumulative escapement to week w based on mark-recapture data;
 CC_w = the cumulative Canadian catch to week w ;
 AC_{w-1} = the estimated cumulative Alaskan catch (in Districts 111 and 112) of Taku sockeye up through the preceding week $w-1$ (preceding week used to allow for migration time);
 ρ_w = the estimated proportion of run through to week w determined from the average inriver run timing based on historical CPUE data from the Canadian fishery. (Run timing estimates will be adjusted inseason according to inseason CPUE data relative to historical data in both U.S. and Canadian fisheries); and
 Eg = the system-wide escapement goal. (A value of 75,000 will be used reflecting the midpoint in the interim range of 71,000 to 80,000).

Weekly TAC and U.S. catch projections for sockeye salmon will be used to guide the management of the commercial fishery. Run timing will be used to project the total escapement and U.S. harvest; the Canadian catch will be adjusted with the objective of meeting escapement and agreed Canada/US harvest sharing objectives.

The fishing area will be modified slightly in 1998 to include a 50 metre closed section just upstream of the Canada/US border. The upper boundary near Yellow Bluff will remain unchanged from previous years.

To ensure prompt release of pink salmon and address chum salmon conservation concerns, the retention of pink and chum salmon will be prohibited. Fishers will also be encouraged to live release any steelhead caught as per previous years.

The Canadian fishery will be monitored daily by DFO personnel who will collect catch and tag recapture data. Catch information will be relayed to the DFO office in Whitehorse, collated, and exchanged with a designated ADF&G contact person during weekly, more often if needed, telephone contacts.

ALSEK RIVER

Preseason Forecasts

Most sockeye and coho salmon from the Alsek drainage spawn in Canada, but substantial spawning has also been documented in U.S. tributaries. Probably most Alsek chinook salmon spawn in Canada, but some spawners have also been observed in U.S. tributaries. Monitoring of Alsek salmon occurs at the weir at the mouth of the Klukshu River; therefore, most forecasting and escapement goals are made for the Klukshu component of the Alsek salmon run.

Sockeye forecasts are made for those salmon returning to the Klukshu drainage (Figure 4). Based on the above-average parent-year early-run sockeye (<August 15) escapements to the Klukshu River in 1993 (5,200 sockeye) and 1994 (3,000 sockeye), an above average early sockeye run is expected in 1998. The late run escapements in 1993 (9,400 sockeye) and 1994 (10,400 sockeye), although below average, were close to the optimum level as determined from preliminary stock-recruitment analysis. As a result, the late run is also expected to return at above average levels.

The Klukshu chinook escapements in 1993 and 1994, 3,200 and 3,600 chinook, respectively, were above average. However, the escapements were above the optimum escapement range of 1,100 to 2,300 chinook as determined from current stock-recruitment analysis.

A sibling analysis of chinook returns was developed to forecast the 1998 run. The method uses a simple linear regression to predict age-5 fish in 1998 from age-4 fish in 1997 and uses linear regression to predict the remaining cohort return (age-5 in 1997 and age-6 fish in 1998) from age-4 fish in 1996. The age-4 to age-5 regression showed a strong relationship, with an adjusted R square value of 0.85. The age-4 regression to predict the combined age-5 and age-6 return of that cohort also showed a strong relationship, with an adjusted R square value of 0.81. The 1998 total run to the mouth of the Alsek River is estimated as 2,864 chinook salmon using average proportions for age-3 and -4 returns. This constitutes an average to below average run.

The coho escapements observed at the Klukshu River in 1994 (1,200 coho) and 1995 (3,600 coho) suggests the return in 1998 will be about average. The recent 10-year average escapement is 2,400 coho.

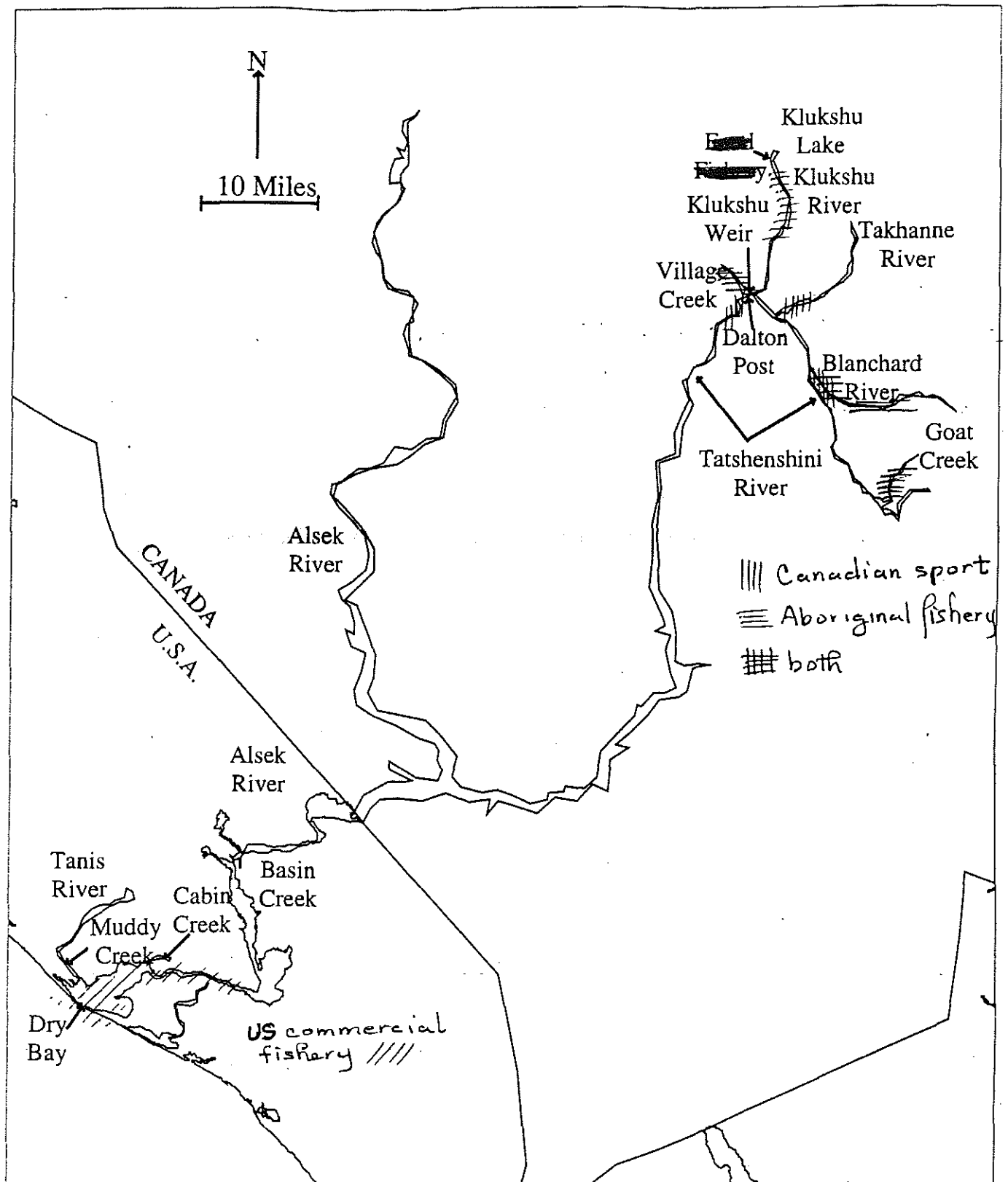


Figure 4. The Alsek River and principal U.S. and Canadian fishing areas.

Escapement Goals

The principle escapement monitoring tool for sockeye, chinook, and coho salmon stocks on the Alsek River is the Klukshu weir, operated by DFO and the Champagne/Aishihik First Nation. Spawning goals for all three species in the Alsek River are currently under review by the TTC, with the chinook review close to being finished. System wide goals are impractical since counts are only made at the Klukshu weir. In addition, the weir is often removed before the end of the coho run, so coho counts are incomplete.

Preliminary analyses of sockeye status and escapement goals have been started by both agencies and a joint report from the TTC is expected by fall of 1998. The preliminary analyses were used to set targets for the 1998 season. Canadian and U.S. managers have set a minimum escapement goal of 2,000 early-run sockeye spawners in the Klukshu drainage in 1998 and a minimum escapement of 8,500 late-run sockeye spawners. While sockeye counts are made at the weir, additional sockeye will have to arrive at the weir to allow for the aboriginal fisheries that take place above the weir.

A joint report for an escapement goal for the Klukshu chinook stock has been reviewed and accepted by both Canada and ADFG. The report recommends an escapement goal range of 1,100 to 2,300 chinook spawners in the Klukshu drainage (McPherson, Etherton, and Clark *In Press*). Canadian and U.S. managers have agreed to a minimum spawning escapement of 1,100 chinook in the Klukshu drainage in 1998.

Established system wide escapement goals and Klukshu spawning escapement goals for the 1998 season are:

Species		Escapement Minimum Goals or Goal Ranges
Sockeye	system wide	33,000 - 58,000
	Early Klukshu	> 2,000
	Late Klukshu	> 8,500
Coho	system wide	5,400 - 25,000
Chinook	Klukshu only	>1,100

Harvest Sharing Objectives

Salmon stocks returning to the Alsek River drainage are jointly managed by the Canadian Department of Fisheries and Oceans (DFO) and the Alaska Department of Fish and Game (ADFG) through the joint Transboundary Technical Committee (TTC) of the Pacific Salmon Commission. Annex IV of Pacific Salmon Treaty requires that the Parties take the necessary management actions to rebuild Alsek chinook and early-run sockeye salmon stocks. The TTC

has recently completed a review of the status of Alsek chinook stock (McPherson et al. In press) and have started a review of the status of Alsek sockeye stocks.

Management Procedures

Fisheries

The principal U.S. fishery that targets Alsek stocks is a commercial set gillnet fishery operating in Dry Bay. A small subsistence fishery also operates in Dry Bay. U.S. fishers harvest the full mixture of Alsek stocks. The principle Canadian fisheries occur in the upper Tatshenshini drainage. A traditional aboriginal fishery takes place in the Klukshu River and Village, Goat and Blanchard creeks. At present, between 100-150 members of the Champagne/Aishihik First Nation harvest salmon using mainly fish traps and gaffs, primarily in the Klukshu River and to a lesser extent at Village Creek, Blanchard River, and Goat Creek. Sport fisheries take place in the Tatshenshini River in the Klukshu/Dalton Post area and on Takhanne and Blanchard rivers. The Canadian fisheries harvest upper Tatshenshini River salmon stocks (Figure 4).

United States

The initial opening for the Alsek River fishery (Dry Bay, Figure 4) occurs on or after the first Monday in June by regulation; prior to 1963 the fishery opened in May. In 1998 the fishery will initially open for 24 hours on the first Monday in June (June 1, statistical week 23). The next week's opening will be for a 24-hour period starting the following Monday. An extension of fishing time may be allowed if sockeye salmon run strength is judged sufficient. The duration of fishing periods during the remainder of the sockeye salmon season will be based on a comparison of current year fishery performance with historical performance. Gill nets will be restricted to a maximum mesh size of 6 inches (152 mm) through July 1 to minimize chinook salmon harvests.

After the first several weeks of the fishing season, U.S. managers will use an inseason sockeye salmon abundance model to predict the Dry Bay catch and the total index run size (Dry Bay catch plus Klukshu weir count). This model has generally over-estimated escapement and under estimated catch in the last few years and this will be taken into account in using this model this year. Efforts are underway to revise the model, or develop a new model, for future years.

The Alsek sockeye salmon run in the lower river is nearly over by early to mid-August. Management emphasis will then be switched to coho salmon. Fishing time during the coho salmon fishery will be based on a comparison of current year fishery performance with historical performance.

The Alsek River surf fishing area will be open during the same time period as the inriver fishery. The surf fishery areas include the shoreline, 3/4 of a mile (1.2 km) in each direction from the river mouth to the outermost bar where the surf breaks.

Canada

Management of both the sport and aboriginal fisheries in the Alsek River (Figure 4) will be similar to that of the last several years. Reduced effort in the aboriginal fishery and sockeye nonretention in the sport fishery may be instituted prior to August 15 if needed to protect early run sockeye. In the event that the chinook and sockeye runs into the Kluksu are above the minimum targets, Canadian managers will liberalize harvest opportunities.

Stock Assessment Program

The escapement of chinook, sockeye, and coho salmon through the Kluksu weir and sockeye through the Village Creek electronic counter serves as an inseason indicator of stock strength and adjustments to the fishery may be made on the basis of these counts. Aerial surveys are used to augment escapement information on sockeye and chinook stocks in the Alsek drainage and are reported in the TTC postseason annual report. A sockeye and chinook adult tagging project is being conducted to determine the distribution of these stocks within the drainage with the aim of determining the proportion of the spawning that occurs in the Kluksu drainage. A summary of the field projects on the Alsek River is presented in Appendix Table B3.

TRANSBOUNDARY ENHANCEMENT PLANS

Overview

Joint sockeye enhancement projects are conducted on the Stikine and Taku rivers. Broodstock are taken at Tahltan Lake on the Stikine and from Tatsamenie Lake on the Taku; the eggs are incubated and thermally marked at the Snettisham Central Incubation Facility; and the fry are back planted into Tahltan and Tuya lakes on the Stikine and into Tatsamenie Lake on the Taku. In addition, plankton samples are taken from the various lake systems and analyzed. A summary of the enhancement field and incubation projects is presented in Appendix Table B.4.

Fry Plants

The following numbers of sockeye fry produced from the transboundary sockeye enhancement program are expected to be outplanted in 1998:

Stikine drainage:	Tahltan Lake	2.5 million
	Tuya Lake	2.7 million
Taku drainage:	Tatsamenie Lake	3.6 million

Fry plants are scheduled to occur in June and July.

Eggtake Goals

Target sockeye eggtakes for the fall of 1998 are as follows:

Tahltan Lake	6.0 million
Tatsamenie Lake	2.5 million

A minimum target for Tatsamenie Lake that may be increased if escapement levels warrant it and the contribution of enhanced sockeye to the 1998 smolt production in the fall 1997 hydroacoustic surveys is substantially above the preliminary indications of poor enhanced stock survival.

APPENDIX A: 1997 TRANSBOUNDARY FIELD PROJECTS

The finalized field projects for 1997 are presented here as there was no Transboundary Management Plan published for 1997 due to a cancellation of the joint Transboundary Technical Committee meeting scheduled for May 1997 to finalize the plans. These plans were finalized at the April 21-23, 1997, meeting and were provided to US and Canadian customs to advise them of joint projects and of research crew working on both sides of the border.

Table A.1. Proposed Stikine River field projects, 1997.

Location	Function	Dates	Agency ^a	Responsibility
Chinook Tagging	Tag up to 800 (260 radio tags) Stikine River chinook salmon captured from the Kakwan point drift net site. Recover tags from the Canadian fisheries and from the Little Tahltan weir and from Verrett Creek. Tags may be recovered from other spawning sites. Radio towers and flight will be used to monitor radio tags.	5/2 - 8/30	DFO ADF&G TFN NMFS	all aspects all aspect except tag recovery all aspects assist with radio tagging
Tahltan Lake Smolt	Enumerate Tahltan Lake sockeye smolts. Sample up to 800 smolts for age, size, and otoliths.	5/5 - 6/30	DFO TFN	all aspects all aspects
District 106 & 108 Fishery	Sample 20% of chinook, coho, chum and sockeye catches per district for CWTs, all species except pinks for age-sex-size (scale sampling goals are 600 per district per week). Collect 400 otoliths/week in District 108, 300 in Subdistrict 106-41 (100 matched with scale samples), 300 in Subdistrict 106-30.	6/13 - 9/20	ADF&G	all aspects
Lower Stikine	Conduct a test fishery to assess run size and run timing of sockeye and coho salmon. Collect age-sex-size information and recover CWTs from all salmon. Collect tagged salmon. Sample all sockeye for scales and all female sockeye for egg diameters (used for stock ID). Otolith sampling requirements are 150/week for weekly samples (matched with scales) and with egg diameters for females. Commercial catch sampling for sockeye to include 350/week for age-sex-size, including up to 100 matched egg diameter samples, and including 150 matched otolith samples from females and 50 from males (if possible.)	6/13 - 9/6	DFO/TFN	all aspects
Little Tahltan Chinook	Enumerate Little Tahltan chinook salmon from a weir located at the mouth of the river. Sample up to 1100 fish for age, sex, size, and tags. Enumerate and record tags observed during the enumeration of the fish.	6/13 - 8/16	DFO	all aspects

-Continued-

Table A.1. (page 2 of 2)

Location	Function	Dates	Agency ^a	Responsibility
Upper Stikine	Sample up to 800 sockeye for age, sex, size, otoliths and DNA proportionally from the Aboriginal and commercial fishery at Telegraph Creek. Sample up to 500 chinook for age, sex, size, and tags.	6/30 - 8/30	TFN DFO	collect data data analysis
Andrew Creek	Operate Andrew Creek weir, enumerate chinook salmon and look for tags.	7/1 - 8/30	ADF&G	all aspects
Tahltan Lake	Enumerate Tahltan Lake sockeye entering the lake. Sample up to 800 fish for age, sex and size. Sample 200-250 for otoliths and egg diameters (200-250 will be sampled from the brood stock take)	7/5 - 9/5	DFO & TFN	all aspects
Tuya ESSR & Sampling	Conduct a feasibility of a terminal sockeye fishery at Tuya River. Sample up to 500 sockeye for otoliths, scales, and size. Sample up to 400 female sockeye for egg diameters.	7/20 - 8/20	TFN DFO	collect data data analysis
Chinook Aerial Surveys	Enumerate chinook salmon spawning in Little Tahltan, Beattie, Tahltan, and Andrew tributaries.	8/10 - 8/15	ADF&G	all aspects
Coho and Sockeye Aerial Surveys	Enumerate Stikine River coho and sockeye salmon spawning in select index areas within the Canadian portion of the Stikine River.	9/5 - 10/31	TFN & DFO	all aspects
Coho Aerial Surveys	Enumerate coho salmon spawning in the US section of the Stikine River	10/05 - 10/31	ADF&G	all aspects

^a Contacts:	Pete Etherton	(DFO)	all DFO projects
	Sandy Johnston	(DFO)	all DFO projects
	Keith Pahlke	(ADF&G)	chinook tagging and surveys
	Kathleen Jensen	(ADF&G)	District 106&108 samples & stock assessment
	Cherri Frocklage	(TFN)	inriver sampling projects
	Richard Inkster	(TFN)	inriver sampling projects
	John Eiler	(NMFS)	radio tagging

Table A.2. Proposed Taku River field projects, 1997.

Location	Function	Dates	Agency ^a	Responsibility
Canyon Island	Mark-recapture studies to estimate chinook salmon escapement.	4/26 - 6/14	ADF&G & TRTFN	ADF&G - 3 personnel TRTFN - 1 staff member
Canadian Aboriginal Fishery	Collect and record AFS catch information. Record tag number for Canyon Island chinook recaptured, release all tagged chinook salmon.	5/1 - 9/30	TRTFN	All aspects
Canyon Island	Mark-recapture studies to estimate sockeye and coho escapement. Sample 260 sockeye/week for age-sex-length information, and 634 coho and all chum salmon for the entire season	6/15-10/15	ADF&G DFO	2 - 3 personnel including 2 boats & motors, camp supplies, food/tagging equipment. 2 field personnel, June 15-Sept. 30 and to Oct. 15 if funding available. One boat & motor, and field equipment.
Canadian Fishery	Sample sockeye and coho salmon for age-sex-length; 200 samples per week for sockeye; 520 per season for coho; 200 scale samples per season for chinook. Recover CWTs from coho and chinook (i.e. heads returned by fishers or adipose fish samples). Examination of sockeye and coho salmon for secondary mark, minimum 400 per week each species.	6/16-10/12	DFO & ADF&G	Sampling will be conducted by Canyon Island crew.
Canadian Fishery	Collect 60 sockeye otolith samples per week for determination of contribution of enhanced fish.	6/16-10/15	DFO/ ADF&G	Sampling will be conducted by Canyon Island crew, samples processed by ADFG.

-Continued-

Table A.2. (page 2 of 3)

Location	Function	Dates	Agency ^a	Responsibility
Canadian Fishery (cont)	Collect and record all spaghetti tags caught, pay fishers for tag recoveries and maintain receipt book.	6/16 - 10/15	DFO	Tags will be recovered by DFO personnel with assistance by ADF&G Personnel.
	Collect and record commercial catch information Catch information shall be sent to DFO Whitehorse; whose staff will provide/relay catch information to management staff, ADF&G (Juneau).	6/16 - 10/15	DFO	All aspects
District 111 Fishery	Sample 20% of chinook, coho, and chum catches for CWT; all species except pinks for age-sex-length (goals are 600 and 300 per week for sockeye and chum, and 600 per season for chinook and coho). Collect 400 matched brain/parasite/scale/otolith samples per week	6/18 - 9/30	ADF&G	All aspects
Nakina River	Creel census.	6/20 - 7/20	TRTFN	All Aspects
	Chinook carcass weir; enumerate and sample every fourth (minimum 600) chinook for age-sex-length and all other chinook for sex-length. Recover and record all spaghetti tags, examination of fish for secondary mark, examination of all chinook salmon for adipose clips and recover all heads from adipose clipped fish for coded wire tags.	7/28 - 8/28	TRTFN	All Aspects
	Sample Nakina and Silver Salmon origin sockeye for age-sex-length.	7/28 - 8/28	TRTFN	All Aspects
Kuthai Lake	Adult sockeye salmon weir; enumerate and sample for age-sex-length (600 samples) and recover spaghetti tags.	7/10- 9/01	TRTFN	All aspects
Little Trapper Lake	Adult sockeye salmon weir; enumerate and sample for age-sex-length (750 samples) and recover spaghetti tags.	7/16- 9/12	DFO	All aspects
	Examine chinook salmon for tags & secondary marks.	August	DFO	All aspects

-Continued-

Table A.2. (page 3 of 3)

Location	Function	Dates	Agency ^a	Responsibility
Tatsamenie Lake	Adult sockeye salmon weir will be operated during broodstock collection; enumerate and sample for age-sex-length (750 samples) and recover spaghetti tags.	8/5- 9/30	DFO	All aspects
	Examine chinook salmon for tags & secondary marks.	August	DFO	All aspects
Dudidontu River	Carcass recovery (spearing) of all recoverable chinook salmon, age-sex-size and examine for tags and secondary marks all recovered chinook salmon	8/11-17	ADF&G	All aspects
Lower Tatsamenie River	Chinook salmon carcass weir; age-sex-size and examine for tags and secondary marks all chinook salmon recovered	8/23- 9/7	ADF&G	All aspects
Nahlin River	Adult chinook and sockeye salmon weir; enumerate and sample for age-sex-length (600 chinook and 600 sockeye), recover and record all spaghetti tags.	6/1- 8/20	TRTFN	All aspects
Escapement sampling	Sample sockeye escapement in mainstem areas for age-sex-length (400 samples per area) and recovery of spaghetti tags.	9/5- 9/25	ADF&G	All aspects
Nakina, Nahlin, Dudidontu, Tatsatua, Kowatua, and Tseta	Aerial surveys of spawning chinook salmon in index tributaries.	7/25- 8/25	ADF&G	All aspects

^aContacts:

Scott McPherson	(ADF&G)	Lower river coho smolt tagging, adult chinook/coho tagging, coho aerial surveys.
Scott Kelley	(ADF&G)	Canyon Island adult sockeye/coho/chinook tagging.
Keith Pahlke	(ADF&G)	Chinook aerial surveys.
Pat Milligan	(DFO)	Contact for all DFO Taku programs.
Sandy Johnston	(DFO)	Contact for all DFO Taku programs.
Kathleen Jensen	(ADF&G)	Sockeye stock identification.
Phil Timpany	(TRTFN)	Contact for all TRTFN programs.

Table A.3. Proposed Alsek River field projects, 1997.

Location	Function	Dates	Agency ^a	Responsibility
Klukshu River	Enumerate chinook, sockeye and coho salmon at adult weir; Estimate sport and aboriginal fishery catches; Collect age-sex-length information at weir (750 scale samples per species) except chinook, see below; Sample 300 chinook in sport harvest for scales, sex, length (MEF), CWTs and spaghetti tags; Sample 1100 chinook at weir for sex, length (MEF), CWTs and spaghetti tags	6/03 - 10/18	DFO	All aspects
Village Creek	Enumerate sockeye salmon using an electric counter.	6/10-10/18	DFO	All aspects
Lower Alsek	Sample commercial catches of all salmon at lower Alsek and East River; Collect age-sex-length (MEF) data (sockeye-600, chinook-400, coho-500); recover CWTs from chinook catches.	6/14-9/15	ADF&G	All aspects
Lower Alsek	Conduct pilot adult chinook tagging project to date 200-300 chinook (2-5 ocean) collect age-sex-length (MEF) data.	5/8 - 6/30	ADF&G	All aspects
Cabin, Tanis Muddy and Basin creeks	Aerial surveys of spawning sockeye salmon in index areas. Aerial surveys of spawning coho salmon in index areas	8/01-8/15 10/01-10/15	ADF&G	All aspects
Blanchard, Takhanne, Klukshu rivers and Goat Creek	Aerial surveys of spawning chinook salmon in index areas.	8/10	ADF&G	All aspects
Contacts:	Peter Etherton (DFO) all DFO projects Sandy Johnston (DFO) all DFO projects Keith Pahlke (ADF&G) chinook aerial surveys Kathleen Jensen (ADF&G) lower Alsek and East Rivers commercial catch sampling Alan Burkholder (ADF&G) adult chinook tagging, sockeye and coho aerial surveys			

Table A.4. Proposed enhancement projects for transboundary Stikine and Taku rivers, 1997.

Location	Function	Dates	Agency ^a	Responsibility
Snettisham Hatchery (Alaska)	Incubation and thermal marking of juvenile sockeye (eggs & alevins) collected from Tahltan and Tatsamenie lakes	9/96 - 6/97	DIPAC/ADF&G	All aspects
Tahltan Lake (Stikine River, in Canada)	Enumeration and sampling of smolts and collection of otolith samples to determine enhanced contribution.	5/4 - 6/14	DFO	All aspects
	Backplant sockeye fry from Snettisham Hatchery and collect plankton data.	6/1- 7/1	DIPAC & ADF&G	All aspects
	Hydroacoustic/limnological surveys to evaluate success of fry outplant.	6/1- 9/30	DFO	All aspects
	Collect 6.0 million sockeye eggs	9/1- 9/30	DFO	Egg-take and transport
	Sample 200 male and 200 female adult sockeye from Tahltan Lake broodstock for otolith samples.	9/6 - 10/8	DFO	All aspects
Tuya Lake (Stikine River in Canada)	Backplant sockeye fry from Snettisham Hatchery and collect plankton data.	6/01- 7/01	ADF&G	All aspects
	Seasonal plankton sampling - acoustic and limnology sapling.	6/1- 9/30	DFO	All aspects
	Sampling outmigrant smolts for size and otoliths.	5/01- 6/15	DFO	All aspects
Tatsamenie Lake (Taku River in Canada)	Sample smolt outmigration and conduct mark-recapture program.	5/10- 6/4	DFO	All aspects
	Backplant sockeye fry from Lake Snettisham Hatchery and collect plankton data.	6/1- 7/1	ADF&G	All aspects
	Hydroacoustic/limnological surveys to evaluate success of fry outplants.	6/1- 9/30	DFO	All aspects
	Collect up to 5.0 million sockeye eggs	8/15- 10/15	DFO	Egg-take and transport
	Sample 400 adult sockeye from Tatsamenie Lake egg-take for otolith samples.	9/6 - 10/8	DFO	All aspects

-Continued-

Table A.4. (page 2 of 2)

Location	Function	Dates	Agency ^a	Responsibility
Trapper & Lower. Trapper lakes (Taku River, Canada)	Sample smolt outmigration	spring	DFO	All aspects

^a Contacts:	Pete Hagen	(ADF&G)	otolith marking
	Kris Munk	(ADF&G)	otolith marking
	Ron Josephson	(ADF&G)	Snettisham Hatchery
	Scott Kelley	(ADF&G)	Snettisham Hatchery
	Steve Reifensstuhl	(NSERAA)	DIPAC programs
	Sandy Johnston	(DFO)	all DFO projects
	Peter Etherton	(DFO)	Stikine River drainage programs
	Pat Milligan	(DFO)	all DFO programs
	Doug Lofthouse	(DFO)	all DFO programs
	Kim Hyatt	(DFO)	hydroacoustic and evaluation program
	Cheri Frocklage	(TFN)	all TFN programs

APPENDIX B: 1998 TRANSBOUNDARY FIELD PROJECTS

Proposed projects regarding the Stikine, Taku, and Alsek salmon stocks are summarized in Appendix Tables B1 to B3. Enhancement projects are given in Table B4. For each project listed, information regarding the dates of operation, primary objectives, and agency roles are described. Contacts are listed at the bottom of each table. These plans were provided to US and Canadian customs to advise them of joint projects and of research crew working on both sides of the border.

Table B.1. Proposed Stikine River field projects, 1998.

Project/Dates	Function	Agency	Involvement
Stikine Chinook Study			
5/1 - 8/30	<ul style="list-style-type: none"> • Tag up to 800 Stikine River chinook salmon captured from the Kakwan point drift net site. • Recover tags from the Canadian fisheries and from the Little Tahltan weir and from Verrett Creek. Tags may also be recovered from other spawning sites. 	ADF&G	All aspects except tag recovery
		DFO/TFN	All aspects
Tahltan Lake Smolt Estimation			
5/5 - 6/30	<ul style="list-style-type: none"> • Enumerate Tahltan Lake sockeye smolts. • Sample up to 800 smolts for age, size, and otoliths. 	DFO/TFN	All aspects
Upper Stikine Sampling			
6/1 - 8/28	<ul style="list-style-type: none"> • Sample up to 800 sockeye for age, sex, size, otoliths and DNA proportionally from the Aboriginal and commercial fishery at Telegraph Creek. • Sample up to 500 chinook for age, sex, size, and tags. 	TFN	Collect data
		DFO	Data analysis
Little Tahltan Chinook Enumeration			
6/12 - 8/14	<ul style="list-style-type: none"> • Enumerate Little Tahltan chinook salmon from a weir located at the mouth of the river. • Sample up to 1100 fish for age, sex, size, and tags. • Enumerate and record tags observed during the enumeration of the fish. 	DFO/TFN	All aspects

- continued -

Table B.1. continued.

Project/Dates	Function	Agency	Involvement
Test Fishery in Lower Stikine			
6/14 - 9/4	<ul style="list-style-type: none"> • Conduct a test fishery as required (to fill in when no commercial fishing) to assess run size and run timing of sockeye and coho salmon. Collect age-sex-size information and recover CWTs from all salmon. Collect tagged salmon. • Sample all sockeye from test fishery for scales and all female sockeye for egg diameters (used for stock ID). • Otolith sampling requirements are 150/week for weekly samples (matched with scales) and with egg diameters for females. Transfer otolith samples to ADF&G for inseason processing. 	DFO/TFN ADF&G	All aspects Inseason processing of otoliths
Commercial Inriver Fishery Stock ID Sampling			
6/14-9/4	<ul style="list-style-type: none"> • Commercial catch sampling for sockeye to include 350/week for age-sex-size, including up to 150 matched egg-diameter/otolith samples and otoliths from 50 males (if possible). • Transfer up to 200 otolith samples per week to ADF&G for inseason processing. 	DFO ADF&G	All aspects Inseason processing of otoliths
District 106 & 108 Stock ID Sampling			
6/21 - 9/20	<ul style="list-style-type: none"> • Sample 20% of chinook, coho, chum and sockeye catches per district for CWTs; sample sockeye and coho for scales (for aging), sex, and size (scale sampling goals are 600 sockeye per D108, D106-41, D106-30 per week and 600 coho from D106 during the season). • Collect 400 otoliths/week in District 108, 300 in Subdistrict 106-41 (100 matched with scale samples), 300 in Subdistrict 106-30. 	ADF&G	All aspects
Andrew Creek Salmon Enumeration			
7/1 - 8/30	<ul style="list-style-type: none"> • Operate Andrew Creek weir, enumerate chinook salmon and recover tags. 	ADF&G	All aspects
Tahltan Lake Salmon Enumeration			
7/6 - 9/4	<ul style="list-style-type: none"> • Enumerate Tahltan Lake sockeye entering the lake at weir. • Sample up to 800 fish for age, sex and size. • Sample 200-250 for both otoliths and egg diameters (400 will be sampled from the brood stock take) 	DFO/TFN	All aspects

- continued -

Table B.1. continued.

Project/Dates	Function	Agency	Involvement
Tuya ESSR Fishery & Sampling			
7/17 - 8/28	<ul style="list-style-type: none"> • Continue feasibility study for terminal sockeye fishery at Tuya River. • Sample up to 100 sockeye for otoliths, scales, and size. • Sample up to 400 female sockeye for egg diameters. 	TFN DFO	Fishery feasibility/collect data Data analysis
Chinook at Shakes Creek			
7/25 - 8/15	<ul style="list-style-type: none"> • Collect age and size data from spawned out chinook • Enumerate spawning escapement of chinook 	TFN	All aspects
Chinook Aerial Surveys			
8/10 - 8/15	<ul style="list-style-type: none"> • Enumerate chinook salmon spawning in Little Tahltan, Beattie, Tahltan, and Andrew tributaries. 	ADF&G	All aspects
Coho and Sockeye Aerial Surveys			
9/4 - 10/31	1. Enumerate Stikine River coho and sockeye salmon spawning in select index areas within the Canadian portion of the Stikine River.	TFN/DFO	All aspects
10/05 - 10/31	2. Enumerate coho salmon spawning in the US section of the Stikine River	ADF&G	All aspects

Contacts:

Sandy Johnston or Pete Etherton (DFO) ----All DFO projects.

Cherri Frocklage or Richard Inkster (TFN) -Inriver sampling projects.

Keith Pahlke (ADF&G) -----Chinook tagging, surveys; Andrew Creek weir.

Kathleen Jensen (ADF&G) -----District 106&108 samples & stock assessment.

Brian Lynch (ADF&G) -----Coho aerial surveys.

Canadian staff that may be crossing the Canadian/US border:

Wayne Dennis, Peter Etherton, Cherri Frocklage, Alex Joseph, Martin Kienzler, Tom Rockne, Chuck Shewen, others

US staff that may be crossing the Canadian/US border:

Alisia Bachinsky, Kathleen Jensen, Brian Lynch, Keith Pahlke, others

Table B.2. Proposed Taku River field projects, 1998.

Project/Dates	Function	Agency	Involvement
Canyon Island Marking Program			
mid April	1. Set up fish wheel/camp, including 2 boats & motors, camp supplies, food/tagging equipment.	ADF&G	All aspects
4/26 - 9/30	2. Fishwheel operation <ul style="list-style-type: none"> • Mark all fish (chinook) captured in wheel through mid-June with spaghetti tags. • Sample for age-sex-length information, 260 sockeye/week throughout sockeye run, 600 coho salmon for the entire season, and about 1 in 4 chinook salmon. <ul style="list-style-type: none"> • Recover all adipose-clipped chinook and coho caught in wheel. 	ADF&G TRTFN	3 personnel 1 staff member
Smolt Tagging			
4/7-6/27	• Tagging (CWT) up to 40,000 chinook and 20,000 coho smolt.	ADF&G	All aspects
Canadian Aboriginal Fishery Sampling			
5/1 - 9/30	<ul style="list-style-type: none"> • Collect and record AFS catch information. • Record tag number for any Canyon Island chinook that are recaptured; release all tagged chinook salmon. 	TRTFN	All aspects
Nahlin Sampling			
6/1- 8/20	• Adult chinook and sockeye salmon weir at Nahlin; enumerate and sample for age-sex-length (600 chinook and 600 sockeye), recover and record all spaghetti tags. Recover heads of all adipose-clipped chinook salmon.	TRTFN	All aspects

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Table B.2. continued.

Project/Dates	Function	Agency	Involvement
Canadian Fishery Sampling			
6/15- 10/16	<ul style="list-style-type: none"> • Collect and record commercial catch information Catch information shall be sent to DFO Whitehorse; whose staff will provide/relay catch information to management staff, ADF&G (Juneau). • Sample sockeye and coho salmon for age-sex-length; 200 samples per week for sockeye; 520 per season for coho; 300 scale samples per season for chinook. • Recover CWTs from coho and chinook (i.e., those heads returned by fishers or taken in adipose fish samples). • Examination of sockeye and coho salmon for secondary mark, minimum 400 per week each species. • Collect 60 sockeye otolith samples per week for determination of contribution of enhanced fish; send otolith samples to ADF&G for processing. • Collect and record all spaghetti tags caught in inriver fisheries, pay fishers for tag recoveries and maintain receipt book. 	DFO	All aspects
Sport Fishery Creel Census			
6/20 - 7/20	Creel census on Nakina River in Canada.	TRTFN	All aspects
District 111 Fishery Sampling			
6/21 - 9/30	<ul style="list-style-type: none"> • Sample a minimum of 20% of chinook and coho catches for CWT; all species except pinks for age-sex-length (goals are 600 per week for sockeye and 600 per season for chinook, chum, and coho). • Collect 400 matched brain-parasite/scale/otolith samples per week from sockeye 	ADF&G	All aspects
Kuthai Sockeye Sampling			
7/10- 9/01	<ul style="list-style-type: none"> • Maintain adult sockeye salmon weir at Kuthai Lake; enumerate and sample for age-sex-length (600 samples) and recover spaghetti tags. 	TRTFN	All aspects

- continued -

Table B.2. continued.

Project/Dates	Function	Agency	Involvement
Little Trapper Sampling			
7/16- 9/12	<ul style="list-style-type: none"> • Maintain adult sockeye salmon weir at Little Trapper Lake; enumerate and sample for age-sex-length (750 samples) and recover spaghetti tags. • Examine chinook salmon for tags & secondary marks. 	DFO	All aspects
Aerial chinook surveys			
7/25- 8/25	<ul style="list-style-type: none"> • Aerial surveys of spawning chinook salmon in index tributaries of Nakina, Nahlin, Dudidontu, Tatsatua, Kowatua, and Tseta rivers 	ADF&G	All aspects
Nakina Chinook Escapement Estimation			
7/28 - 8/28	<ul style="list-style-type: none"> • Maintain chinook carcass weir enunerate chinook. • Sample every fourth (minimum 600) chinook for age-sex-length and all other chinook for sex-length. • Recover and record all spaghetti tags, examination of fish for secondary mark, examination of all chinook salmon for adipose clips and recover all heads from adipose clipped fish for coded wire tags. 	TRTFN	All aspects
Sockeye Sampling			
7/28 - 8/28	<ul style="list-style-type: none"> • Sample Nakina and Silver Salmon origin sockeye for age-sex-length. 	TRTFN	All Aspects
Tatsamenie Sampling			
8/5- 9/30	<ol style="list-style-type: none"> 1. Maintain adult sockeye salmon weir <ul style="list-style-type: none"> • Enumerate sockeye, sample for age-sex-length (750 samples) and recover spaghetti tags. • Collect otoliths from sockeye broodstock taken at weir. • Examine chinook salmon for tags & secondary marks. 	DFO	All aspects
8/23- 9/7	<ol style="list-style-type: none"> 2. Chinook salmon carcass weir at Lower Tatsamenie <ul style="list-style-type: none"> • Sample for age-sex-size and • examine for tags and secondary marks on all chinook salmon recovered 	ADF&G	All aspects

- continued -

Table B.2. continued.

Project/Dates	Function	Agency	Involvement
Sockeye Escapement Sampling			
9/5- 9/25	<ul style="list-style-type: none"> • Sample sockeye escapement in mainstem areas for age-sex-length (400 samples per area) and recovery of spaghetti tags. 	ADF&G	All aspects
Chum Aerial Survey			
10/15	<ul style="list-style-type: none"> • Aerial survey for chum on mainstem, King Salmon Flats 	TRTFN	All aspects

Contacts:

Scott McPherson (ADF&G)	Lower river smolt tagging, adult chinook/coho tagging.
Rich Yanusz (ADF&G)	Adult chinook and coho tagging.
Dave Barto or Bryan Cook (ADF&G)	Canyon Island adult sockeye tagging.
Kathleen Jensen (ADF&G)	District 111 sampling and stock assessment.
Keith Pahlke (ADF&G)	Chinook surveys.
Pat Milligan or Sandy Johnston (DFO)	All DFO Taku programs.
Terry Jack or Richard Erhardt (TRTFN)	All TRTFN programs.

Canadian staff that may be crossing the Canadian/US border:

Pat Mulligan, others.

US staff that may be crossing the Canadian/US border:

Clyde Andrews, Dave Barto, Bryan Cook, Kathleen Jensen, Ed Jones, Keith Pahlke, Rich Yanusz, others.

Table B.3. Proposed Alsek River field projects, 1998.

Project/Dates	Function	Agency	Involvement
Chinook Radio Tagging			
04/05 - 10/09	<ul style="list-style-type: none"> • Chinook salmon radio telemetry in Tatshenhini River of the Alsek. • Operate radio telemetry receiver, data logging 	ADF&G DFO	All aspects Tracking & recovery
Chinook and Sockeye Tagging Project			
5/8-9/30	<ul style="list-style-type: none"> • Tag chinook and sockeye salmon to determine distribution. • Tag recovery at various locations (see below) 	ADF&G DFO	All aspects Tag recovery
Klukshu River Sampling			
6/03 - 10/18	<ul style="list-style-type: none"> • Enumerate chinook, sockeye and coho salmon at adult weir. • Estimate sport and aboriginal fishery catches. • Collect age-sex-length information at weir (750 scale samples per species) except chinook, see below. • Sample 300 chinook in sport harvest for scales, sex, length (MEF), CWTs and spaghetti tags. • Sample 1100 chinook at weir for sex, length (MEF), CWTs and spaghetti tags. • Look for chinook and sockeye tagged fish. 	DFO	All aspects
Village Creek sockeye enumeration			
6/10- 10/18	<ul style="list-style-type: none"> • Enumerate sockeye salmon using an electric counter at Village Creek. • Recover tags from sockeye. 	DFO	All aspects
Lower Alsek Sampling			
6/14- 9/15	<ul style="list-style-type: none"> • Sample commercial catches of all salmon at lower Alsek and East River. • Collect age-sex-length (MEF) data (sockeye-600, chinook-600, coho-500); recover tags from chinook and sockeye. 	ADF&G	All aspects

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Table B.3. continued.

Project/Dates	Function	Agency	Involvement
Escapement Surveys			
8/01- 8/15	1. Aerial surveys of spawning sockeye salmon in index areas of Cabin, Tanis Muddy and Basin creeks (in Canada)	ADF&G	All aspects
8/10	2. Aerial surveys of spawning chinook salmon in index areas of Blanchard, Takhanne, Klukshu rivers and Goat Creek (in Canada)	ADF&G	All aspects
10/01- 10/15	3. Aerial surveys of spawning coho salmon in index areas of Cabin, Tanis Muddy and Basin creeks (in Canada)	ADF&G	All aspects

Contact:

Peter Etherton (DFO)	All DFO projects
Sandy Johnston (DFO)	All DFO projects
Keith Pahlke (ADF&G)	Chinook aerial surveys, radio tagging
Robert Johnson (ADF&G)	Radio tagging
Kathleen Jensen (ADF&G)	Lower Alsek and East Rivers commercial catch sampling
Alan Burkholder (ADF&G)	Adult chinook tagging, sockeye and coho aerial surveys

Canadian staff that may be crossing the Canadian/US border:

Wayne Dennis, Peter Etherton, others

US staff that may be crossing the Canadian/US border:

Liz Appleby, Al Burkholder, Robert Johnson Keith Pahlke, others

Table B.4. Proposed enhancement projects for transboundary Stikine and Taku rivers, 1998.

Project	Function	Agency	Involvement
Tahltan/Tuya Enhancement Project			
5/1 - 6/15	1. Enumeration and sampling of smolts from Tahltan and Tuya lakes (Stikine River, in Canada) and collection of otolith samples to determine enhanced contribution.	DFO	All aspects
6/1 - 7/1	2. Backplant sockeye fry from Snettisham Hatchery into Tahltan and Tuya lakes and collect plankton data from Tuya Lakes.	DIPAC & ADF&G	All aspects
6/1 - 7/1	3. Plankton samples from Tahltan Lake.	DFO	All Aspects
6/1 - 9/30	4. Hydroacoustic/limnological surveys of Tahltan and Tuya lakes to evaluate success of fry outplant.	DFO	All aspects
9/1 - 9/30	5. Collect 6.0 million sockeye eggs from Tahltan Lake and transport to Snettisham Hatchery in Alaska.	DFO	Egg-take and transport
9/6 - 10/8	6. Sample 200 male and 200 female adult sockeye from Tahltan Lake broodstock for otolith samples.	DFO	All aspects
Tatsamenie Lake Enhancement Project			
5/10 - 6/4	1. Sample smolt outmigration from Tatsamenie (Taku River, in Canada) and conduct mark-recapture program on smolt from Tatsamenie Lake.	DFO	All aspects
6/1 - 7/1	2. Backplant sockeye fry from Lake Snettisham Hatchery into Tatsamenie Lake.	DIPAC & ADF&G	All aspects
6/1 - 9/30	3. Collect plankton samples from Tatsamenie Lake; conduct hydroacoustic/limnological surveys in Tatsamenie Lake to evaluate success of fry outplants.	DFO	All aspects
8/15 - 10/15	4. Collect up to 5.0 million sockeye eggs from Tatsamenie Lake and transport to Snettisham Hatchery in Alaska.	DFO	Egg-take and transport
9/6 - 10/8	5. Sample 400 adult sockeye from Tatsamenie Lake egg-take for otolith samples.	DFO	All aspects

Table B.4. continued.

Project	Function	Agency	Involvement
Salmon Egg Incubation			
9/97 - 6/98	<ul style="list-style-type: none"> Incubation and thermal marking of juvenile sockeye (eggs & alevins) collected from Tahltan (Stikine River) and Tatsamenie (Taku River) lakes at the Snettisham Incubation Facility in Alaska. 	DIPAC/ ADF&G	All aspects

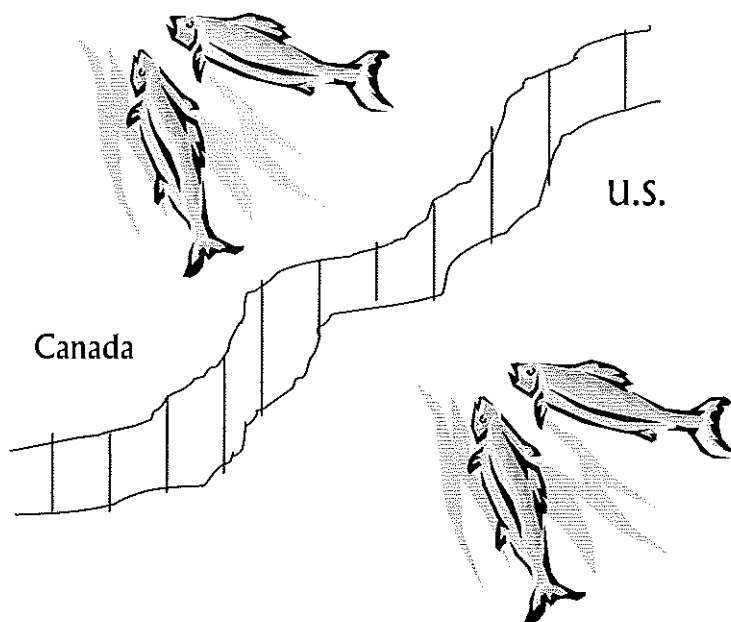
Contacts for enhancement projects:

Pete Hagen or Kris Munk (ADF&G)	Otolith marking
Ron Josephson (ADF&G)	Snettisham Hatchery
Kathleen Jensen (ADF&G)	Inseason & postseason estimates of enhanced fish in marine catches.
Eric Prestegard (DIPAC)	Snettisham Hatchery/DIPAC programs
Steve Reifensstuhl (NSERAA)	Snettisham Hatchery
Sandy Johnston or Doug Lofthouse (DFO)	All DFO projects
Peter Etherton (DFO)	Stikine River drainage programs
Pat Milligan (DFO)	Taku River drainage programs
Kim Hyatt (DFO)	Hydroacoustic and evaluation program
Cheri Frocklage (TFN)	All TFN programs

Canadian staff that may be crossing the Canadian/US border:
flight crew

US staff that may be crossing the Canadian/US border:

Eric Prestegard, Kevin Stack, flight crew from Alaska Coastal airline



Got your passport? There's the border.