

Pacific
Salmon
Commission



1996/97
Twelfth Annual
Report

Pacific Salmon Commission

**Established by Treaty between Canada
and the United States March 18, 1985**

for the

**conservation, management and
optimum production of Pacific salmon**

Twelfth Annual Report 1996/97

**Vancouver, B.C.
Canada**



PACIFIC SALMON COMMISSION

ESTABLISHED BY TREATY BETWEEN CANADA
AND THE UNITED STATES OF AMERICA
MARCH 10, 1985

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Letter of Transmittal

In compliance with Article II, Paragraph 14 of the Treaty between the Government of Canada and the Government of the United States of America concerning Pacific salmon, it is my pleasure as Chair of the Pacific Salmon Commission to present my compliments to the Parties and to transmit herewith the Twelfth Annual Report of the Commission.

This report summarizes the activities of the Commission for the fiscal year April 1, 1996 to March 31, 1997.

Negotiations during the 1995/96 period, both within the Commission and on a government-to-government basis, were unsuccessful in producing agreement on fishery regimes or the equity issue. Officials of the Parties, however, on July 19, 1996 were successful in reaching agreement on interim fishing arrangements for Fraser River sockeye and West Coast Vancouver Island coho, and included commitments by managers for the conduct of southern chum fisheries in 1996.

Discussions by the Commission on fishery regimes for 1997 and beyond were limited during the 1996/97 meeting cycle, as the Parties developed and implemented a new "stakeholders" process for both Southern and Northern areas. The stakeholder groups reported directly to the chief negotiators on progress during their meetings. Resolution of all issues was not achieved through this process, and negotiations were resumed by the chief negotiators on June 18 to 20, 1997. These negotiations were unsuccessful and as a consequence no fishery regimes were agreed for the 1997 fishing season.

Reports on the results of the 1996 fishing season, meetings of the Standing Committee on Finance and Administration, and the activities of the Northern, Southern and Fraser River panels are presented in summary. Executive summaries of documents prepared by the joint technical committees during the period covered by this report are also presented.

The Auditors' report on financial activities of the Commission during the fiscal year April 1, 1996 to March 31, 1997, as approved by the Commission, is also included in this report.

Yours truly,

P.S. Chamut
Chair

PACIFIC SALMON COMMISSION

OFFICERS for 1996/97

Chair Mr. R.A. Turner (to September 30, 1996)
 Mr. D. Benton (to December 11, 1996)
 Mr. P.S. Chamut (from December 11, 1996)

Vice-Chair Mr. P.S. Chamut (to December 11, 1996)
 Mr. David Benton (from December 11, 1996)

COMMISSIONERS

Canada

Mr. Patrick Chamut (Chair)
Mr. Dennis Brown
Mr. Robert Wright
Mr. C.C. (Bud) Graham
Mr. Hubert Haldane
Mr. Michael Hunter
Mr. Bill Valentine

United States

Mr. David Benton (Vice-Chair)
Mr. Robert Turner
Mr. W. Ron Allen
Mr. Hank Beasley (to June 30, 1996)
Ms. Kathryn Brigham (to October 11, 1996)
Mr. James Pipkin
Mr. Jev Shelton
Mr. Rollie Rousseau
Ms. Kathryn Brigham (to October 24, 1996)
Mr. Ted Strong (from October 11, 1996)
Mr. Rollie Schmitten (from January 9, 1997)

SECRETARIAT STAFF

Executive Secretary
Administrative Officer
Chief Biologist

Mr. Ian Todd
Mr. Ken Medlock
Dr. Jim C. Woodey

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INTRODUCTION

Interception of Pacific salmon bound for rivers of one country in fisheries of the other has been the subject of discussion between the Governments of Canada and the United States of America since the early part of this century. Intercepting fisheries were identified through research conducted by the two countries on species and stocks originating from Alaska, British Columbia, Washington and Oregon. The results of this research identified that Alaskan fishers were catching salmon bound for British Columbia, Oregon and Washington. Canadian fishers off the west coast of Vancouver Island were capturing salmon bound for rivers of Washington and Oregon. Fishers in northern British Columbia were intercepting salmon returning to Alaska, Washington and Oregon, and United States fishers were catching Fraser River salmon as they travelled through the Strait of Juan de Fuca and the San Juan Islands towards the Fraser River.

Management of stocks subject to interception became a matter of common concern to both Canada and the United States. A mechanism to enable the countries to reap the benefits of their respective management and enhancement efforts was required. That mechanism is now provided through the Pacific Salmon Treaty, which entered into force upon the exchange of instruments of ratification by the President of the United States of America and the Prime Minister of Canada on March 18, 1985.

The Pacific Salmon Commission, guided by principles and provisions of the Treaty, establishes general fishery management regimes for international conservation and harvest sharing of intermingling salmon stocks. Each country retains jurisdictional management authority but must manage its fisheries in a manner consistent with the provisions of the Treaty. Implementation of the principles of the Treaty should enable the United States and Canada, through better conservation and enhancement, to prevent overfishing, increase production of salmon, and ensure that each country receives benefits equivalent to its own production. The Commission also serves as a forum for consultation between the Parties on their salmonid enhancement operations and research programs.

The organizational structure of the Commission is focused on three geographically oriented panels. The Northern Panel's stocks of concern are those which originate in rivers situated between Cape Suckling in Alaska and Cape Caution in British Columbia, including the transboundary rivers. The Southern Panel's stocks of concern are those which originate in rivers located south of Cape Caution, other than Fraser River sockeye and pink salmon. The Fraser River Panel has special regulatory responsibilities for stocks of sockeye and pink salmon originating from the Fraser River.

The functions of panels are to review annual post-season reports, annual pre-season fishing plans, and ongoing and planned salmonid enhancement programs of each country and to provide recommendations to the Commission for development of annual fishery regimes in accordance with the objectives of the Treaty. These plans, once adopted by the Commission and the governments, are implemented by the management agencies in each country.

The Fraser River Panel, in addition, has been accorded special responsibility for in-season regulation of Fraser River sockeye and pink fisheries of Canada and the United States in southern British Columbia and northern Puget Sound, in an area designated as Fraser River Panel Area Waters. Scientific and technical work is conducted for the Panel by the Fishery Management Division of the Commission's Secretariat staff.

The Commission faced the beginning of the 1996 fishing season without having any agreed fishery regimes in place. Meetings of officials of the Parties, however, resulted in agreement on

interim arrangements for Fraser River sockeye and pink salmon on July 19, 1996 for the balance of the 1996 season. In addition, the Parties agreed to conduct fisheries on southern chum and coho in a manner that reflects past Treaty arrangements (Appendix A). Chinook management and the conduct of fisheries in the northern boundary area, however, remained unresolved and contentious issues.

For the purpose of continuity with past Annual Reports, the last fully negotiated Annex IV from 1991 is included here as Appendix B.

The Commission meets at least once annually and conducts its business between meetings through its permanent Secretariat located in Vancouver, British Columbia. In the period April 1, 1996 to March 31, 1997, the Commission met on three occasions:

1. Commission Executive Session
December 10-12, 1996 - Vancouver, B.C.
2. Post-Season Meeting of the Commission and Panels' Negotiating Session
January 13-17, 1997 - Vancouver, B.C.
3. Twelfth Annual Meeting of the Commission
February 10-14, 1997 - Portland, Oregon

This, the Twelfth Annual Report of the Pacific Salmon Commission, provides a synopsis of the activities of the Commission and its subsidiary bodies during its twelfth fiscal year of operation, April 1, 1996 to March 31, 1997.

Activities of the Commission

PART I

ACTIVITIES OF THE COMMISSION

A. EXECUTIVE SESSION OF THE PACIFIC SALMON COMMISSION **December 10-12, 1996 -- Vancouver, B.C.**

The Commission met bilaterally twice in executive session during this meeting. The first session's topic consisted of a detailed discussion on Canada's concerns about Alaska's chinook management plan for 1996, and Canada's request for implementation of a technical dispute resolution board under Article XII of the Treaty. No agreement was reached on these issues.

A number of topics was discussed during the second sitting:

1. Administrative Items

- a) Post-1996 season fishery reports from both countries and Canada's Salmonid Enhancement update report were exchanged.
- b) The office of Chair of the Commission was transferred to Mr. P.S. Chamut of Canada, and Mr. D. Benton from the United States was appointed Vice-Chair. A consolidated list of officers for 1996/97 was exchanged (Appendix C).

2. Discussion Items

- a) The Commission established a working group to develop terms of reference for a proposed ad hoc Southern Transboundary Technical Working Group.
- b) The Commission discussed the status of mass marking and selective fisheries for coho. Concern was expressed about the negative impact this approach could have on the Commission's Coded-Wire-Tag (CWT) program.
- c) The Commission discussed scheduling of negotiations for 1997 fishery arrangements. The Commission endorsed meetings of the Panels in January 1997 to review the conduct of fisheries in 1996 and to exchange other information. Agreement was not reached to issue negotiating instructions to the Panels.

B. PANELS' NEGOTIATING SESSION AND MEETING OF THE COMMISSION **January 13-17, 1997 -- Vancouver, B.C.**

The Commission met once in executive session during this meeting. Items discussed and actions taken were:

1. Administrative Items

- a) The Commission received, discussed and adopted a report of the Standing Committee on Finance and Administration which included the budget for FY 1997/98 (Appendix D).

- b) The Commission reviewed a report of the Working Group on the Commission's meeting schedule, and adopted the following schedule:

i. Executive Session	December 2-4, 1997	PSC Offices, Vancouver B.C.
ii. Panels & Commission	January 12-16, 1998	Bellevue, Washington
iii. 13th Annual Meeting	February 9-13, 1998	Vancouver, B.C.
iv. Executive Session	December 1-3, 1998	PSC Offices, Vancouver, B.C.
v. Panels & Commission	January 11-15, 1999	Vancouver, B.C.
vi. 14th Annual Meeting	February 8-12, 1999	Portland, Oregon
- c) The Commission agreed that the work plan for the Annual Meeting would focus on implementation of a stakeholder approach to negotiations of equity and fishing regime issues. The Fraser River Panel was also authorized to meet bilaterally during that session, as was continuation of CTC work to calibrate the chinook model.

2. Discussion Items

- a) The Commission received a report on a mass marking schedule of events and discussed the need for the Commission's role in mass marking and selective fisheries to be clarified. The Commission accepted a recommendation to re-establish its ad hoc technical committee and to receive detailed technical reports at the February 1997 annual meeting.

C. TWELFTH ANNUAL MEETING OF THE COMMISSION February 10-14, 1997 --Portland, Oregon

1. Executive Session

The Commission met once in bilateral executive session during the Annual Meeting. Items discussed and actions taken were:

- a) The Commission received an extensive report from the Ad Hoc Technical Committee on Mass Marking/Selective Fisheries. The Commission expressed continued concern over the potential impact on the CWT program and added costs that would be incurred if this approach proceeds. The Commission reviewed a draft policy paper prepared by Canada on the role of the Commission in mass marking and selective fishery proposals.
- b) The Commission reviewed a draft set of terms of reference for establishing a Southern Transboundary Technical Committee. It is expected that the terms of reference are to be ratified at the next meeting of the Commission.
- c) The Commission received a progress report from the Fraser River Panel regarding technical and conduct of fisheries issues applicable to 1997. The Panel urged the Commission to agree on Fraser River catch-sharing provisions so that the Panel may proceed with pre-season management planning in early May.
- d) The Commission discussed coordination of the Stakeholders and Commission processes for development of 1997 fishery arrangements. The Commission agreed that much coordination will have to occur after the stakeholders have conducted these negotiations.

The Commission agreed that the PSC Secretariat will provide logistical support for the stakeholders process.

2. Plenary Session

The Commission sponsored a plenary session on Tuesday, February 11, 1997. Statements regarding the Parties' commitments to the Stakeholders negotiating process were made by Ms. Mary Beth West on behalf of the United States and by Mr. Yves Fortier on behalf of Canada.

Activities of the Standing Committees

PART II

ACTIVITIES OF THE STANDING COMMITTEES

A. MEETINGS OF THE STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

1. Committee Activities

(a) Meeting of December 12, 1996 - Vancouver, B.C.

The Committee met on December 12, 1996 to consider a range of financial and administrative issues. The Committee's deliberations were focused primarily on a review of the Commission's current financial status, budget proposals for FY 1997/98, and a budget forecast for FY 1998/99.

The financial review and projections prepared by staff for the current fiscal year indicates that expenditures by the end of March, 1997 will be lower than budgeted. This situation will occur as a result of reduced biological field programs stemming from constrained fishing opportunities for Fraser River sockeye, from cancellation of one Commission meeting, and lower than forecast permanent personnel costs resulting from two vacancies. Staff has forecast an unexpected operating balance by the end of the current fiscal year of approximately \$589,700. In addition, net revenues from the Commission's 1996 test fishing program, originally forecast at approximately \$30,000, now total \$320,000. The test fishing program was increased in the Strait of Juan de Fuca in 1996, with Fraser Panel approval. Reduced commercial fishing in that area, combined with lower than expected diversion rates and higher than expected prices, all combined to produce the much higher than forecast net revenue figure.

The Committee recommended to the Commission that these funds be carried over for application against program costs in FY 1997/98.

The Committee reviewed the budget proposed by staff for FY 1997/98. The assumptions staff has used to develop this budget include the expectation that they will be expected to provide service to the Commission and the Fraser River Panel as has been done in the past, and that the Parties will provide base contributions continued at the \$800,000 (\$Can) each. Canada indicated it would prefer to reduce its contribution to \$750,000 for FY 1997/98, but in view of the fact that in almost every year base contributions by themselves are insufficient to cover program costs, agreed to continue funding at the \$800,000 level for FY 1997/98. Application of the forecast operating balance from FY 1996/97 against program costs for FY 1997/98, coupled with the Parties' agreement to maintain regular contributions at the current level of \$800,000 each, would result in a forecast unencumbered operating balance of approximately \$310,000 at the end of FY 1997/98.

The Committee reviewed in detail the special hydroacoustic research program which was implemented at Mission in 1995 as a result of recommendations which arose from the Fraser River Sockeye Public Review Board's examination of Fraser River sockeye management in 1994. This program involves a co-operative DFO/PSC effort to quantify potential biases inherent in the methodology used by staff in its regular hydroacoustic program. Preliminary results to date do not indicate any significant problems with the Commission's regular sockeye transecting program. The Committee agreed that this special program be continued for at least FY 1997/98.

The Committee at this time, after detailed review of the staff's submissions, recommended that the Commission adopt the budget for FY 1997/98 as detailed in Appendix D.

The Committee reviewed staff's budget forecast for FY 1998/99, and noted that while this is a preliminary forecast, it does appear that a significant shortfall in funds required to carry out the Commission's programs would occur even if contributions from the Parties are maintained at \$800,000 each. Accordingly, the Committee recommended that the unencumbered balance of \$310,900 forecast to remain at the end of FY 1997/98, be retained for carryover into FY 1998/99 for application against program costs in that year.

The Commission, at its January 15, 1997 executive session, adopted the recommendations of the Standing Committee on Finance and Administration.

2. Secretariat Staffing Activities

Ms. Maxine Reichardt was the successful candidate in a competition for the vacant Scale Analyst's position. She joined the staff in January, 1997.

A list of Secretariat staff employees as of March 31, 1997 is presented in Appendix E.

An updated membership list for panels, standing committees, joint technical committees and ad hoc working groups as of March 31, 1997 is presented in Appendix F.

B. MEETINGS OF THE STANDING COMMITTEE ON RESEARCH AND STATISTICS

The Standing Committee on Research and Statistics did not meet in 1996/97.

Activities of the Panels

PART III

ACTIVITIES OF THE PANELS

A. FRASER RIVER PANEL

The Fraser River Panel met to develop a fishing plan for the 1996 Fraser River sockeye and pink salmon season July 25, 1996, as catch sharing provisions were not agreed upon by the Parties until July 19, 1996. The Panel, at its July 25, 1996 meeting, designed a fishing plan which was adopted for the balance of the 1996 season. The Panel met frequently in bilateral session through the August to mid-October period in the conduct of its responsibilities for in-season management of Fraser River sockeye in the Fraser River Panel area.

The Panel conducted a post-season meeting and met in conjunction with Commission meetings during the 1996/97 negotiating cycle to discuss the results of the 1996 season and to review technical issues bearing on the 1997 season.

B. NORTHERN PANEL

The Northern Panel met in bilateral session to review the conduct of 1996 fisheries. No negotiations for future fishery regimes occurred at the Panel level.

C. SOUTHERN PANEL

The Southern Panel met in bilateral session to review the conduct of fisheries in 1996. No negotiations for future fishery regimes occurred at the Panel level.

Review of 1996 Fisheries and Treaty-Related Performance

PART IV

REVIEW OF 1996 FISHERIES AND TREATY-RELATED PERFORMANCE

The following review has been drawn from a number of reports prepared by Commission staff, joint technical committees, and domestic agencies for presentation to the Commission. Source documents are referenced for each part of this review. All figures are preliminary and will be updated in future reports as more complete tabulations become available.

A. FRASER RIVER SOCKEYE SALMON

Under the Pacific Salmon Treaty, the Fraser River Panel is responsible for in-season management of fisheries that target on Fraser River sockeye and pink salmon within the Panel Area. Prior to the onset of the fishing season, the Panel recommends a fishery regime and a management plan for Panel Area fisheries to the Pacific Salmon Commission. The plan is based on abundance forecasts and escapement goals for Fraser River sockeye and pink salmon stocks provided by Canada Department of Fisheries and Oceans, international allocation goals set by the agreements between the Parties, domestic allocation goals set by each country, and management concerns for other stocks and species also identified by each country.

The Panel uses commercial and test fishing data and various analyses from Pacific Salmon Commission staff in-season to modify the fishing times in the management plan to achieve the objectives of the management plan approved by the Pacific Salmon Commission.

Achievement of the domestic allocation goals of Canada and the United States has been a major focus of in-season management and, in general, has been met successfully by the Panel. Resource conservation and international allocation goals take precedence over domestic allocation objectives, when trade-offs among these three objectives are necessary.

Canada provided the Fraser River Panel with an official pre-season run-size forecast of 1,560,000 sockeye, and a spawning escapement goal of 1,092,000 fish on March 18, 1996. The pre-season forecast was calculated using a technical "risk-averse" computation procedure with a 75% probability that the actual run abundance would equal or exceed the pre-season number.

Canada and the United States reached a catch-sharing agreement on July 19, 1996. The United States agreed to deduct 400,000 sockeye from the gross TAC for Canadian aboriginal fisheries. At the official pre-season risk-averse forecast level, the Canadian and United States (Washington) shares of the remaining TAC were zero and 50,000 fish, respectively. If run sizes exceeded the forecast sufficiently to create a TAC for commercial harvest sharing the United States catch share in Panel Areas would be 16.1% of the TAC below 2,000,000 fish, and smaller percentage shares at larger TAC's up to a cap of 800,000 sockeye. Early Stuart and early summer-run stocks would not be subject to directed fisheries in Washington.

The United States specified domestic goals for allocating catch between Treaty Indian and Non-Indian fishers, and between Treaty Indian fishers in Juan de Fuca Strait and Puget Sound. No pre-season goals were provided by Canada for allocating commercial catches among gear types.

Canada provided a gross escapement goal of 1,612,000 on August 2. A negotiated risk-averse buffer of 314,000 fish resulted in an adjusted gross target of 1,926,000 fish. The United States accepted the adjusted goals to allow Panel activities to proceed, but did not agree with the methodology used to calculate the buffers.

The 1996 Panel management season was particularly difficult because of the large difference between Canada's pre-season risk averse forecast of 1,560,000 sockeye and the actual return which is estimated at 4,300,000 fish. The Panel was not able to schedule fisheries in the planning phase of the season because the pre-season forecast did not identify a harvestable surplus for commercial fisheries in Canada or the United States. This limited the Pacific Salmon Commission staff's ability to provide the Panel with early projections of run-size in-season. The Commission was forced to rely on test fishing indices rather than on the catches in commercial fisheries for estimation of abundance. Since test catches are less precise indicators of abundance, escapements past the Commission's hydroacoustic site near Mission, B.C. became the primary source of information on abundance. However, as this site was so far along the migration route, by the time sufficiently precise estimates of abundance were available, the peak of each stock group was past outside fishing areas. Concern for the abundance of certain key stocks also limited the Panel's ability to schedule fisheries early enough to achieve international and domestic allocation objectives. This process has also led to excess numbers of fish to escape in the Early Summer, Summer and Late run stock groups.

Difficulty was encountered in achieving catch goals for late-run sockeye. Because these fish normally delay in the Strait of Georgia for several weeks before migrating upstream, run-size estimates for these stocks depended heavily on test fishing data from Juan de Fuca and Johnstone straits. A record early migration into the Fraser River of Weaver sockeye that overlapped the normal Birkenhead migration confounded attempts to harvest these stocks separately. Conservation concerns for Birkenhead sockeye prevented river fisheries on late runs.

The return of Fraser River sockeye salmon in 1996 totalled 4,319,000 fish (preliminary), almost three times the official pre-season risk-averse forecast (1,560,000). This was the fourth largest return on the cycle since 1900.

Approximately 35% of Fraser sockeye migrated through Johnstone Strait, close to the pre-season forecast of 38%.

Pre-season forecasts of the 50% migration date to Area 20 were July 7 for Early Stuart and August 7 for Chilko sockeye. Post-season assessments of the 50% date were July 7 for Early Stuart, July 24 for early summer, August 6 for summer and August 8 for late-run stocks.

The total catch of Fraser sockeye was 2,112,000 fish, the smallest since 1964. This harvest amounted to 49% of the total return, the lowest harvest rate on record. Commercial, non-commercial and Canadian First Nations' harvests totalled 1,185,000, 183,000 and 744,000 sockeye, respectively. The commercial harvest rate (27% of the run) was the lowest on record, while the First Nations' harvest rate (17% of the run) was the second highest on record.

Canadian catches totalled 1,771,000 Fraser sockeye, 928,000 in commercial, 99,000 in non-commercial, 76,000 in non-Fraser Indian and 668,000 in Fraser River Indian catches. Of the commercial catch, 756,000 fish were caught in Panel Areas and 172,000 fish in non-Panel Areas. Gillnets, purse seines, inside trollers and outside trollers caught 83%, 13%, 4% and 0% of the commercial catch, representing a significant deviation from catch distributions in past years. The proportion caught by Area 29 gillnets (74%) was the largest since 1968. Included in the non-commercial catch is a terminal catch of 76,000 Weaver sockeye that were made available to an Excess Salmon to Spawning Requirements (ESSR) fishery.

Washington catches totalled 270,000 Fraser sockeye, 257,000 in commercial fisheries and 13,000 in Gear Modification Study test fisheries. Treaty Indian catches totalled 224,000 fish, 30,000 in Juan de Fuca Strait and 194,000 in Puget Sound. Non-Indian catches totalled 33,000 fish, 25,000 in purse seines and 8,000 in gillnets, also a significant deviation from catch distributions in past years. Analysis of samples from Alaskan fisheries has not been completed.

Preliminary spawning escapement estimates from Canada total 2,178,000 adult sockeye, including a terminal mortality of 100,000 Weaver fish, plus 29,000 jacks. This was the largest adult spawning escapement on record for the cycle. Although several stocks had record escapements, of particular note was the Upper Adams River escapement of 25,000 fish, which was likely the largest since 1909.

Preliminary upriver estimates (Fraser River Indian catch + spawning escapement) of adult gross escapement from Canada total 2,922,000 fish. In-season gross escapement estimates (Mission escapement + Fraser River Indian catch below Mission) total 2,876,000 Fraser sockeye, 262,000 larger than the adjusted goals (2,614,000 fish). The adjusted goals include the negotiated adjustment of 314,000 fish, plus an additional 100,000 fish added in-season for late-run stocks.

Given the preliminary estimates of run size (4,319,000 fish) and deductions (2,775,000 fish), the TAC was 1,544,000 fish. Corresponding United States (Washington) and Canadian shares were 249,000 and 1,295,000 fish. United States catches totalled 257,000 fish, 8,000 more than their share, while Canada caught 8,000 less than their share.

Given the actual United States catch of 257,000 Fraser sockeye and their stated objectives for domestic allocation, Treaty Indian and Non-Indian allocations were 203,000 and 54,000 fish, respectively, compared to actual catches of 224,000 (21,000 over) and 33,000 fish (21,000 under). Allocations of the actual Treaty Indian catch of 224,000 fish were 45,000 fish for Areas 4B, 5 and 6C and 179,000 fish for Areas 6, 7 and 7A, compared to catches of 30,000 (15,000 under) and 194,000 fish (15,000 over) in these areas. No domestic allocation goals within the Non-Indian group were provided in 1996.

Canadian domestic allocation goals were provided late in the season once a significant commercial TAC was identified. By that time most remaining fishing opportunities were in the Fraser River. Goals for each gear group within the Canadian commercial sector, however, were not provided formally to the Panel.

Both Canada and the United States identified stocks for which conservation or management concerns existed. However, the restrained fisheries in 1996 averted by-catch problems.

(Source Document) *Draft Report of the Fraser River Panel to the Pacific Salmon Commission on the 1996 Fraser River Sockeye and Pink Salmon Fishing Season.* PSC Staff. June 1997.

B. 1996 POST-SEASON REPORT FOR CANADIAN TREATY LIMIT FISHERIES

Catches reported below are based on in-season estimates (hailed statistics), on-the-grounds counts by Department of Fisheries and Oceans (DFO) management staff, sales slip data (commercial troll and net), and creel surveys (sport). The preliminary 1996 commercial catches were obtained from sales slip information to October 15 (Transboundary), October 28 and November 2 (North/Central pinks and chinook respectively), November 28 (Fraser River), November 5 and 22 (WCVI coho and chum respectively), November 22 (Area 20), and in-season hails; sport catches are from creel survey data to Sept. 30. Annex fisheries are reported in the order of the Chapters of Annex IV. Comments begin with expectations and management objectives, followed by catch results by species, and where available and appropriate, escapements. The expectations, management objectives, catches and escapements are only for those stocks and fisheries covered by the Pacific Salmon Treaty (PST); domestic catch allocations have been excluded. The attached table summarizes 1985-1996 catches in Canadian fisheries that have been under limits imposed by the Pacific Salmon Treaty.

Transboundary Rivers

Stikine River

No progress was made with respect to re-negotiating harvest shares of Stikine salmon during the Pacific Salmon Commission and Government/Government negotiations prior to or during the 1996 fishing season. As a result, Canada developed a fishing plan for the Stikine River which adopted the arrangements for sockeye (which had not expired) but excluded the catch ceiling for coho salmon which had expired in 1992 (4,000 pieces). Accordingly, the objectives of the 1996 management plan were: to harvest 50% of the total allowable catch (TAC) of Stikine River sockeye salmon; to allow Canadian fishers reasonable access to coho salmon subject to conservation requirements; and, to allow chinook salmon to be taken as an incidental catch in the directed fishery for sockeye salmon. The 1996 management plan was the same as that implemented in 1994 and 1995.

The Transboundary Chapter of Annex IV requires the Transboundary Rivers Technical Committee (TRTC) to prepare a pre-season forecast to guide initial fishing patterns of both countries. A meeting to discuss the general fishing plans for 1996 and to exchange the data necessary to develop the pre-season forecast was held in May in Juneau, Alaska. Canada's expectation was for an above average run of approximately 328,600 sockeye in 1996: a record 260,400 Tahltan Lake origin sockeye (197,000 wild and 63,400 enhanced), and 68,300 non-Tahltan sockeye. For comparison, the previous ten-year average Tahltan sockeye run size was approximately 69,500 fish and the non-Tahltan stock aggregate averaged approximately 71,700 sockeye.

A total of 74,281 sockeye was caught in the combined Canadian commercial and Aboriginal fishery; 90.7% of the catch occurred in the commercial fishery. The total catch was the largest sockeye catch on record (the previous record was 53,467 sockeye taken in 1995), exceeding the 1986-1995 average of 27,520 sockeye by 170%. An additional 14,399 sockeye salmon was taken by the Tahltan First Nation under an "Excess Salmon to Spawning Requirements License" (ESSR) which permitted the terminal harvest of sockeye at Tahltan Lake once it was determined the escapement goal would be achieved. The preliminary estimate of the total contribution of sockeye from the Canada/U.S. enhancement program to Canadian fisheries is 19,170 fish.

The preliminary estimate of the terminal sockeye run size¹ is 358,600 fish including 210,000 Tahltan Lake sockeye and 148,600 sockeye of the non-Tahltan stock aggregate. A Stikine run size of this magnitude is 151% above the 1986-1995 average terminal run size of 142,600 sockeye salmon. The preliminary estimate of the TAC for 1996 is 304,600 sockeye and of this, Canada was entitled to catch 152,300 sockeye (i.e. 50% of the TAC). The total Canadian harvest, excluding the ESSR catch, represents 49% of the preliminary estimate of the Canadian entitlement. The total escapement is estimated to be approximately 116,500 sockeye, 116% above the target of 54,000 fish.

The sockeye weir count at Tahltan Lake was 52,500 fish which was approximately 72% above the previous ten-year average of 30,510 sockeye. Of the total number of fish counted at the lake, 4,402 sockeye were taken for hatchery brood stock and 14,399 were harvested under the ESSR. This leaves a spawning escapement of 33,759 which was 69% above the spawning escapement goal of 20,000 sockeye for Tahltan Lake.

The total coho catch for the season was 1,302 fish, 62% below the 1986-1995 average of 3,418 coho. Poor market conditions resulted in lower effort and catches than in previous years,

¹ Terminal run size excludes any allowance for U.S. interceptions that occur outside Alaska District 106 and 108 gillnet fisheries.

particularly since 1992 when the Pacific Salmon Treaty imposed coho harvest limit expired. Virtually all of the coho were taken in the lower Stikine commercial fishery. Coho escapement surveys indicated an above average return. The preliminary analysis of test fishery catch per unit of effort (CPUE) suggested a total escapement of 38,600 coho which was above average and within the interim spawning escapement goal range of 30,000 to 50,000 coho. Aerial survey counts of six coho spawning index areas totalled 3,245 fish, approximately 11% above the previous ten-year average of 2,908 coho salmon.

The total 1996 gillnet catch of chinook consisted of 2,741 adults and 421 jacks compared to 1986-1995 ten-year averages of 2,001 large chinook and 553 jacks. The adult chinook count of 4,821 fish (50% female) at the Little Tahltan weir was 14% below the 1986-95 average of 5,605 and was below the escapement goal 5,300 large chinook. The count of 135 jacks was 50% of the 1986-95 average of 269 jacks. Aerial surveys of most of the other Stikine chinook index spawning areas were below average.

Joint Canada/U.S. enhancement activities continued in 1996 with approximately 6.2 million sockeye eggs collected at Tahltan Lake and flown to the Port Snettisham hatchery for incubation and thermal marking. The egg collection target was 6.0 million eggs. Approximately 2.3 million fry were out-planted into Tahltan Lake and 2.5 million fry into Tuya Lake in June and July of 1996. The fry originated from the 1995 egg-take and were mass-marked in the hatchery with a thermally-induced otolith mark.

A total of 1,559,236 sockeye smolts (1,822,284 in 1995) was enumerated emigrating from Tahltan Lake in 1996.

Taku River

As with Stikine River issues, no progress was made with respect to re-negotiating harvest shares of Taku River salmon prior to the 1996 fishing season. As a result, Canada developed a fishing plan which did not numerically constrain harvests of sockeye and coho salmon. The basic objective of the management plan for each species was to manage according to the conservation requirements, i.e. escapement goals which have been established for each species. This approach was similar to the plans implemented in 1994 and 1995. As with the Stikine River, chinook salmon were harvested as an incidental catch in the directed fishery for sockeye salmon; both Parties had previously agreed to rebuild chinook by 1995.

The Canadian pre-season forecast was for an average return of approximately 219,000 sockeye, close to the previous ten-year average run size of approximately 218,800 sockeye.

In-season projections of the total run size, TAC and total escapement were made frequently throughout the season based on the joint Canada/U.S. mark-recapture program, the estimated interception of Taku sockeye in U.S. fisheries, the catch in the Canadian in-river fishery, and historical run timing information. The final in-season forecast was a total run of 301,400 sockeye, 43% above the previous 10-year average of 210,800 sockeye. The preliminary post season estimate of the terminal run size² is 314,300 sockeye with a TAC of 234,300 to 243,300 sockeye.

The 1996 Canadian sockeye catch was 42,025 sockeye, 41,665 of which was caught in the commercial fishery. The commercial catch was 82% above the 1986-1995 average of 22,911 sockeye. Preliminary analysis indicates that the total Canadian sockeye catch in 1996 represented 18% of the TAC. The preliminary estimate of the contribution of sockeye from the

² Terminal run size estimate excludes U.S. interceptions that occur outside of the District 111 gillnet fishery.

Canada/U.S. enhancement program to Canadian fisheries is 1,100 fish. Returns were not predicted as numbers were expected to be so low.

The estimated total escapement of 92,745 sockeye, derived from the Canada/U.S. mark-recapture program, was above the interim escapement goal of 71,000 to 80,000 fish. Based on weir counts, escapement to the Little Trapper and Little Tatsamenie lake systems was 5,500 and 12,800 sockeye, respectively. The L. Trapper count was the lowest recorded since 1983 when the program began while the L. Tatsamenie count was well above the principal brood year escapement in 1991. The sockeye weir count at Kuthai Lake, 4,243 fish, was average; this program was conducted by the Taku River Tlingit First Nation as one of their projects conducted under the Aboriginal Fisheries Strategy.

The commercial coho catch of 5,028 fish was 9% below the 1986-1995 average catch of 5,527 coho salmon. Preliminary mark-recapture data indicated a spawning escapement of 44,028 coho in 1996. This estimate exceeds the interim escapement goal range of 27,500 to 35,000 coho.

The commercial catch of large chinook, 3,331 fish, was roughly three times the 1986-1995 average of 1,099 fish; the catch of 144 chinook jacks was 25% above the average of 192 jack chinook. Chinook escapement counts were above average in all of the six Taku aerial index areas surveyed by the Alaska Department of Fish and Game. Record counts were observed in two of these areas. The combined index count of 19,777 chinook was 104% above the previous ten-year average of 9,670 fish, and marked the second time that the index escapement goal was exceeded. The chinook index escapement goal is 13,200 fish.

Joint Canada/U.S. enhancement activities continued in 1995 with 5.1 million sockeye eggs taken from the Tatsamenie stock. The 1996 egg collection target was increased from 2.5 to 5.0 million after a number of provincial concerns were addressed. The eggs were flown to the Port Snettisham hatchery in Alaska for incubation and thermal marking. Approximately 1.7 million sockeye fry were out-planted into Tatsamenie Lake in June of 1996 from the 1995 egg-takes. The fry were mass-marked with a thermally-induced otolith mark. Egg-takes at another Taku drainage location, L. Trapper Lake, were suspended in 1995 because juvenile production from the fry plants into Trapper Lake appeared to be well below expectations. The increased egg collection goal at Tatsamenie Lake makes up for the shortfall from the lost production from the Trapper Lake system.

Alsek River

Although catch sharing between Canada and the U.S. has not been specified for Alsek River salmon stocks, both countries have agreed to attempt to rebuild depressed chinook and early run sockeye stocks.

Commercial fisheries are not conducted in Canadian sections of the Alsek drainage, however, the area supports important Aboriginal and sport fisheries.

The Aboriginal fishery harvested 448 chinook, 1,207 sockeye and 56 coho salmon. The Aboriginal catch of chinook was approximately 88% above the 1986-1995 average of 238 fish. The sockeye catch was 38% below the 1986-1995 average of 1,940 sockeye. Conservation measures were implemented in the Aboriginal and recreational fisheries to protect sockeye salmon during the latter part of the run when it became apparent that the return was much weaker than expected. The 1986 to 1995 average coho harvest is 9 fish.

The recreational fishery harvested an estimated 650 chinook, 157 sockeye and 9 coho salmon. Compared to 1986-1995 average sport catches, the chinook catch was 85% above average, the sockeye catch was 60% below average, and the coho catch was 95% below average.

At the Klukshu River, an Alsek River tributary, total weir counts included: 3,599 chinook, the fourth highest on record and 27% above the 1986-1995 average of 2,830 fish; a record low 8,320 sockeye consisting of 1,502 early run sockeye which was 55% below the 1986-1995 average of 3,315 fish, and 6,818 late run sockeye, 55% below the 1986-1995 average of 15,230 sockeye; and 3,465 coho, 66% above the 1986-1995 average of 2,090 fish. The estimated Village Creek sockeye escapement was 1,583 was 68% below the 1986-1995 average of 4,918 fish. Aerial surveys indicated that there was a below average chinook escapement in other Alsek drainage tributaries in Canada.

Northern British Columbia Pink Salmon

Areas 3-1 to 3-4 and 5-11 Pink Catch by Nets

A below average return of pink salmon was anticipated for Canadian northern boundary stocks. The actual return was much larger than forecast, producing an Area 3 to 5 pink catch of 3.2 million (4.6 million in 1995).

The Canadian pink catch in 1996 was 1.1 million in subareas 3(1-4); the 1985-96 average catch is 1.8 million. The percentage of the 1995 Area 3 net catch taken in subareas (1-4) was 76 %, which is above the 1985-96 average of 61% and similar to the pre-Treaty average of 74%.

Pink escapements to rivers and streams in Area 3 were at or near target levels. Area 4 pink escapements were well above the minimum escapement target of 1 million pinks.

Area 1 Pink Catch by Troll

The Canadian troll catch in the A-B line strip in 1996 was 290,000, and the total Area 1 pink troll catch was 711,000. The Area 1 troll fishery was closed on September 23.

Chinook Salmon

North and Central Coasts (Areas 1 to 10, 101 to 111, 30-3, and 142 for Net and Sport; Troll includes above Areas plus 11 and 111)

Non-possession/non-retention provisions applied to all troll fisheries throughout the 1996 season due to extremely reduced chinook stock abundance and conservation concerns for West Coast of Vancouver Island (WCVI) stocks.

The net catch to November 2, based on saleslips, was 32,000. This net catch plus the preliminary sport catch of 11,000 gives a total North/Central coast catch of 43,000. Terminal exclusion net catches of 12,583 are included in this total. The north coast total catch is 62% below the total 1995 catch of 113,331 and 82% below the total catch of 241,000 in 1994.

The troll fishery was open to coho, chum and pink salmon from July 8 to October 7. Based on preliminary information, chinook escapements in all but a few systems in the North and Central coasts were at or above average for recent years.

West Coast Vancouver Island Troll (Areas 21 to 27, 121 to 127 and 130-1)

There was no Pacific Salmon Treaty ceiling for chinook in 1996, however Canada's principal management objective was to address severe conservation concerns with returning WCVI chinook stocks. The objective for the troll fishery was to manage for a complete closure for chinook (non-retention/non-possession). Chinook sensitive areas were closed which included a corridor boundary along the West Coast of Vancouver Island which generally followed the 40 to 60 fathom depth contour (Figure 1 and 2). In addition, Conservation Area G, S and portions of H and F1 (Fig. 3.) were closed all season and additional areas were closed at times that maximized protection for WCVI chinook. A monitoring program was conducted during the season to determine the extent to which chinook were being encountered in the fishery for other salmon species.

The troll fishery for salmonids other than chinooks opened coastwide on July 8.

Strait of Georgia Troll and Sport (Areas 13 to 19, 20-5 to 20-7, 28 and 29)

In response to conservation concerns for the Lower Georgia Strait (LGS) chinook stocks, Canada continued a series of area and gear-specific management actions to reduce the LGS harvest rate by 20 percent. Therefore the Canadian management objectives in the Strait of Georgia for 1996 were to manage sport and troll fisheries for catches below the Treaty ceiling.

The objective for the troll fishery was to manage for a complete closure for chinook (non-retention/non-possession).

In the sport fishery, the chinook management plan implemented in 1989 in Georgia and Johnstone Straits, was continued in 1996. This plan included an annual bag limit of 15, a daily bag limit of 2 and a size limit of 62 cm for Johnstone Strait and the Strait of Georgia north of Cadboro Point. For the Canadian portion of Juan de Fuca Strait (Sheringham Point to Cadboro Point), a daily bag limit of 2, a size limit of 45 cm, and an annual bag of 20 was in effect.

The 1996 sport catch for the Strait of Georgia to the end of September was 93,748 based on creel survey results. The 1996 creel survey was conducted from April 1 to September 30. Sport effort in 1996 was 28% below the 1995 level.

Fraser River Sockeye Salmon

A bilateral pre-season workshop was held by the Fraser Panel in which Canada outlined its proposal for risk averse management of Fraser sockeye salmon fisheries, with a special emphasis on the re-establishment of the Upper Adams River stock. The plan involved the use of a conservative pre-season forecast, escapement allowances, and closure of commercial fisheries if returns were at pre-season forecast levels. If commercial opportunities were identified in-season at higher run sizes, precautionary measures for fisheries would apply, such as closure of the Area 2 West seine fishery at Rennell Sound, and reduced fishing area in Johnstone Strait. Area licensing and reduced fleet sizes were expected to complement the precautionary approach. Based on forecast returns for Early Stuart and Early Summer sockeye stocks, harvest rates in Aboriginal fisheries were expected to be low. The plan also reflected concerns for other species. Thompson River steelhead and Harrison River chinook were expected to preclude Fraser River gillnet fisheries for late run sockeye stocks after early September.

Canada provided an official pre-season forecast of 1,556,000 sockeye and a spawning escapement target of 1,000,000 sockeye. The Fraser River Panel managed Panel Area fisheries in 1996 under the terms of a one year agreement reached on July 19, 1996 between Canada and the United States, which took effect on July 28.

The agreement, which was linked to Canadian coho catch in the west coast troll fishery, specified that commercial fisheries would not be conducted by the U.S. and Canada at the pre-season forecast and escapement targets. The U.S. TAC share was as follows: 16.1% of the TAC when the TAC was less than 2 million; when the TAC was between 2 and 5 million fish, the U.S. catch was not to exceed 322,000 plus 8% of the TAC between 2 and 5 million; when the TAC was greater than 5 million, the U.S. catch was not to exceed 562,000 plus 4% of the TAC above 5 million but the U.S. catch was not to exceed 800,000. The agreement also included provisions for escapement buffers, direction of U.S. fisheries on the summer run sockeye stock group, a Canadian aboriginal fishery exemption of 400,000 for calculation of U.S. TAC shares.

Based on preliminary estimates of catch and the Commission's in-season assessment of gross escapement to the Fraser River, the return was 4,330,000 sockeye, comprised of 119,000 Early Stuart, 720,000 Early Summer, 2,653,000 Summer, and 838,000 late run sockeye. This return was the fourth largest on the 1996 cycle since the early 1900's. In addition to a strong return of Summer runs, particularly strong returns were estimated for Gates and Weaver creeks, and Upper Adams and Raft rivers. Spawning escapement estimates of Fraser River sockeye were conducted by Canada and are currently under review. Once finalized, these estimates will be incorporated in post season estimates of run size.

Preliminary estimates of Fraser River sockeye catch totalled 2,122,000 fish: 1,019,000 fish in Canadian commercial fisheries (not including aboriginal pilot sales), 257,000 fish in U.S. Treaty Indian and non-Indian fisheries (no Fraser sockeye were identified in Alaskan catches), and 738,000 fish in Canadian aboriginal fisheries. The remaining catch of 109,000 sockeye was accounted for in recreational fisheries (15,000), test fisheries (79,000), and a U.S. bird mortality study (15,000).

Coho Salmon

Area 20 Net Catch

There were no targeted coho fisheries in Area 20 in 1996. The incidental catch of coho which occurred from the sockeye directed fishery on August 14/15 totalled 2,600, based on sale slip information to November 22. During this seine fishery, fishermen were requested to voluntarily release coho. No commercial gillnet fishing occurred in this area for 1996. The limited number of days fishing in Area 20 was due to the absence of Fraser pink and the low abundance of returning Fraser sockeye.

West Coast Vancouver Island Troll (Areas 21 to 27, 121 to 127 and 130-1)

Salmon management plans for 1996 included provisions by Canada for coho conservation in a number of fisheries. Canada's goal was to achieve an exploitation rate of less than 60% on Strait of Georgia coho stocks. Various sampling data indicated that Strait of Georgia coho were largely resident outside the Strait in 1996. Canada managed for a WCVI catch ceiling of 1.0 million coho in 1996.

The troll fishery opened coastwide on July 8 with all Conservation Areas closed (Fig. 2.). Measures employed and described earlier to protect chinook also protected coho stocks in those areas to a significant degree. A troll monitoring program was conducted during the season to monitor the extent to which chinook were being encountered during the coho troll fishery. The fishing plan was flexible to make in-season adjustments as required. Chinook sensitive closed areas were expanded as required, or boundaries were adjusted to provide more coho fishing opportunities in areas where chinook encounters were minimal.

Trolling for coho continued until 2359 hours October 7 when all WCVI troll areas closed for the season.

The preliminary estimate of the 1996 WCVI troll catch is 761,200 coho based on sales slips to November 5, 1996.

Southern British Columbia Chum Salmon

Inside Net (Areas 11 to 19, 28 and 29)

The pre-season forecast for Study Area (inside) chum stocks was 4.1 million based primarily on 1992 brood year returns. This forecast consisted of 1.7M Fraser and 2.4M non Fraser (not including 100k US).

Johnstone Strait (Areas 12 and 13)

Following the Johnstone Strait Clockwork Strategy, a one day commercial assessment fishery occurred in Areas 12 and 13 on September 23/24. The catches totalled 76,000 chum salmon. This commercial catch and test fishing indicated a total run through Johnstone Strait of 1.9M (October 3). Under the Clockwork Strategy a run size of greater than 3.0M is required to permit additional commercial harvesting (20% exploitation rate). No further commercial fisheries were scheduled under this run size. Subsequent run sizes updates announced included; 2.3M October 17 and 2.7M October 30. The final in-season run size is estimated at 2.6M. No commercial fisheries have occurred in Johnstone Strait since the September assessment fishery. The recreational fishery in Area 13 is estimated to have caught 20,000. The Aboriginal fishery in Johnstone Strait (Areas 12 and 13) is estimated to have caught 22,000 chum.

Area 12 (Nimpkish terminal area) continues to be monitored, however, harvesting of surplus chum is unlikely.

Strait of Georgia (Area 14 to 19)

No commercial fisheries have occurred in these areas to date. Area 15 (Jervis) and Area 17 (Nanaimo) areas are closed to commercial fishing for the balance of the season. Area 14 (Qualicum) and Area 18 (Cowichan) continue to be monitored, however, fisheries are unlikely in these areas. Recreational catches in Areas 14 to 19 areas are negligible. Aboriginal catches are currently estimated at 16,000.

Note : Test catches for all the above areas totalled approximately 18,000. Catch information is preliminary to date as the season is still in progress and sale slip information continues to be compiled.

GSI Sample Collection

Chum sample collection for stock identification was undertaken in 1996. In total 2,095 samples were collected in Johnstone Strait between September 17 and November 1. The stock identification information from these samples will be used to identify Canadian and U.S. components in the catch, and to calculate productivity estimates for chum salmon.

Fraser River

Test fishing began on the first of September, 1996. To date (November 28) the test fishery has harvested 5,275 chum. The run timing appears to be normal, but the run size is well below the pre-season forecast of 1.7 million. The total terminal run estimated from test fishing catches up to and including November 25, is 518,000, well below the escapement objective of 700,000 and insufficient to support commercial fisheries. Fisheries by First Nations were delayed to conserve steelhead, and took place between October 20 and November 17 from the Fraser River mouth to Sawmill Creek (6 kilometres above Yale and near the upstream limit of chum spawning on the Fraser). Total catch by First Nations to date is 9,387 chum. No further fishing is anticipated with the possible exception of

limited First Nations ceremonial harvests. Two experimental fisheries to selectively harvest chum with beach seine and tangle nets, while releasing other species, were conducted on the lower Fraser between October 1 and November 12 and harvested a total of 1,645 chum.

West Coast Vancouver Island Net (Areas 21 and 22)

Chum salmon returning to Area 22 (Nitinat Lake) are caught in Area 21 and parts of Area 121 and potentially also 20-1. In 1996, pre-season forecasts were for a harvestable surplus of less than 100,000 based on ocean conditions associated with El Nino adversely affecting survival from the 1992 brood year, and to a lesser extent the 1993 brood year. However, there was some optimism that the returns would come back stronger than forecast based on the stronger than expected returns of chinook to Nitinat.

The escapement objective is 250,000 to a maximum of 350,000. The additional 100,000 above the 250,000 target are required for hatchery broodstock requirements, increased distribution of spawners in Nitinat River, and payment for in-lake test fishery and brood stock capture.

The fishing plan is based on achieving weekly escapement goals into Nitinat Lake. Meeting the weekly goals would provide early opportunities for gill nets followed by a seine fishery to balance allocation and then a combined seine and gill net fishery at the peak to end of the run.

A gill net test fishery was implemented September 13, with 8 vessels fishing one or two, 200 fathom chum gill nets, in a predetermined grid pattern. This test fishery continued at 5 days/week through October 9. The objective was to determine the temporal, spatial, and vertical distribution of steelhead, coho, and chum salmon in Area 21.

Test fishing in Nitinat Lake found no build-up until October 5 when 130,000 were estimated. Subsequently, a 2 day gill net fishery was held on October 9-10. One hundred boats participated for a catch of 19,500 chum. Using catch from the 6 vessels with observers on board it was calculated that 19 steelhead and 39 coho were also caught.

Test fishing in Nitinat Lake during the next week indicated that fish were moving in and out of the lake. On October 15 it was estimated that there were 210,000 total in both Nitinat Lake and Nitinat River. Consequently, a second gill net opening was scheduled for October 19-20. The area was opened to trollers at the same time to test the viability of a selective troll fishery for chums and to help balance catches between gears for the season. No trollers chose to participate. By October 17 the estimate in Nitinat Lake had risen to 270,000 and a 2 day seine opening was scheduled for October 21-22. Bad weather forced a 1 day delay. Following this opening gill nets fished for 2 days (October 24-25) and then both gear-types fished together from October 25 until the fishery closed at 1700 on November 8 (no vessels fished on the last day). Catch for the fishery is currently estimated at:

Seine	292,336	16 days fishing
Gillnet	<u>66,913</u>	20 days fishing
Total	359,249	

GSI. Sample Collection

There was no electrophoretic sampling in Areas 21 and 22 for stock composition in 1996.

(Source Document) *1996 Post-Season Report for Canadian Treaty Limit Fisheries.* Canada Department of Fisheries and Oceans. December 10, 1996.

Preliminary 1996 Catches in Canadian Treaty Limit Fisheries and 1986-95 Catches for Comparison. Prepared for the December 10-12, 1996 meeting of the Executive Session of the Pacific Salmon Commission

Fisheries/Stocks	Species	1996 +	1995 +	1994	1993	1992	1991	1990	1989	1988	1987	1986
Stikine River (all gears)	Sockeye	74,281	53,467	45,095	47,197	26,284	22,763	18,024	20,032	15,291	9,615	17,434
	Coho	1,302	3,418	3,381	2,616	1,855	2,648	4,037	6,098	2,117	5,731	2,280
	Chinook- large	2,741	1,646	1,790	1,803	1,840	1,511	2,250	2,669	2,350	2,201	1,938
	Chinook- jack	421	860	350	308	239	660	959	289	444	444	575
	Pink	25	48	90	29	122	394	496	825	418	546	107
	Chum	232	263	173	395	231	208	499	674	733	459	307
	Steelhead	179	270	84	67	132	71	199	127	261	219	194
Taku River (commercial gillnet)	Sockeye	41,665	32,640	28,762	33,217	29,472	25,067	21,100	18,545	12,014	13,554	14,739
	Coho	5,028	13,629	14,531	3,033	4,077	3,415	3,207	2,876	3,123	5,599	1,783
	Chinook- large	3,331	1,577	2,065	1,619	1,445	1,177	1,258	895	555	127	275
	Chinook- jack	144	298	235	171	147	432	128	139	185	106	77
	Pink	0	2	168	16	0	296	378	595	1,030	6,250	58
	Chum	0	1	18	15	7	2	12	42	733	2,270	110
	Steelhead	98	205	232	11	15	5	22	24	86	223	48
Areas 3 (1-4) and 5-11 (commercial net) *	Pink	1,100,000	2,494,000	250,000	1,242,000	1,099,000	6,961,000	831,000	2,259,000	425,000	1,851,000	1,983,000
Area 1 (commercial troll)	Pink	711,000	1,349,000	221,000	890,000	760,000	1,647,000	1,165,000	1,377,000	1,630,000	495,000	416,000
North/Central Coast (commercial/sport) **	Chinook	43,000	113,331	241,000	258,300	262,000	303,200	253,000	301,200	245,600	282,800	261,000
West Coast Vancouver Island	Chinook	0	77,700	146,000	275,000	345,500	202,900	298,000	203,700	408,700	379,000	342,000
Area 12 (com. troll)	Chinook	0	0	2,200	4,200	2,600	1,000	2,000	2,000	2,000	2,000	4,000
Georgia Strait (sport)	Chinook	93,748	61,469	70,800	118,800	116,600	112,700	112,000	133,000	119,000	121,000	182,000
Georgia Strait (troll)	Chinook	0	0	13,000	33,300	37,300	32,000	34,000	29,000	20,000	39,000	44,000
	Total	93,748	61,469	83,800	152,100	153,900	144,700	146,000	162,000	139,000	160,000	226,000
Fraser River stocks (total Canadian catch)	Sockeye	1,019,000	903,000	9,800,000	13,428,000	3,906,000	6,947,000	13,411,000	12,776,000	1,615,000	3,776,000	9,372,000
	Pink	-	3,777,000	-	3,731,000	-	6,405,000	-	7,181,000	-	2,579,000	-
Fraser River stocks (total U.S. catch)	Sockeye	257,000	415,000	2,100,000	2,876,000	700,000	1,881,000	2,427,000	2,439,000	679,000	1,932,000	2,755,000
	Pink	-	1,919,000	-	1,725,000	-	2,789,000	-	2,260,000	-	1,339,000	-
West Coast Vancouver Island (commercial troll)	Coho	761,000	1,304,000	1,251,000	954,000	1,664,000	1,890,000	1,864,000	1,953,000	1,595,000	1,821,000	2,157,000
Johnstone Strait clockwork catch ***	Chum	96,000	269,000	1,295,572	1,271,707	1,368,283	174,269	1,183,901	481,603	1,111,559	90,668	1,060,903

+ 1996 catches are based on in-season hauls, sales slips data to Oct 15 (Transboundary), Oct 28 and Nov 2 (North/Central pinks and chinook respectively), Nov 28 (Fraser River), November 5 and 22 (WCVI coho and chum respectively), November 22 (Area 20); and creel survey sport catch estimates to Sept 30.

+ + 1995 catches are preliminary.

* Area 5-11 catches excluded in 1995 and 1996.

** North Coast catch includes terminal catches of 2,720 in 1995 and 12,583 in 1996, and for remaining years excludes terminal catches of 6,400 in 1994, 7,400 in 1993, 6,100 in 1992, 6,000 in 1991, 5,500 in 1990 and 4,800 in 1989.

*** Canadian clockwork catch includes commercial, IFF and test fish catches in Areas 11-13 and 29 for 1985-87 and in Areas 11-13 for 1988-92, 93, 94 and in Areas 12-13 for 1995 and 1996.

C. PRELIMINARY 1996 POST-SEASON REPORT FOR UNITED STATES FISHERIES OF RELEVANCE TO THE PACIFIC SALMON TREATY

Northern Boundary Area Fisheries

District 104 Purse Seine Fishery

For the 1996 purse seine fishing season, no formal agreement had been reached with Canada on the conduct of the District 104 fishery. The pre-season management plan for the district was to conduct the fishery in a manner to limit fishing time and sockeye harvest rates to levels similar to that which occurred during the 1990 to 1993 annex period.

In 1996 there were three potential weeks of fishing prior to Statistical Week 31. By State of Alaska regulation, the District 104 purse seine season began on July 7 (Statistical Week 28) with a 10-hour opening. During this opening, 21,025 sockeye, 64,665 chum, and 127,080 pink salmon were harvested by 32 boats. No additional fishing took place in the district that week, although the District 101 and 102 fishery was opened for 15 hours later in the week.

On July 14 (Week 29), the fishery was opened for 14 hours, 7 hours on Sunday, July 14 and 7 hours on Monday, July 15. The inside districts were opened for a continuous 39 hours. During the two 7 hour open fishing periods, approximately 171,000 sockeye, 300,000 pink and 54,000 chum salmon were harvested by 74 boats. For the next opening on July 21 (Week 30), the Department felt it was important to maintain a fishery in the district to determine the incoming strength of the different runs even though 192,000 sockeye had been harvested. It was apparent at the time that sockeye returns to the boundary area were at very high levels, as were returns of pink and summer chum salmon, so there were little if any, conservation concerns. However, with the sockeye catch at a high level, the Department took a very conservative stance and only opened the district for 7 hours. The Department also closed the southern portion of the district where sockeye abundance was the highest during the previous openings. During that restricted opening, 52 purse seine vessels caught 22,000 sockeye, 35,000 pink, and 8,000 chum salmon.

No other openings were allowed in the district prior to Statistical Week 31. During Statistical Week 30, the inside districts were opened for 30 hours. Thus, in 1996, in District 104 pre-Statistical Week 31 215,144 sockeye, 456,152 pink, and 128,173 chum salmon were harvested during the 31 hours that the district was opened.

Beginning on July 28 (Week 31) and continuing through the final day of fishing on September 6, the District 104 fishery was managed based on the strength of pink salmon returns to southern Southeast Alaska. During the initial 39 hour opening in District 104, 1,492,000 pink salmon were harvested by 114 boats. From that catch, and from catches and escapements in the inside waters, it was apparent that the pink salmon returns were at very high levels. For the remainder of the season the Southeast Alaska pink salmon purse seine fishery was managed on a 2 day on/2 day off fishing schedule. Pink salmon catches in the District 104 fishery remained at record levels for the remainder of the season. Peak catches occurred in Week 32 when 6,318,000 pink were caught.

A total of 19 million pink salmon were caught in the district during the 1996 season (Table 1). This is the largest pink harvest on record in District 104. This represents approximately 35% of the 55 million pink harvest in southern Southeast Alaska. The season's total for sockeye was 860,000 fish and the total harvest for chum salmon was 484,000 fish, both are the fourth largest harvest since the signing of the Treaty.

Table 1. Catch and effort in the Alaska District 104 purse seine fishery by opening, 1996.

Week/ Opening	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Total	Boats	Hours
28	7-Jul	0	21,025	2,646	127,080	64,665	215,416	32	10
29	14-Jul	0	75,470	2,809	79,947	19,596	177,822	42	7
29B	15-Jul	0	96,451	3,970	214,423	35,559	350,403	74	7
30	21-Jul	0	22,198	1,911	34,702	8,353	67,164	52	7
31	28-Jul	0	160,019	41,866	1,492,019	65,427	1,759,331	114	39
31B	1-Aug	0	169,094	28,301	2,162,592	46,940	2,406,927	150	39
32	5-Aug	0	133,340	27,323	2,976,347	37,522	3,174,532	130	39
32B	9-Aug	0	93,294	21,424	3,341,864	37,200	3,493,782	129	39
33	13-Aug	0	35,334	12,072	2,741,811	30,624	2,819,841	124	39
33B	17-Aug	0	20,194	8,671	1,929,640	21,444	1,979,949	79	39
34	21-Aug	0	12,253	6,014	970,373	23,939	1,012,579	37	39
35	25-Aug	71	11,495	7,384	1,334,277	21,388	1,374,615	53	39
35B	29-Aug	0	9,016	12,315	1,400,626	63,173	1,485,130	50	39
36	2-Sep	0	1,256	1,212	182,156	8,463	193,087	9	39
Total Wks 28-30		0	215,144	11,336	456,152	128,173	810,805	200	31
Total Wks 31-36		71	645,295	166,582	18,531,705	356,120	19,699,773	875	390
Total Season		71	860,439	177,918	18,987,857	484,293	20,510,578	1,075	421

From early August, the Southeast Alaska purse seine fleet was placed on trip limits of approximately 80,000 pounds of pink and 20,000 pounds of chum salmon per 39 hour open fishing period. This reduced the overall harvest of all species since trip limits were being reached by the first day of a two day opening.

The average number of hours, days, and boats fished pre-Week 31 in years 1985-1996 is down 32 to 53% compared to the 1980-1994 period (Table 2). The sockeye harvest is also down 28% despite an increase in sockeye availability in recent years; the average sockeye catch-per-boat-day has increased 96% since 1984.

Table 2. Fishing opportunity, effort, and sockeye harvests prior to Week 31 in the District 104 purse seine fishery, 1980 to 1996.

Year	Hours Fished	Days Fished	Boats Fished	Boat Hours Fished	Boat-Days Fished	Sockeye Harvest	Sockeye Catch/Boat-Hour	Sockeye Catch/Boat-Day
1980	207	10	601	124,407	6,010	266,198	2	44
1981	132	7	400	52,800	2,800	185,188	4	66
1982	117	6	554	64,818	3,324	212,851	3	64
1983	108	6	502	54,216	3,012	168,806	3	56
1984	108	6	369	39,852	2,214	103,319	3	47
1985	84	5	247	20,748	1,235	100,590	5	81
1986	108	6	337	36,396	2,022	91,320	3	45
1987	75	5	227	17,025	1,135	72,385	4	64
1988	108	6	430	46,440	2,580	248,759	5	96
1989	84	5	291	24,444	1,455	157,034	6	108
1990	42	4	374	15,708	1,496	169,943	11	114
1991	41	4	232	9,512	928	98,583	10	106
1992	29	3	201	5,829	603	79,643	14	132
1993	45	4	370	16,650	1,480	163,189	10	110
1994	55	6	223	12,265	1,338	158,524	13	118
1995	58	5	241	13,978	1,205	71,376	5	59
1996	31	4	200	6,200	800	215,144	35	269
Ave. 80-84	134	7	485	67,219	3,472	187,272	3	55
Ave. 85-96	63	5	281	18,766	1,356	135,541	10	109
% Change	-53%	-32%	-42%	-72%	-61%	-28%	244%	96%

Tree Point Drift Gillnet Fishery

The Tree Point drift gillnet fishery opens by regulation on the third Sunday of June. During the early stages of the fishery, management is based on the run strength of the Alaska wild stock chum and sockeye salmon and on the strength of the Nass River sockeye salmon. Beginning in the third week of July, when pink salmon stocks begin to enter the fishery in large numbers, management emphasis shifts by regulation to that species. The District 101 Pink Salmon Management Plan sets gillnet fishing time at Tree Point in relation to the District 101 purse seine fishing time when both fleets are concurrently harvesting the same pink salmon stocks. The U.S./Canada Pacific Salmon Treaty calls for an average annual harvest of 130,000 sockeye salmon.

In 1996, the gillnet fishery at Tree Point was opened for a 4-day fishing week on June 16 (Week 25). Catches of chum and sockeye salmon during the early weeks of the fishery were above the long term average. Summer chum escapements and the escapement of sockeye into the Nass River were at, or above, goal for that time of the season. With the good chum catches, the Portland Canal area was opened for the rest of the summer season, starting in Week 26. No effort or catches were recorded from the open area of Portland Canal. The Tree Point fishery was allowed four days of fishing per week during the first four weeks of the 1996 season.

The fishery was managed according to the Pink Salmon Management Plan from Week 30 through Week 36. During that time returns of pink salmon were at very high levels to District 101 and the Tree Point fishery was opened either four or five days per week. During those weeks the number of boats participating in the Tree Point gillnet fishery was below average. The

overall catch of pink salmon was also well below average. Catches of chum salmon stayed strong throughout the summer and the final harvest of 602,079 was the second highest on record. Sockeye catches were also above average with the season's total of 212,403 sockeye the third highest on record.

Starting in Week 37 and continuing through the close of the fishery on September 24 (Week 39), the fishery was managed on the strength of the fall chum and coho returns. While chum catches were strong, coho catches were below average. A small fleet of only 25 boats fished Tree Point over the last three weeks.

Table 3. Weekly catch and effort in the Alaska District 101 commercial drift gillnet fishery, 1996.

Week/ Opening	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Total	Boats	Hours
25	16-Jun	648	36,147	87	80	12,604	49,566	101	96
26	23-Jun	275	27,293	413	11,469	47,315	86,765	117	96
27	30-Jun	154	48,361	1,995	27,248	111,846	189,604	97	96
28	7-Jul	75	20,509	1,300	51,632	91,845	165,361	98	96
29	14-Jul	38	12,570	1,372	38,790	87,603	140,373	96	120
30	21-Jul	26	26,589	2,246	38,329	33,212	100,402	85	96
31	28-Jul	18	13,992	1,796	39,008	34,230	89,044	84	120
32	4-Aug	16	17,086	3,301	55,366	35,253	111,022	70	120
33	11-Aug	5	5,060	1,553	43,177	12,891	62,686	62	120
34	18-Aug	1	3,334	4,598	27,923	41,537	77,393	47	120
35	25-Aug	1	775	2,163	18,811	36,021	57,771	41	120
36	1-Sep	0	168	1,815	6,827	24,148	32,958	35	120
37	8-Sep	0	225	2,562	10,333	18,913	32,033	25	96
38	15-Sep	0	262	5,272	2,005	9,741	17,280	25	72
39	22-Sep	0	32	2,696	37	4,920	7,685	25	48
Total		1,257	212,403	33,169	371,035	602,079	1,219,943	1,008	1,536

Table 4. Annual harvest, and average annual harvest, of sockeye salmon in the Alaska District 101 drift gillnet fishery, 1985-1996.

Year	Annual Harvest	Average Annual Harvest	Deviation from 130,000 Annex Average
1985	172,863	172,863	42,863
1986	145,657	159,260	29,260
1987	107,595	142,038	12,038
1988	116,240	135,589	5,589
1989	144,936	137,458	7,458
1990	85,690	128,830	(1,170)
1991	131,492	129,210	(790)
1992	244,649	143,640	13,640
1993	394,098	171,469	41,469
1994	100,377	164,360	34,360
1995	164,277	164,352	34,352
1996	212,403	168,356	38,356

Escapements

Pink salmon escapements were well distributed throughout southern Southeast Alaska in 1996. Index escapement goals were exceeded in all districts in southern Southeast Alaska (Districts 101 - 108). Escapement indices totalled 13.8 million, or 7.2 million above the mid-range goal of 7.6 million. The escapement index of 13.9 million pink salmon is the second largest on record. This escapement level is in the same magnitude as the 12.4 million in 1984 and the record 14.4 million in 1985.

Programs to estimate salmon escapements are only in place for two systems in southern Southeast Alaska, Hugh Smith and McDonald Lakes. The sockeye escapement to Hugh Smith Lake was 7,124 based on weir counts. The informal escapement goal for Hugh Smith is 27,000 sockeye salmon. The escapement of sockeye salmon into McDonald Lake was estimated to be 61,720 based on expanded foot surveys. The informal goal range is 70,000 to 85,000 salmon. Approximately 234,000 McDonald Lake sockeye were harvested in a directed seine fishery in Yes Bay.

Escapements of summer and fall chum salmon were generally well above levels observed in recent years throughout southern Southeast Alaska. Summer chum escapements into Hidden Inlet, Boca de Quadra and Behm Canal systems were all at high levels. However, the escapement of chum salmon into Fish Creek at the head of Portland Canal was below some recent years levels.

Aerial and foot surveys for coho salmon indicated escapements were within acceptable ranges throughout southern Southeast Alaska. The Ketchikan area coho escapement index of 9,869 was the third highest since the index program began in 1987.

Transboundary Area Fisheries

Stikine River Area Fisheries

The 1996 harvest in the District 106 commercial gillnet fishery included 644 chinook, 311,100 sockeye, 223,596 coho, 188,035 pink, and 283,179 chum salmon (Table 5). District 106 catches of chinook and pink salmon were below the 1986 to 1995 average while the catches of all other species were above the average. The sockeye catch was the highest on record, the chum salmon catch was the second highest on record, behind 1995, and the coho catch was the fourth highest on record. An estimated 24% of the coho catch was of Alaskan hatchery origin. The U.S./Canada joint Tahltan and Tuya lakes enhancement project contributed an estimated 15,070 sockeye to the catch.

Table 5. Weekly salmon catch in the Alaskan District 106 commercial drift gillnet fisheries, 1996. Catches do not include Blind Slough terminal area harvests.

Week	Start Date	Catch					Effort		
		Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
25	16-Jun	71	3,171	468	29	1,334	59	2.0	118
26	23-Jun	229	27,418	3,070	497	11,763	78	2.0	156
27	30-Jun	91	33,426	4,731	1,975	25,471	88	5.5	484
28	7-Jul	69	38,882	7,197	5,818	49,899	118	5.5	649
29	14-Jul	54	46,654	11,371	6,309	61,364	140	3.0	420
30	21-Jul	47	57,285	19,724	12,307	45,771	158	3.0	474
31	28-Jul	44	39,516	26,529	16,142	20,972	162	3.0	486
32	4-Aug	28	38,720	30,104	33,415	20,115	153	3.0	459
33	11-Aug	2	14,969	20,561	41,938	10,448	150	3.0	450
34	18-Aug	3	5,888	17,614	34,738	8,458	125	3.0	375
35	25-Aug	2	3,283	22,927	25,962	10,952	130	3.0	390
36	1-Sep	1	1,145	31,422	6,474	11,514	123	3.0	369
37	8-Sep	3	674	22,160	2,359	4,237	104	3.0	312
38	15-Sep	0	63	4,638	71	676	58	2.0	116
39	22-Sep	0	6	1,080	1	205	9	2.0	18
Total		644	311,100	223,596	188,035	283,179		46.0	5,276

In the District 108 fishery, 1,717 chinook, 154,150 sockeye, 19,059 coho, 37,651 pink, and 135,623 chum salmon were harvested (Table 6). Catches of all salmon species were above the 1986-1995 average with both the sockeye and chum catch being the highest on record and the coho catch being the sixth highest on record. An estimated 7% of the coho catch was of Alaskan hatchery origin. The U.S./Canada joint Tahltan and Tuya lakes enhancement project contributed an estimated 22,103 sockeye to the catch.

Table 6. Weekly salmon catch and effort in the Alaskan District 108 commercial drift gillnet fishery, 1994. Catches do not include Ohmer Creek terminal area harvests. The permit days are adjusted for boats which did not fish the entire opening and are less than the sum of the permits times days open.

Week	Start Date	Catch					Effort		
		Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
24	9-Jun	79	91	0	0	12	22	1.0	22
25	16-Jun	313	5,770	176	1	1,179	40	4.0	72
26	23-Jun	630	41,082	181	21	3,005	98	5.5	242
27	30-Jun	352	46,049	473	423	20,900	122	5.5	311
28	7-Jul	169	32,208	869	4,544	58,033	128	5.5	333
29	14-Jul	67	13,910	756	11,268	27,525	90	5.0	215
30	21-Jul	65	11,877	1,439	13,790	20,038	66	5.0	151
31	28-Jul	15	1,960	522	4,930	1,990	18	3.0	51
32	4-Aug	2	643	702	1,217	1,195	10	3.0	30
33	11-Aug	3	217	484	519	114	5	3.0	15
34	18-Aug	0	72	639	130	127	9	3.0	27
35	25-Aug	0	143	4,048	198	404	21	3.0	63
36	1-Sep	8	16	2,077	74	229	13	3.0	39
37	8-Sep	14	79	3,884	372	412	21	3.0	42
38	15-Sep	0	28	2,239	161	365	20	2.0	44
39	22-Sep	0	5	570	3	95	5	2.0	18
Total		1,717	154,150	19,059	37,651	135,623		56.5	1,675

Harvest sharing of Stikine sockeye stocks is based on in-season abundance forecasts produced by the Stikine Management Model (SMM) (Table 7). Average stock proportions from the post-season analysis in previous years were assumed for weekly catches; the averages used each week depended upon whether the run was judged to be below average, average, or above average. Based on average stock compositions in years of large Stikine River sockeye runs, the Sumner Strait fishery (Subdistricts 106-41 & 42) harvested 57,745 Stikine sockeye salmon, 25.8% of the total sockeye harvest in that subdistrict; the Clarence Strait fishery (Subdistrict 106-30) took 4,731 Stikine fish, 5.4% of the catch in that subdistrict; and the District 108 fishery, near the mouth of the Stikine River, harvested 116,149 Stikine fish, 75.3% of the District 108 catch. An estimated 178,625 Stikine sockeye salmon were harvested in commercial gillnet fisheries from both districts, representing 38% of the total sockeye catch. Of these 178,625 Stikine sockeye salmon, 37,173 fish were estimated to be produced by the joint U.S./Canada transboundary enhancement project.

Table 7. Weekly forecasts of run size and total allowable catch for Stikine River sockeye salmon as determined in-season by the Stikine Management Model, 1996.

Stat. Week	Start Date	Forecasts Run Size	TAC	TAC		Cumulative Catch	
				U.S.	Canada	U.S.	Canada
Model Runs Generated by the U.S.							
25	16-Jun	341,000	287,000	143,500	143,500	3,970	
26	23-Jun	341,000	287,000	143,500	143,500	22,029	1,605
27	30-Jun	220,301	166,301	83,151	83,151	61,827	19,542
28	7-Jul	410,268	356,268	178,134	178,134	106,592	31,841
29	14-Jul	492,859	438,859	219,430	219,430	132,085	48,266
30	21-Jul	427,959	373,959	186,980	186,980	148,813	54,318
31	28-Jul	419,371	365,371	182,686	182,686	164,480	73,241
32	4-Aug	360,476	306,476	153,238	153,238		

U.S. forecast were as follows: the pre-season forecast was used for weeks 25, and 26; the in-river test fishery CPUE data for week 27, and the forecast based on in-river commercial fishery CPUE was used for the remainder of the sockeye season. (Canada independently generates forecasts that may use different criteria in some weeks.)

The estimated Stikine sockeye run was 368,184 fish (Table 8); the estimated spawning escapements of 33,759 Tahltan and 48,891 non-Tahltan were well above the respective escapement goals.

Table 8. Preliminary run reconstruction for Stikine sockeye salmon, 1996.

	Tahltan	Tuya	non-Tahltan	Total
Escapement	52,500	12,575	48,891	113,966
Broodstock	4,402			
ESSR	13,932			
Otoliths	407			
Spawning	33,759	12,575	48,891	95,225
Canadian Harvest				
Indian Food	6,226	162	530	6,918
Upper Commercial	991	27	83	1,101
Lower Commercial	34,871	7,930	23,461	66,262
Total	42,088	8,119	24,074	74,281
% Harvest	33.0%	28.5%	24.9%	29.4%
Test Fishery Catch	852	146	314	1,312
In-river Run	95,440	20,840	73,279	189,559
U.S. Harvest				
106-41&42	35,119	8,961	13,665	57,745
106-30	3,896	90	744	4,731
108	46,537	11,308	58,304	116,149
Total	85,552	20,359	72,713	178,625
% Harvest	67.0%	71.5%	75.1%	70.6%
Total Run	180,992	41,199	145,992	368,184
Escapement Goal	24,000		30,000	54,000
TAC	156,992	41,199	115,992	314,184
Canada TAC	78,496	20,600	57,996	157,092
Actual Catch	42,088	8,119	24,074	74,281
% of TAC	26.8%	19.7%	20.8%	23.6%
U.S. TAC	78,496	20,600	57,996	157,092
Actual Catch	85,552	20,359	72,713	178,625
% of TAC	54.5%	49.4%	62.7%	56.9%

In-season run size and catch estimates showed that the U.S. catch was within the 50:50 share allocation while the preliminary post-season estimates indicate the U.S. being above 50%. The post-season estimates are likely to change somewhat as stock identification analyses are completed.

Taku River Area Fisheries

The District 111 1996 commercial gillnet harvest totalled 2,659 chinook, 199,014 sockeye, 33,633 coho, 12,660 pink, and 354,067 chum salmon (Table 9). The sockeye and chum salmon catches were the largest in the history of the fishery, while catches of chinook, coho and pink salmon were below average. Enhanced stocks contributed significantly to the harvests of all species except pink salmon. Estimated contributions of enhanced returns of sockeye salmon from

joint U.S./Canada Taku River enhancement programs totalled 1,919 Trapper Lake and 2,858 Tatsamenie Lake. Additionally, 2,845 domestic U.S. enhanced fish were taken in the fishery. An estimated 23% of the coho catch was of Alaska hatchery origin. Alaska hatchery chum salmon contributed the majority of the summer chum catch. The fall chum salmon harvest (i.e. chum salmon caught after statistical week 33) totalled 6,455 fish, 78% below the previous 10-year-average of 28,983 and the lowest harvest since 1975. The pink salmon catch of 12,660 in the District 111 gillnet fishery was only 7% of the 1986 to 1995 average of 184,657 fish. Pink salmon runs in the Juneau area north of the Taku River were extremely poor in 1996, despite outstanding escapements in the 1994 parent-year. However escapements to the Taku River and Stephens Passage streams were generally very good; contribution rates of enhanced pink salmon is unknown.

Several other fisheries in the Juneau area harvested transboundary river stocks in 1996. Preliminary estimates of the harvest in the U.S. personal use fishery in the lower Taku River are 87 chinook, 2,977 sockeye, 163 coho, 285 pink, and 15 chum salmon. The spring Juneau-area sport fishery harvested an estimated 4,900 chinook salmon. An estimated 3,960 (80%) were mature wild spawners and additional 760 (15%) were of Alaskan hatchery origin (CWT estimate). A number of stocks are thought to contribute to the fishery, including those from the Taku, Chilkat, and King Salmon rivers, and local hatchery stocks, but the major contributor of mature fish is believed to be the Taku River. The July Hawk Inlet shoreline purse seine fishery north of Point Marsden in Chatham Strait was not opened this year due to very poor runs of pink salmon to many Juneau area streams; this fishery, when open, harvests some salmon of Taku River origin.

Table 9. Weekly catch and effort in the Alaskan District 111 commercial drift gillnet fishery, 1996.

Week	Start Date	Catch					Effort		
		Chinook	Sockeye	Coho	Pink	Chum	Boats	Days Open	Boat Days
25	16-Jun	766	3,371	26	3	5,409	59	3.0	177
26	23-Jun	1,058	9,110	85	33	34,056	73	3.0	219
27	30-Jun	363	19,711	161	582	82,099	83	4.0	332
28	7-Jul	212	30,127	206	1,297	63,468	88	4.0	352
29	14-Jul	116	51,914	403	3,143	54,609	86	4.0	344
30	21-Jul	60	43,426	1,074	4,023	72,716	106	4.0	424
31	28-Jul	43	20,368	790	1,734	28,238	92	4.0	368
32	4-Aug	16	10,868	2,027	789	5,146	52	4.0	208
33	11-Aug	4	6,925	4,085	442	1,871	60	4.0	240
34	18-Aug	2	1,475	4,186	514	1,337	43	3.0	129
35	25-Aug	3	1,197	6,640	92	1,309	48	3.0	144
36	1-Sep	12	333	7,860	3	2,215	59	3.0	177
37	8-Sep	3	162	4,761	5	1,390	47	2.0	94
38	15-Sep	1	27	1,329	0	204	21	1.0	21
Total		2,659	199,014	33,633	12,660	354,067		46.0	3,229

Efforts to re-negotiate harvest shares of Taku River salmon during the Pacific Salmon Commission and government-to-government negotiations prior to the 1996 season were not successful. As a result, the Parties unilaterally developed fishing plans for Taku River salmon stocks. The U.S. management plan reflected the provisions that were in effect for 1993, namely

to provide for Canadian harvests of 18% of the TAC of wild Taku River sockeye, 50% of the enhanced sockeye TAC, and 3,000 coho.

The total Taku River sockeye run was an estimated 301,102 fish, which was 44% above the 1986-1995 average run size of 208,458 fish. Based on the escapement goal range of 71,000 to 80,000 fish, the TAC was 219,293 to 228,293 sockeye salmon of which the U.S. harvested 72% to 75%. The estimated escapement of 92,745 sockeye salmon in 1996 was above the escapement goal range.

Taku River sockeye salmon have comprised an average of 82% of the District 111 sockeye catch from 1983 to 1995. This average was used in the preliminary run reconstruction (Table 10).

Table 10. Preliminary Taku sockeye salmon run reconstruction, 1996. Estimates do not include spawning escapements below the U.S./Canada border.

	Taku	Snettisham Stocks
Escapement	92,745	Not Available
Canadian Harvest		
Commercial		
Wild	40,646	
Enhanced	1,019	
Food Fishery	360	
Total	42,025	
% Harvest	20.2%	
Test Fishery Catch	0	
Above Border Run	134,770	
U.S. Harvest		
District 111		
Wild	158,578	32,814
Enhanced	4,777	2,845
Personal Use	2,977	
Total	166,332	
% Harvest	79.8%	
Test Fishery Catch	0	
Total Run	301,102	
Taku Harvest Plan	Minimum	Maximum
Escapement Goal	71,000	80,000
TAC	230,102	221,102
Canadian portion	18.3%	19.0%
U.S. Portion	72.3%	75.2%

Alsek River Area Fisheries

Although catch sharing of Alsek salmon stocks between Canada and the U.S. has not been specified, Annex IV of the Pacific Salmon Treaty does call for a co-operative attempt to rebuild

depressed chinook and early-run sockeye stocks. Pre-season expectations were for an above average run of early sockeye salmon, an average run of late run sockeye and an average run of chinook salmon. These expectations were based on parent-year escapements to the Klukshu River. The Alsek River was opened to commercial fishing on week 23, the first Monday in June (June 3). This marked the third year in a row that the Alsek was opened on the earliest date allowed by regulation. The initial opening was limited to 12 hours in order to evaluate the effectiveness of chinook conservation measures. Fishery performance indicated that the early segment of the sockeye run was average and that the chinook harvest was above expected levels. Fishing time was not extended during the initial opening. CPUE was well above average during the second week of the season, but fishing time was kept at one day due to the chinook harvest. As the season progressed it appeared that the run of sockeye was slightly above average and the fishery was managed accordingly.

The Dry Bay commercial set gillnet fishery harvested 771 chinook, 15,182 sockeye, 5,373 coho, no pink, and 165 chum salmon (Table 11). The sockeye harvest of 15,182 fish was about 17% below the 1986-1995 average of 18,263. The chinook harvest of 771 fish was more than double the 1986-1995 average of 354 fish, but was slightly below the 1961-1995 average of 816 chinook salmon. The coho harvest of 5,373 was 30% higher than the 1986-1995 average of 4,491 coho; the pink and chum catches were below average.

In spite of the apparent average run size of sockeye based on CPUE in the Dry Bay gillnet fishery, the escapement to Klukshu was only 8,320 fish; a record low count and only 45% of the 1986 to 1995 average of 18,545.

Table 11. Weekly catch and effort in the U.S. commercial fishery in the Alsek River, 1996.

Week	Start Date	Catch					Effort		
		Chinook	Sockeye	Coho	Pink	Chum	Boats	Days Open	Boat Days
23	2-Jun	144	438	0	0	0	21	0.5	10.5
24	9-Jun	348	1,325	0	0	0	25	1.0	25.0
25	16-Jun	190	2,336	0	0	0	27	2.0	54.0
26	23-Jun	63	1,008	0	0	0	16	3.0	48.0
27	30-Jun	14	1,136	0	0	1	22	2.0	44.0
28	7-Jul	9	1,159	0	0	4	19	3.0	57.0
29	14-Jul	2	933	0	0	0	4	3.0	12.0
30	21-Jul	0	1,860	0	0	1	^a	3.0	^a
31	28-Jul	0	1,279	1	0	0	4	2.0	8.0
32	4-Aug	0	3,123	198	0	8	11	4.0	44.0
33	11-Aug	0	394	566	0	2	10	2.0	20.0
34	18-Aug	1	115	996	0	2	6	3.0	18.0
35	25-Aug	0	15	1,002	0	1	4	3.0	12.0
36	1-Sep	0	39	1,293	0	24	8	4.0	32.0
37	8-Sep	0	15	463	0	22	5	4.0	20.0
38	15-Sep	0	7	809	0	100	6	4.0	24.0
39	22-Sep	0	0	45	0	0	^a	4.0	^a
Total		771	15,182	5,373	0	165		47.5	442

^a Effort is not listed by week, but is included in the season total.

Transboundary River Joint Enhancement Activities

In 1996, fry were outplanted to Tahltan, Tuya, and Tatsamenie Lakes over the periods June 15 to 24, June 21 to July 2, and June 16 to 25, respectively. Egg survivals and numbers of fry outplanted are summarized in Table 12.

Table 12. Green egg to outplanted fry survival rates for 1995 brood year transboundary river sockeye salmon enhancement projects.

Lake	Green Eggs	Eyed Eggs	Fry Planted	Survival
Tahltan	3,000,000	2,730,000	2,300,000	77%
Tuya	3,880,000	3,090,000	2,500,000	64%
Tatsamenie	2,410,000	2,030,000	1,700,000	71%

Green egg to fry survivals for all outplant groups was below average. For the Tahltan eggs planted in both Tahltan and Tuya the low survival was largely due to the loss of three incubators due to the IHN virus (853,000 eggs).

Eggs were collected from the 1996 sockeye escapements to Tahltan and Tatsamenie Lakes. A total of 6.2 million eggs was collected at Tahltan Lake, slightly above the 6.0 million egg-take goal. The new Tatsamenie Lake egg-take goal of 5.0 million was met; the former goal was 2.5 million.

The Snettisham Hatchery Central Incubation Facility operated very well during the last year. The State of Alaska transferred the operation of Snettisham from ADF&G to DIPAC (Douglas Island Pink and Chum, Inc), a private aquaculture organization with two other operational hatcheries in Juneau. A co-operative agreement between ADF&G and DIPAC provides for Snettisham to continue to serve the needs of the joint transboundary river enhancement projects. The transfer took effect on July 1, 1996; the new managers are doing an excellent job of hatchery operation.

Alaska Department of Fish and Game's Otolith Processing Laboratory was able to meet the objectives identified as part of the US/Canada agreements in enhancing sockeye production. The lab provided managers with an in-season estimate of the proportion of enhanced sockeye in 62 commercial openings over a 10 week period. In 1996, 7,236 otoliths were extracted from the District 106 and 108 fisheries near the Stikine River and 3,129 otoliths were taken from the District 111 fisheries near the Taku River. On a weekly basis for each fishery, a portion of the otoliths collected were immediately processed to provide fisheries managers an estimate of stock composition. Most of the remaining otoliths were processed later to increase precision around the initial estimates. Numerous other juvenile and adult sockeye salmon samples were processed by the lab in 1996 in connection with assessment of outplant survivals in transboundary river lakes and domestic projects.

Southeast Alaska Chinook Salmon Fishery

All Gear Harvest

The preliminary estimate of the 1996 chinook salmon catch by all Southeast Alaska fisheries was 217,200 (Table 13). The base catch (total minus the add-on was 149,000. The 1996 fishery was managed to achieve a base catch of between 140,000 to 155,000. The add-on is expected to increase following an adjustment for a large percentage of lost tags from the Medviejie and Hidden Falls facilities.

Table 13. Chinook all-gear catches in Southeast Alaska, 1987 to 1995, and deviation from the ceiling for years for which there were ceilings. Catches in thousands.

Year	Total Catch	Add-on Catch	Ceiling	Base Catch	Deviation Number	Deviation Percent
1987	281.9	16.7	263	265.2	2.2	0.8%
1988	278.9	23.7	263	255.2	-7.8	-3.0%
1989	291.1	26.7	263	264.4	1.4	0.5%
1990	366.9	53.7	302	313.2	11.2	3.7%
1991	357.0	61.4	273	295.6	22.6	8.3%
1992	260.0	38.3	263	221.7	-41.3	-15.7%
1993	301.9	33.7	263	268.2	5.2	2.0%
1994	261.9	30.9		231.0		
1995	231.1	56.6		174.5		
1996	217.2	68.2		149.0		

Troll Fishery

The winter troll fishery harvested 9,400 chinook salmon from October 11, 1995 through April 14, 1996. A total of 1,650 fish were from Alaska hatcheries.

Terminal and experimental fisheries were conducted prior to the July general summer opening. The experimental fisheries are designed to increase the harvest of Alaskan hatchery produced chinook salmon by allowing trolling in small areas of the migratory path close to the hatchery. Terminal fisheries occurred directly in front of hatcheries or at remote release sites.

There is no limit on the number of chinook salmon harvested in the terminal and experimental fisheries. However, the experimental fisheries limit the take of Treaty chinook salmon according to the percentage of the Alaskan hatchery fish taken in the fishery. The catches in 1996 were: 16,360 in the terminal fishery and 31,000 in the experimental fishery. A total of 66% of the chinook salmon landed in these fisheries were from Alaska hatcheries. The Department is working with the operators of the Medviejie and Hidden Falls facilities to adjust the tagging ratios for broods returning to these facilities. Abnormally high tag loss was noted in experimental and terminal fisheries targeting on these fish.

The summer fishery began on July 1 and continued through July 10. The fishery harvested 76,400 chinook salmon of which 4,600 were from Alaska hatcheries. A second opening occurred on August 19 and 20. A total of 8,200 chinook salmon were harvested with 200 from Alaska hatcheries.

The total troll harvest was 141,400.

Net Fisheries

Net fisheries have a guideline harvest of 20,000 chinook salmon plus Alaska hatchery add-on chinook. Catches of chinook salmon in the net fisheries are incidental to the harvest of other species and only constitute a small fraction (<1.0%) of the total net harvest. In 1996, the net fisheries harvested 37,600 chinook salmon of which 29,000 were from Alaska hatcheries.

Recreational Fisheries

The recreational fishery had a harvest of 38,500 chinook salmon of which 8,600 were from Alaska hatcheries.

Coho Salmon Fisheries

Southeast Alaska Coho Salmon Fisheries

There are no specific provisions in the Annex IV chapter on coho salmon that apply to Southeast Alaska fisheries. These fisheries are managed by the Alaska Department of Fish and Game to achieve coho salmon conservation objectives and gear allocation objectives established by the Alaska Board of Fisheries. No catch ceilings are used, rather fisheries are managed based on in-season assessment of run strength.

In 1996, coho salmon abundance was on the order of the 1992 and 1993 runs. The season opened by regulation on June 15, however, few coho salmon are caught until the general summer season began on July 1. The late July assessment indicated that the run was projected to be greater than the conservation threshold of 1.12 million. A second assessment in early August indicated that a closure was necessary to move fish into the inside areas for harvest and escapement. The troll fishery was closed from August 14 through 18. The troll season closed on September 20.

The 1996 total coho harvest was 3.04 million (Table 14).

Table 14. Coho salmon harvest in Southeast Alaska in 1996 by gear type.

Gear Type	Harvest
Troll	1,909,800
Purse Seine	446,900
Drift Gill net	404,600
Set Gillnet	227,800
Recreational	50,000
Total	3,039,100

The biological escapement goals were met for all four wild CWT indicator stocks. In addition, surveys and estimates for other systems indicated that escapements were very strong throughout the southern portion of the region and within the ranges in the northern portion and Yakutat.

Southern U.S. Chinook and Coho Fisheries

Ocean Fisheries off Central Oregon

The chinook harvest by fisheries off the Oregon coast is primarily comprised of stocks that do not significantly migrate into Canada. The Northern Oregon Coastal (NOC) is far north migrating and contributes substantially to south east Alaskan and Canadian fisheries. This stock group is taken only to a minor degree by Oregon coastal fisheries (probably <5% of total catch). The Mid-Oregon Coastal (MOC) stock aggregate is harvested primarily along the west coast of Vancouver Island. Oregon ocean fisheries are believed to account for a much larger percentage of the total mortality of the stock, but catch data are readily available for only one population of this group in a pre-terminal fishery near the mouth of the Elk River. Both the NOC and MOC stock groups are harvested by recreational fisheries in estuary and freshwater areas as mature fish return to spawn.

The 1996 late season troll fishery near the mouth of the Elk River is still in progress, but total catch is expected to be less than 1,000 chinook. The 1996 recreational fishery is currently underway, in-season estimates are not made. Catch statistics for the 1995 troll and recreational fisheries are not yet available.

Columbia River

The state of Washington, in cooperation with other state, federal, and tribal fish managers in the Columbia River signed three-year (1996-1998) Management Agreements for in-river fisheries on upper Columbia River fall and spring/summer chinook stocks. These agreements work in conjunction with the requirements of the Endangered Species Act to protect depressed chinook stocks while allowing for harvest of healthy stocks of chinook. Forecasts for spring chinook in 1996 were below average resulting in a short non-treaty commercial fishery of only three days and a reduced sport fishery in the mainstem Columbia River. The treaty fishery occurred in the traditional time frame of February to mid-March, targeting primarily steelhead and sturgeon. There have been no directed summer chinook commercial fisheries since 1964.

Fall season commercial fisheries in the Columbia River consisted of non-treaty fisheries below Bonneville Dam and treaty Indian fisheries above Bonneville Dam. Non-treaty chinook commercial fisheries on fall stocks occurred for the first time since 1992, and were designed to target healthy upriver chinook stocks and constrain the impacts on depressed lower river hatchery stocks within the limits set forth in the 1996-1998 agreement. The fishery occurred in the area just below Bonneville Dam for four days in late August and four days in mid-September, with a total catch of 8,600 chinook. Late fall coho fisheries began in late September and continued through late October from 2-4 days/week. Effort was very light and total catch was 5,400 coho, compared to the recent 10-year average 218,500 coho landed in late fall fisheries.

Treaty fisheries above Bonneville Dam occurred during the month of September for a total of 17 days. A total of 61,600 fall chinook and 5,600 coho were harvested in 1996. The fall chinook catch of 61,600 compares with the 1995 catch of 31,400 fish and the recent 10-year average of 76,100 fish.

The total 1996 mainstem Columbia River sport catch below Bonneville Dam was 11,000 chinook and 6,600 coho. An additional 4,000 chinook were harvested in the Hanford Reach area of the Columbia River. The spring chinook sport fishery was cut short because of low forecasted returns of spring chinook to the Columbia River, the total catch was zero. There have been no directed summer chinook recreational fisheries since 1973. Fall sport fisheries in

the Columbia River consisted of a Buoy 10 fishery at the mouth of the Columbia River and mainstem fisheries from the mouth to Priest Rapids Dam. The Buoy 10 fishery began on August 1 for coho, however, chinook retention was not allowed until August 30 to protect lower river hatchery chinook stocks. The Buoy 10 fishery produced a catch of 3,500 chinook and 6,400 coho, which compares to 900 chinook and 5,000 coho in 1995 and zero chinook and 1,800 coho in 1994.

Ocean Fisheries North of Cape Falcon

The U.S. ocean fisheries operating north of Cape Falcon, OR are typically constrained by coho and chinook ceilings developed through the domestic regulatory process of the Pacific Fisheries Management Council (PFMC). In 1996, pre-season forecasts indicated that lower Columbia River hatchery chinook stocks were projected to return below egg-take goal levels, even in the absence of any 1996 fishing. In response to this situation, extensive chinook fishery closures were implemented in both pre-terminal and terminal areas to ensure the maximum return of these Columbia River stocks to hatchery facilities.

In 1996, the PFMC adopted seasons that did not allow non-tribal retention of chinook in the area north of Cape Falcon. This represents the third consecutive year that commercial troll chinook harvest was prohibited to protect depressed stocks in the non-tribal North of Falcon fishery. The ocean commercial and recreational fisheries operating in the PFMC region north of Cape Falcon were constrained by domestic quotas for coho salmon. In 1996, coho quotas were set based on concerns for Oregon coastal, Queets, Hood Canal, Strait of Juan de Fuca and Skagit natural coho stocks. Separate quotas were established for the tribal troll and non-tribal fisheries.

The 1996 North of Falcon non-tribal troll coho catch is estimated at 17,500, slightly below the quota of 20,800 coho. This harvest represents only 36% of the average harvest seen during the previous 5-year period in which coho retention was allowed in the North of Falcon non-tribal troll fishery (1990-1993, 1995). Preliminary recreational catch is estimated at 56,034 coho (7,065 Oregon and 48,969 Washington) on a quota of 62,200. This catch represents only about 34% of the average coho catch taken in the North of Cape Falcon recreational fishery over the last 5-years in which harvests of coho were allowed (1990-1993, 1995).

The preliminary estimate of 1996 North of Falcon tribal troll chinook catch is 12,400 on a quota of 11,000. The tribal troll catch of coho is estimated at 18,500 on a quota of 30,000. These catch levels represent 75% and 27% of the average chinook and coho harvests, respectively, taken during the previous 5-years in which these species were harvested (i.e., 1991-1995 for chinook and 1990-1993, 1995 for coho) in the North of Falcon tribal troll fishery.

Washington Coast

Ocean escapements of northern Washington coastal chinook stocks were predicted above minimum spawning levels, allowing both commercial and recreational fisheries. Although coastal fisheries are incomplete, preliminary 1996 estimates of combined Grays Harbor and Willapa Bay net catch total 45,700 chinook, compared to 37,400 in 1995. The 1996 commercial net fisheries in north coastal rivers have harvested an estimated 8,200 chinook, compared to 6,800 in 1995. Catches for the Humptulips and Chehalis rivers are included in the Grays Harbor marine net totals.

The preliminary estimate of the non-tribal 1996 Willapa Bay and Grays Harbor coho net fisheries harvest is 48,400 compared to a catch of 41,900 in 1995. Tribal fisheries in Grays Harbor landed an estimated 52,300 coho in 1996 compared to 33,100 coho in 1995. There is no

tribal catch in Willapa Bay. The terminal net coho catch was substantially higher in 1996 than in 1995, and similar to recent year averages.

The 1996 tribal net fisheries in Washington's north coastal rivers have harvested approximately 41,300 coho compared to 21,400 in 1995. The coastal river net harvest includes catch for the Waatch, Sooes, Quillayute, Hoh, Queets, Quinault, Moclips, and Copalis rivers. Catch for the Humpulips and Chehalis rivers are included in the Grays Harbor tribal coastal marine net totals.

Strait of Juan de Fuca

Net Fishery

The preliminary estimate of the 1996 incidental chinook and coho catch in the Strait of Juan de Fuca net fishery is 500 chinook and 1,500 coho, compared to 4,800 chinook and 13,400 coho in 1995.

Recreational Fishery

No chinook were harvested in the Area 4B recreational fishery over the years 1993-1996. The 1996 Area 4B coho harvest is not yet available. The 1995 Area 4B coho harvest totalled 4,700. The 1996 recreational catch estimates for Area 5 and 6 are not available at this time for chinook or coho. Preliminary estimates of 1995 recreational coho catch for Areas 5 and 6 total 42,300. No chinook or coho were harvested in Area 4B during 1994 due to a complete closure of fisheries.

Troll Fishery

The 1996 Strait of Juan de Fuca tribal troll fishery harvested an estimated 8,100 chinook and 200 coho through November 1, compared to 6,800 chinook and 200 coho caught during 1995. The tribal troll catch estimates from this area do not include tribal catches in Area 4B during the May 1-September 30 PFMC management period; catches during this period have been included in the North of Cape Falcon troll summary.

San Juan Islands

Net Fishery

Preliminary 1996 estimates of the incidental chinook catch in the San Juan Islands net fisheries total 3,900, compared to 5,000 in 1995. There have been no coho directed fisheries in the San Juan Islands (Areas 6, 6A, 7, and 7A) over the period 1993-1996. The preliminary estimate of tribal net fishery catches in Areas 6, 7, and 7A is less than 50 coho during 1996, and 1,400 in 1995; no harvest occurred in Area 6A during these years. The non-tribal net fisheries are estimated to have harvested 200 coho in 1996 and 700 in 1995. The majority of the non-tribal harvest was taken in 7/7A in these years.

Recreational Fishery

As is the case with all Washington inside recreational fishing areas, 1996 recreational catch estimates for Area 7 are not available at this time. Preliminary estimates of recreational harvest for 1995 in Area 7 total 7,900 chinook and 3,600 coho, compared with 5,800 chinook and 2,500 coho in 1994.

Puget Sound

Recreational and commercial fisheries in Puget Sound were regulated by time and area closures to protect depressed spring and fall chinook and coho stocks. These restrictions or closures placed on mixed stock fisheries produced some terminal runs that contained hatchery surpluses or harvestable returns of wild fish.

Marine Net Fishery

Preliminary estimates of the 1996 tribal net fishery harvests in Puget Sound marine areas other than 4B, 5, 6, 6A, 7, and 7A are 35,000 chinook and 95,700 coho. This compares to a tribal harvest of 33,100 chinook and 167,700 coho in 1995. The non-tribal net fishery harvested 8,000 chinook and 18,300 coho, compared to 1995 harvests of 3,800 chinook and 18,700 coho in this fishery.

River Net Fishery

Preliminary harvest estimates for tribal river net fisheries in Puget Sound are 18,100 chinook and 40,100 coho in 1996, compared to 22,400 chinook and 85,500 coho in 1995. Coho catches decreased from 1995 levels in fisheries on the Skagit, Stillaguamish, Puyallup, Duwamish/Green, and Nisqually rivers. Coho harvest levels increased slightly from 1995 on the Elwha River.

Recreational Fishery

As identified previously, Puget Sound recreational catch estimates for 1996 are not available at the present time. Preliminary estimates of 1995 recreational chinook harvest for Areas 8-13 total 53,500. The 1995 coho catch estimate of 28,400 in Areas 8-13 is down again from a catch of 29,500 in 1994.

Chum Salmon Fisheries

Preliminary Review of 1996 Washington Chum Fisheries of Interest to the Pacific Salmon Commission

This summary report provides a preliminary review of the 1996 chum fishing season and is subject to correction and revision as additional information becomes available. Many Washington chum fisheries are still underway, and catch and run size information provided are preliminary data reported through late-November. This report addresses in detail only those fisheries of concern under the Pacific Salmon Treaty. The mixed-stock fisheries in United States (U.S.) waters that had been addressed in the chum annex of the Pacific Salmon Treaty are those in the western Strait of Juan de Fuca (areas 4B, 5 and 6C), the San Juan Islands (area 7) and Point Roberts (area 7A). Other chum fisheries in Washington waters are primarily terminal fisheries which harvest runs of local origin.

Mixed Stock Fisheries

Areas 4B, 5, 6C

As in previous years, the chum fishery in areas 4B, 5, 6C was restricted to Treaty Indian gillnet gear only. Chum fishing in these areas was delayed until the week of October 13 due to domestic coho conservation concerns. Test fisheries were conducted during the week of 10/6 prior to the commercial fishery opening to collect GSI samples. The commercial fishery was initially opened

for five days from noon on October 13 to noon on October 18. However, the incidental catch of coho was very low and the fishery was extended prior to closing on October 18. The fishery remained open continuously until November 15 when it was closed for the season.

Incidental summer chum catches in sockeye fisheries, prior to the fall chum management period, totalled only 106 fish. Fall chum catches in the Strait of Juan de Fuca commercial fishery were significantly less than expected given the forecasted abundance of Puget Sound and Canadian chum runs. The total commercial harvest during the chum management period was 32,514 chum. There were an additional 660 chum harvested in test fisheries for GSI collection, bringing the total chum catch in areas 4B, 5, 6C, reported through November 25, to 33,280.

Areas 7 and 7A

Only 5 chum salmon were reported harvested incidentally during sockeye fisheries, prior to the fall chum management period. Pre-season forecasts were for strong fall chum returns to both Southern B.C. and Puget Sound. In-season updates of abundance from Southern B.C. and many areas in Puget Sound were substantially less than expected. In many areas the in-season run size estimates are only about half of the pre-season forecasts. The Johnstone Strait chum run size was originally updated in-season to only 1.9 million from a pre-season forecast of approximately 4 million.

By early November, Canada Department of Fisheries and Oceans (CDFO) reported that continued test fishing in Johnstone Strait still only indicted a run size of 2.7 million chum, and there were no plans to schedule any additional fishing in Johnstone Strait. This run size estimate was below the levels that would allow increasing the harvest rate beyond 10%, and the total catch level remained below the 225,000 chum threshold which would trigger any significant chum fishery in U.S. catch areas 7 and 7A. Pursuant to the Chum Annex of the PST, the U.S. fishery in Areas 7 and 7A was not to harvest more than 20,000 chum. No chum fisheries were opened in these areas in 1996, and only a few chum were harvested incidentally in fisheries for sockeye. Test fisheries to collect chum GSI samples were not conducted in 1996.

Catches for each area and week are outlined in Table 15.

Table 15. Preliminary 1996 chum harvest in selected Puget Sound catch reporting areas

Week	Areas 4B, 5, 6C Treaty Indian	Area 7 Treaty Indian	Area 7 non-Indian	Area 7 Treaty Indian	Area 7A non-Indian	Areas 7 and 7A Total
Prior to 10/6	106	0	1	0	4	5
10/6 - 10/12	682	0	0	0	0	0
10/13 - 10/19	7,553	0	0	0	0	0
10/20 - 10/26	10,849	0	0	0	0	0
10/27 - 11/2	9,368	0	0	0	0	0
11/3 - 11/9	4,682	0	0	0	0	0
11/10 - 11/16	40	0	0	0	0	0
Season Total	33,280	0	1	0	4	5

Puget Sound Terminal Area Fisheries and Run Strength

Pre-season forecasts for chum returns to Puget Sound were for a fall chum run of about 2.6 million, which would be a significantly above average return. Most Puget Sound chum runs have

been updated in-season with all areas except Hood Canal indicating much lower than expected returns. The total in-season estimate of Puget Sound chum run sizes, as of November 26, is approximately 1.9 million. Many Puget Sound chum fisheries are still underway, and additional in-season estimates of abundance will be made in the coming weeks. At this time, it is far too early to assess spawning escapement.

(Source document) *Preliminary 1996 Post-Season Report for United States Fisheries of Relevance to the Pacific Salmon Treaty*. United States Section of the Pacific Salmon Commission. December, 1996.

D. 1996 UPDATE REPORTS FOR SALMONID ENHANCEMENT PROGRAMS IN CANADA AND THE UNITED STATES

The Pacific Salmon Treaty between Canada and the United States requires that information be exchanged annually regarding operations of and plans for existing enhancement projects, plans for new projects, and views concerning the other country's enhancement projects. In 1988, a committee was formed to develop recommendations for the pre- and post-season and enhancement report formats. In summary, the committee proposed that:

- detailed reports on existing enhancement facilities of the type produced in 1987 be prepared every four years;
- the Parties will annually update information on eggs taken, fry or smolt released and adults back to the facility; significant changes in facility mission or production will be highlighted in narratives; and
- the Parties will provide periodic reports through the appropriate panels on new enhancement plans.

1. 1996 Update Report for the Salmonid Enhancement Program in British Columbia

This report addresses item (2), the annual update report, and describes significant changes to the enhancement program since the previous detailed report in 1995. Also included are a series of appendices containing:

- 1) year-end status for facilities showing eggs taken, fry and smolt releases during 1996 and fish presently on hand (Appendices 1 and 2),
- 2) total releases from SEP for 1996, (Appendix 3),
- 3) descriptions of the Community Programs Divisions facilities (Appendix 4).

Program Adjustments

The process of amalgamating the Salmonid Enhancement Program with Habitat Management to form the Habitat and Enhancement Branch (HEB) started in 1995 and will be complete in 1997. The purpose is to integrate habitat protection and restoration, fish production, resource management planning and public education activities under a single organization, and to improve delivery of programs and services.

Federal funding for Pacific salmonid enhancement peaked at \$38 million in 1990. Over the last seven years, budget cuts have reduced the current funding level to \$27 million. A further cut of \$3 million is planned for 1998/99. It is intended to conduct an internal review of future objectives, funding mechanisms and delivery mechanisms in 1996. Public consultation into expectations for and delivery of enhancement activities is planned for 1997.

A focus for the new HEB organization will be watershed-based production planning. The intent of these plans will be to document key habitat for fish, determine natural production capacity, and explore opportunities for enhancement. Subsequent consultation with key watershed users (industry municipalities, etc.) will be to develop consensus on protection of critical habitat and on fish production goals and utilization. A pilot production planning process was started on the Skeena River system in 1996.

Key changes underway are the formation of six geographical areas, each with an Area Chief responsible for HEB program delivery, and decentralisation of habitat restoration, biological and engineering staff to some of these areas. Three headquarters divisions have been identified: Policy Development and Coordination Division; Production Planning, Information and Assessment; and Biological and Engineering Support.

Significant Changes in Program

Coastal Division

East Coast Vancouver Island

Big Qualicum - is meeting target escapements for salmon with the exception of 1996 chum escapement which is half of the target. The escapement is further complicated by too few females as compared to males. Hatchery production goals have been achieved for chinook and coho. Adult salmon are experiencing increased seal predation within the river.

Little Qualicum - has been experiencing similar returns and problems to Big Qualicum.

Puntledge - The salmon returns are below target escapement. The chum returns are below last year's escapement and consist of a large proportion of males, compared to females. Pink salmon returns were on target. The summer run chinook are holding their own, but fall run chinook have experienced very poor returns. Coho returns are half of the expected number. Steelhead returns are excellent compared to previous years. Seals have been identified as a significant predator on both juvenile and adult salmon of all species within the Puntledge system

Quinsam - Chinook and coho adult returns continue to be below escapement targets but all hatchery egg targets were met for 1996. Pink escapement matched expectations. The hatchery is undertaking several programs with the community and B.C. Hydro to improve flow control and productivity of the Campbell River system. An estuary management plan has been initiated with Campbell River municipality.

West Coast Vancouver Island

Nitinat - continues to support a chum fishery. Chinook returns were stronger than expected after the El Nino years (1992, 1993). The hatchery achieved all production egg targets.

Robertson Creek - Adult chinook returns in 1996 exceeded expectations (more 1993 brood returns than expected). A significantly lower number of chinook females compared to males returned to the Somass river system. The total chinook escapement was below target. Coho returns were low. The 1997 escapement is also expected to be low because very few smolts were released from the hatchery in 1996 (low returns of adults in 1994).

Conuma - Chum returns were average, with the hatchery achieving egg targets for all systems except Deserted River (late run). The chinook returns were good, but similar to other West Coast streams where escapements indicate disproportionately more males than females. Coho returns were below average.

Central Coast

Snootli - good adult returns for chum and chinook. The chinook have returned in greater numbers than previously observed. The coho runs were weak but are still maintaining themselves. The Hatchery continues to support the community coho smolt program for lower Bella Coola stocks.

Kitimat - steelhead program continues to be a success. The chinook and coho returned in record numbers to the Kitimat River. Chum returns were better than expected; the 1992 brood releases were poor due to IHN. Plans are being made to put a chinook adult enumeration fence on the Kildala River.

North Coast

Pallant - Chum returns were good for 1996. Coho returns were average.

Fraser River and Northern B.C. Division

Lower Fraser

Capilano - still to come.

Chehalis - while somewhat stronger than last year, chinook returns to the Harrison were low for the second consecutive year. Fortunately, the shortfall in the egg target was made up by a transfer of Harrison origin eggs from Chilliwack River Hatchery. Coho and chum returns were average.

Chilliwack - still to come.

Inch - still to come.

Jones Creek - still to come.

Tenderfoot - still to come.

Upper Pitt - The strongest sockeye escapement in over fifty years resulted in the 5.0M egg target being exceeded. The recently completed sockeye spawning channel (Watershed Restoration Program funding) was utilized by approximately 5K adults. This channel should provide stable productive habitat for sockeye and coho as a hedge against flooding/freezing events.

Weaver - There was a large sockeye over-escapement in 1996. Anoxic conditions led to high prespawning mortality amongst adults initially loaded into the channel. To make up for these losses, additional adults were allowed entry as water/D.O. conditions improved.

Middle Fraser

Shuswap - The emphasis continues on enhancement of the "lower" Shuswap chinook stock because "middle" Shuswap escapements continue to be strong. A pilot program of Besette Creek/Middle Shuswap coho enhancement was begun in the fall of 1996.

Spus - Very poor 1996 coho returns led to shortfalls in hatchery egg takes for Salmon and Coldwater rivers. Modified ponding time and food rations for 1994 brood chinook yearlings appeared to eliminate the occurrence of premature jacking.

Upper Fraser

Horsefly - A sockeye fry enumeration program in spring of 1995 measured an egg to fry survival of approximately 40%. Improvements are still thought to be possible in the areas of gravel cleaning and winter operation. The channel was 70% loaded in the fall of 1996 ("very weak" year).

Nadina - A very strong sockeye return of approximately 35K adults resulted in the channel being filled to capacity for the first time ever on this cycle. Ich was documented as being present in the stock, but no increase in prespawning mortality was seen. This is in contrast to the 1995 brood year in which Ich greatly impacted spawning success and fry production.

Upper Skeena

Fulton - Prior to this year's operation, all the gravel in Channel #2 was "turned" with an excavator to improve mixing and reduce armouring effect of large material on the surface. The fall program ran smoothly with optimal adult sockeye loading and spawning success.

Pinkut - Although Ich was present in the 1996 adult sockeye returns, no significant prespawning mortality was noted. As a result of the prespawning losses caused by the fall of 1995 infection, last spring's fry enumeration program resulted in a total count of 27.8M, down significantly from the historic production average of 49M.

Northern

Transboundary - The strong sockeye return to Tatsamenie Lake (Taku system) allowed for achievement of the recently raised 5.0M egg target. As in past years, the Tahltan program reached its 6.0M egg target.

Resource Restoration and Development Division

Fraser River Fish Passage - Routine maintenance and repair work (cleaning, structural repair and component replacement) continues on fish passage structures at Yale, Saddle Rock, Little Hell's Gate, Hell's Gate and Bridge River.

At Hell's Gate, a survey system was implemented to measure rock movements on adjacent cliffs. Water levels at key points and river temperatures were monitored and data obtained in 1995 were

analyzed. Modifications designed to improve the instrumentation systems, and thus the quality of data, are planned. A sedimentation study is underway, with the goal of determining what is causing sediment build-up in the tunnel on the right bank. If the problem can be permanently solved, it will result in improved fish passage at a lower cost than that of frequent gravel removal.

Since 1992, studies have been conducted at Black Canyon on the Thompson River to better understand the stability of the nearby rock bluffs and to gauge the effect on river hydraulics that a slide or series of slides would have. A contingency plan has been developed to aid in responding quickly to a slide event. Monitoring of small scale movements within the rock mass is performed periodically in an attempt to predict approaching large scale events.

Kakweiken Channel - The channel was filled to capacity with approximately 45,000 to 50,000 pinks. This included some chum but no separate estimate was made. [Kakweiken River was teeming with fish from estuary to lake - a very large pink run.]

Glendale Channel - The channel reached its capacity of approximately 35,000 to 40,000 pinks. Some chum were included but no separate estimate was made. [Glendale River had a large return; many pinks reached the lake.]

Phillips Channel - Pinks occupied the channel at about 75% capacity or approximately 35,000 to 40,000. Some chum were observed but no count was made. [Phillips River had moderate numbers of pinks between the estuary and the lake.]

Orford Channel - Chum entry was controlled by a V-lead fence (Native operated - local hatchery); fewer than 500 chums were observed in the channel. [Few chums were observed in the Orford River.]

Habitat Restoration- The Resource Restoration Division, in concert with the Development Division, continues to implement habitat restoration projects throughout B.C. Funding for the projects was derived, in part, from other programs such as the Fraser River Action Plan, Skeena River Green Plan, B.C. Hydro, Watershed Restoration Plan (Forest Renewal B.C.), Habitat Conservation Fund and Pacific Salmon Foundation. In total, over 6 million dollars has been spent on habitat initiatives this year. Included in this expenditure are several demonstration sites on the Squamish and Chilliwack Rivers. These will be used to promote the benefits of habitat restoration and the various techniques that can be utilized in the field.

In addition to project implementation, technical staff have assisted in training contractors and have participated in workshops that will set the direction for future habitat rehabilitation projects throughout B.C.

Community Involvement Division

Level of Involvement

SEP's Community Involvement Division (CID) continues to manage four parts of the Salmonid Enhancement Program: the Community Economic Development Program (CEDP), the Public Involvement Program (fish production projects), information dissemination concerning CID (public displays, brochures, newsletters, etc. on various topics including fish production techniques, habitat restoration and educational concerns) and the Education Program (including Salmonids in the Classroom).

The CEDP, after funding reductions in 1994/95, has generally remained at the same level of funding and production. The Nimpkish hatchery expansion is almost complete. Some CEDP projects have initiated progressive alternative funding arrangements. For example, the Seymour Salmonid Society has secured funding of \$100K annually from the Greater Vancouver Regional District. The Namgis Band, which operates the Nimpkish hatchery, has proposed an ocean-ranching scheme that will lead to self-funding of the facility.

Publication and distribution of the *Streamkeepers Handbook*, and an additional module that offers information on in-stream habitat restoration techniques, has provided an effective tool for community groups and individuals to become "Streamkeepers." This will increase their ability to contribute to the knowledge base for streams in the Region, to monitor stocks and to rehabilitate habitat. There are now over 200 streamkeeper groups in B.C. and Yukon, involving 10,000 volunteers, who compliment the previous 10,000 volunteers who operate fish culture facilities under the Public Involvement Program. Streamkeeper training is being delivered as a credit course at Capilano College. Several consultants have registered with the Pacific Streamkeepers Federation to deliver training courses in their respective communities.

A new curriculum package called *Table Talk* has been released by SEP in 1996. This was a collaborative effort with the Fraser River Action Plan to develop a teaching resource that deals with land- and water-use issues in the classroom. Students are taught consensus-based decision making by taking on specific sector (logging, mining, fishing, etc.) roles, then enter a role play process to solve a resource-use issue in an imaginary area in B.C.

Work with the Pacific Salmon Foundation (PSF) and the Commercial Fishing Industry Council (CFIC) has led to the introduction of a conservation stamp to be purchased for \$10.00 by each fisher when he/she buys their Fishers Registration Card. Proceeds will go to community-based enhancement projects applying to the Salmon Conservation and Restoration Program facilitated by the PSF. A special arrangement between the PSF and the T. "Buck" Suzuki Environmental Foundation will allow fishers to direct their contribution to one or the other, or both, organizations. This commercial contribution will be a welcome addition to the more than \$500K (with recent increases in Conservation Stamp costs and the inclusion of a cost for Juvenile Conservation Stamps) contributed to this program annually by the recreational sector,.

Lake Enrichment Program

Still to come.

Program Coordination and Assessment Division

The Program Coordination and Assessment Division (PCAD) is responsible for information management, biological design and direction, project planning and program assessment for SEP.

Estimates of catch and escapement are now calculated for releases of unmarked salmon for all projects based on mark data from index facilities. Exploitation rates from index facilities are being used to estimate escapement for projects with incomplete escapement sampling. These data are combined with catch data calculated by the Regional Mark Recovery Program (MRP) database to assess projects and update survival and catch distribution biostandards. A Program Evaluation database was developed. This database, which includes a variety of evaluation parameters including benefit/cost ratios, assessment value, conservation value, and public and native participation, will be used to rationalize expenditures in the Salmon Enhancement Program. Work continues on a database (ENPRO) to capture fish culture data from facilities in a standardized manner for facility and assessment use. A catch and escapement database to assess

contribution of finclipped and coded-wire tagged chum and pink on a finer resolution than can be calculated using the MRP database is being designed.

PCAD staff contributed to the Stock Assessment Division planning process which determined the streams for which SEP would provide adult escapements estimates. PCAD plans and co-ordinates juvenile marking programs, escapement sampling plans, and production targets for SEP facilities. PCAD also co-ordinates items such as the provision of surplus fish at facilities to native bands or to tendered sales and coded-wire tag purchasing and distribution. PCAD orders fish food for facilities and conducts a fish food quality control program.

Source Document) *1996 Update Report for the Salmonid Enhancement Program in British Columbia*. Department of Fisheries and Oceans, Canada. November 30, 1996.

2. 1996 Annual Report on the Salmonid Enhancement Activities of the United States

The Pacific Salmon Treaty provides that, "2. Each year each Party shall provide to the other Party and to the Commission information pertaining, inter alia, to: (a) operations of and plans for existing projects; (b) plans for new projects;..." (Article V). The United States provided a report dated January 31, 1990 to Canada that combined under one cover all pertinent biological data for United States enhancement projects with a detailed account of plans for new projects. The 1996 Annual Report, the seventh in the series, incorporates updated information through the end of the 1995 calendar year for releases, numbers of adults returning to hatcheries, and the number of eggs taken.

Information is organized by hatchery managing agency for the brood and calendar years in geographic order from north to south, and from east to west. Each agency's report is ordered into six sections; 1. New production, 2. Losses of production, and 3. Major trends in production. 4. Brood year releases of juveniles by facility, 5. Calendar year returns of adults to enhancement facilities, and 6. Calendar year takes of eggs by facility. In addition, a grand summary table of releases by species by year by agency appears immediately after this introduction.

Agencies in Washington, Oregon, and Idaho face the challenge of coordinating enhancement activities with recovery actions for endangered species. Recovery actions regarding enhancement activities will also lead to changes in the abundance of fish available for ocean fisheries.

Southeast Alaska

New Production

In 1995, no new increments of production were permitted in Southeast Alaska.

Loss of Production

There were no significant losses of production.

Trends in Production

Most private non-profit hatcheries are nearing their permitted capacities. Potential eggtakes and releases should increase only slightly over the next few years as hatcheries reach their physical and legally permitted capacities. Returns to hatcheries will fluctuate with varying marine survival.

Brood Year Releases by Agency and Species 1984-1995 (thousands of fish)

		Sp. Chinook	Sm. Chinook	Fall Chinook	Coho	Chum	Pink	Sockeyes	Steelhead
1984	ADFG	6,351	0	0	12,464	134,351	49,352	0	115
	WDF	6,897	2,510	100,063	76,167	51,234	1,240	39	0
	NWIFC	14	96	8,721	8,581	11,286	737	10	1,714
	ODFW	11,748	0	12,018	31,218	2,963	0	0	9,629
	IDFG	2,409	1,083	0	0	0	0	0	4,859
	USFWS	10,099	0	19,648	6,908	5,079	0	0	360
	Total	37,517	3,689	140,449	135,338	214,913	51,329	49	16,677
1985	ADFG	9,833	0	0	8,998	154,427	52,957	100	67
	WDF	5,518	2,839	112,487	65,789	43,146	0	0	0
	NWIFC	67	355	9,686	16,110	25,190	0	200	2,654
	ODFW	13,348	0	7,861	22,243	2,212	0	0	9,351
	IDFG	6,786	1,217	0	0	0	0	850	7,369
	USFWS	15,162	0	16,742	6,537	4,937	0	0	237
	Total	50,712	4,411	146,776	119,677	229,912	52,957	1,150	19,678
1986	ADFG	4,723	0	0	11,705	179,195	46,138	130	94
	WDF	7,199	2,658	114,878	65,619	43,121	7,126	133	0
	NWIFC	114	123	11,632	10,429	22,380	0	240	2,401
	ODFW	21,262	431	37,384	20,789	856	0	0	7,048
	IDFG	6,819	1,843	0	0	0	0	14	6,724
	USFWS	13,058	0	13,380	6,512	5,401	0	0	338
	Total	53,176	5,055	177,274	115,054	250,953	53,284	517	16,603
1987	ADFG	7,203	0	0	7,965	251,202	94,223	461	103
	WDF	9,111	3,593	122,332	66,692	37,373	0	152	0
	NWIFC	142	91	11,080	9,541	23,470	0	12	1,910
	ODFW	14,903	0	46,797	19,176	428	0	0	7,036
	IDFG	7,420	2,688	0	0	0	0	0	4,218
	USFWS	14,209	0	771	7,876	3,367	0	0	4,745
	Total	52,988	6,362	180,980	111,250	315,840	94,223	625	18,012

Brood Year Releases by Agency and Species 1984-1995 (thousands of fish) cont.

	Sp. Chinook	Sm. Chinook	Fall Chinook	Coho	Chum	Pink	Sockeye	Steelhead
1988 ADFG	10,944	0	0	8,920	232,295	49,808	578	52
WDF	11,498	4,148	117,612	64,401	31,055	268	230	0
NWIFC	4	472	13,094	9,849	21,092	882	133	1,482
ODFW	15,814	0	41,827	23,128	1,581	0	0	6,723
IDFG	8,269	2,892	0	0	0	0	0	3,869
USFWS	15,111	0	22,218	6,260	3,105	0	0	3,507
Total	61,640	7,512	194,751	112,558	289,129	50,958	941	15,633
1989 ADFG	6,233	0	0	14,298	171,590	74,534	889	31
WDF	7,344	4,842	108,797	65,604	23,253	0	155	0
NWIFC	231	451	12,102	10,399	20,221	0	200	1,270
ODFW	10,969	0	37,848	19,569	282	0	0	6,567
IDFG	4,514	936	0	0	0	0	0	3,989
USFWS	16,458	0	17,113	7,691	2,959	0	0	6,222
Total	45,749	6,229	175,860	117,561	218,305	74,534	1,244	18,079
1990 ADFG	7,912	0	0	4,912	284,624	100,802	1,240	54
WDF	6,566	3,335	83,314	59,104	27,697	2,191	697	0
NWIFC	471	188	14,212	8,822	14,981	110	0	1,174
ODFW	9,127	0	44,714	15,604	92	0	0	6,699
IDFG	5,790	1,528	0	0	0	0	0	3,700
USFWS	15,286	0	22,617	9,147	2,818	0	0	4,740
Total	45,152	5,051	164,857	97,589	330,212	103,103	1,937	16,367
1991 ADFG	8,785	0	0	10,170	285,962	121,089	11,817	29
WDF	8,038	4,294	97,077	56,637	59,210	0	492	0
NWIFC	95	351	17,237	11,652	14,887	0	12	1,672
ODFW	14,641	0	49,308	14,846	90	0	0	6,429
IDFG	3,662	1,015	0	0	0	0	0	3,608
USFWS	13,462	0	29,319	7,158	3,191	0	0	4,909
Total	48,683	5,660	192,941	100,463	363,340	121,089	12,321	16,647

Brood Year Releases by Agency and Species 1984-1995 (thousands of fish) cont.

		Sp. Chinook	Sm. Chinook	Fall Chinook	Coho	Chum	Pink	Sockeye	Steelhead
1992	ADFG	1,389	0	0	3,255	323,299	133,585	10,989	12
	WDF	9,067	3,209	100,814	43,480	47,359	0	527	0
	NWIFC	480	625	12,847	15,389	12,417	46	48	1,025
	ODFW	14,073	0	43,431	15,512	90	0	0	6,483
	IDFG	4,024	1,225	0	0	0	0	0	4,150
	USFWS	12,830	0	35,162	5,710	2,361	0	0	5,072
	Total	41,863	5,059	192,254	83,346	385,526	133,631	11,564	16,742
1993	ADFG	6,024	0	0	8,819	281,391	72,493	20,806	18
	WDF	11,883	3,501	77,435	31,953	32,009	3,482	190	263
	NWIFC	729	471	10,657	11,416	14,167	0	46	1,190
	ODFW	13,159	0	33,476	7,549	90	0	0	6,305
	IDFG	4,829	1,222	0	0	0	0	0	4,021
	USFWS	10,418	0	22,450	4,976	2,531	0	0	4,144
	Total	47,042	5,194	144,018	64,713	330,188	75,975	21,042	15,941
1994	ADFG	5,270	0	0	12,994	355,886	109,919	14,368	4
	WDF	4,775	3,009	103,894	136,859	27,135	0	7,493	NA
	NWIFC	793	134	14,491	17,771	19,466	0	53	1,183
	ODFW	12,325	0	35,683	12,721	0	0	0	6,685
	IDFG	757	586	0	0	0	0	0	5,719
	USFWS	7,590	0	23,060	4,839	4,975	0	0	4,414
	Total	31,510	3,729	177,128	185,184	407,462	109,919	21,914	18,005
1995	ADFG	NA	0	0	71	412,804	101,903	12,035	NA
	WDF	3,485	2,197	86,856	9,839	37,550	4,423	4,658	NA
	NWIFC	266	168	14,311	736	12,316	0	1,058	1,387
	ODFW	13,718	0	43,425	13,101	0	0	0	7,179
	IDFG	NA	NA	NA	NA	NA	NA	NA	NA
	USFWS	9,200	0	21,043	5,678	2,672	0	0	4,930
	Total	26,669	2,365	165,635	29,425	465,342	106,326	17,751	13,496

Washington State

A series of tables of production by facility is provided in the report without narrative comment.

Treaty Tribes of Western Washington

New Facilities and Production

Moderate increases in chinook production have occurred at some tribal hatcheries.

The Tulalip Tribes have initiated a spring chinook program at the Tulalip Salmon Hatchery. A total of 35,000 BY 1993 fish were released in 1995, and 37,000 BY 1994 yearling fish were released in 1996.

The Port Gamble Tribe has initiated a fall chinook program at their Little Boston Hatchery. The first release of 100,000 fingerlings (BY 1995) occurred in 1996.

The Squaxin Island Tribe has also initiated a fall chinook program at their Elson Creek Hatchery. The first release of 234,000 fingerlings (BY 1995) occurred in 1996.

Loss of Production

The Squaxin Island Tribe has terminated their chum production program at the Elson Creek Hatchery. No eggs were taken from brook year 1995 fish. This represents an annual decrease in chum production of 2,000,000 fish.

Overall Production Trends

Trends in tribal fish production are listed in Table 1 on page 36 of the report. Beginning in 1985, annual releases increased substantially. From 1982 to 1984, total annual releases averaged approximately 33,000,000 fish. From 1985 to 1996, total annual releases averaged 45,000,000 fish. Beginning in 1989, releases from the Quinault National Fish Hatchery have been reported by the USFWS. Although this involves no net loss in production for the region, an annual decrease of approximately 2,000,000 fish is reflected in the tribal release numbers.

Moderate increases in fall chinook, spring chinook, and yearling coho production are planned for future years. Moderate decreases in chum production are anticipated. Production of other species are expected to remain similar in recent years.

Oregon Department of Fish and Wildlife

New Production

The National Marine Fisheries Service Proposed Recovery Plan for Snake River Salmon calls for using captive brood as a means to prevent extinction. The Lostine River, Catherine Creek and Upper Grande Ronde stocks of spring chinook salmon have been identified as populations that are a high risk of extinction. As a result of this, Bonneville and Lookingglass hatcheries started, in 1994, a Grande Ronde Basin Captive Broodstock program. Captive broodstock facilities have been designed and are under construction at Bonneville Hatchery. Modifications are being made at Lookingglass Hatchery. This work, started in 1996, will be completed by 1998. This is a priority program and may displace other programs when full production is achieved.

Major Trends

As a result of Mitchell Act funding cuts, 8,000,000 fall chinook fingerlings were released in early February 1996, three months early. Future annual fish production reductions because of Mitchell Act funding cuts include:

Closure of Stayton Pond, eliminating 8,000,000 Tule fall chinook.

Big Creek Hatchery elimination of 5,200,000 Tule fall chinook.

Bonneville Hatchery elimination of 8,000,000 Tule fall chinook.

Klaskanine Hatchery elimination of 1,125,000 coho smolts. Facility is slated for "caretaker status" after 95 brood coho smolts are released in the spring of 1997.

Gnat Creek Hatchery moved to "caretaker status". All steelhead production programs moved to Big Creek and Bonneville hatcheries.

State General Fund (tax dollar) reductions continue and have resulted in some state funded program reductions. Revenue short fall from license sales and other state funding continue and will likely result in program reductions.

The implementation of Oregon's Wild Fish Policy has changed programs in some areas emphasizing natural production, habitat improvement and acclimation over maintaining or increasing hatchery production.

Endangered Species Act and possible listing of some species will have an impact on coastal coho and steel head production and may have an impact on future releases of hatchery fish and adult collections.

United States Fish and Wildlife Service

Fish and Wildlife Service production continues to be stable at around 45,000,000 fish released. Numbers are reduced from previous years reflecting a reduction in programs that release fry and pre-smolt fish.

Idaho Department of Fish and Game

New Production

No new production was undertaken in Idaho during 1994. Experimental captive brood or rearing programs are being done to determine if spring chinook salmon genetics may be preserved in this manner.

Losses in Production

The 1992, 1993, and 1994 spring and summer chinook salmon brood escapements and egg takes were well below potential hatchery capacities. Smolt releases below hatchery capacity in 1994 will be followed by below capacity releases in the springs of 1995 and 1996.

Trends in Production

Hatchery production, as well as natural production, continues to suffer due to low numbers of returning fish to Idaho. Spring run off has improved over the last year or two, and time will tell if this is enough to demonstrate an increase in survival of adult fish back to the spawning areas. A trend of diminishing wild/natural redd counts continue over this period.

(Source Document) *1996 Annual Report on the Salmonid Enhancement Activities of the United States*. United States Section of the Pacific Salmon Commission. April 22 1997.

Reports of the Joint Technical Committees

PART V

REPORTS OF THE JOINT TECHNICAL COMMITTEES

Executive summaries of reports submitted to the Commission by the joint technical committees during the period April 1, 1996 to March 31, 1997 are presented in this section. Copies of the complete reports are available on request from the library of the Pacific Salmon Commission.

A. JOINT CHUM TECHNICAL COMMITTEE

Joint Chum Technical Committee. Final 1993 Post Season Summary Report. TCCHUM (96)-1. December, 1996.

This Joint Chum Salmon Technical Committee report presents the appropriate information for 1993 chum salmon stocks and fisheries in southern British Columbia and Washington, as required by Chapter 6 of Annex IV of the Pacific Salmon Treaty (PST) (Attachment 1). Detailed information may be found in the United States and Canadian agency sections of this report (see Chapters 2 and 3 respectively).

Chum stocks and fisheries in southern B.C. and in U.S. Areas 4B, 5, 6C, 7, and 7A are managed under the terms set out in the Pacific Salmon Treaty. The following provides a brief synopsis of the PST Chum Annex provisions (*italics*) and of Canadian and United States management actions in 1993.

1. *The Parties were to maintain a Joint Chum Technical Committee to review stock status; develop new methods for stock management and report on management and research findings.*

The Joint Chum Technical Committee convened on two separate occasions during the year to address various assignments. The following report was published: Final 1991 Post-Season Summary Report, TCCHUM (93)-1.

2. *Canada was to manage its Inside fisheries to provide rebuilding of depressed naturally spawning stocks and minimize increased interceptions of U.S. chum.*

In 1993, the gross escapement of Inside chum totalled 2,049,000. Escapement to natural spawning areas totalled 1,799,000 which was 10% below the Clockwork goal of 2,000,000. The Fraser River escapement was 694,000, or 99% of the 700,000 goal.

Terminal area commercial fisheries scheduled by Canada to harvest specific stocks with identified surpluses included; mid Vancouver Island (Area 14), Jervis Inlet (Area 16), Nanaimo (Area 17), Cowichan (Area 18), and Fraser River (Area 29). These fisheries were managed to limit interceptions of U.S. origin or other non-targeted stocks. Stock composition samples were taken, but the technical committee has not addressed the issue of "minimizing increased interceptions".

3. *In 1993, Canada was to manage its Johnstone Strait Clockwork harvest to set levels dependent on the run size entering Johnstone Strait, as determined in-season. The catch level of chum salmon in U.S. fishing Areas 7 and 7A was determined by the catch of chum salmon in Johnstone Strait. In addition, the traditional proportion of effort and catch between Areas 7 and 7A was to be maintained.*

The Clockwork Harvest Plan was reviewed and revised after the end of the 1991 fishing season. The threshold level for harvest at 30% was increased from 3.7 million to 3.9 million. No further changes were incorporated in 1993. The in-season estimate of the Johnstone Strait run size was 4,000,000 providing for a harvest rate of 30% or 1,200,000 chum. Post-season, the Clockwork run size was estimated at 4,144,000 chum. The actual Clockwork harvest was 1,384,000, resulting in a harvest rate of 33%.

The total allowable chum catch for U.S. Areas 7 and 7A was 140,000, based on a total Johnstone Strait chum harvest which exceeded 640,000 fish. The target harvest was increased to 142,400 fish due to a 2,400 fish under harvest in these areas in 1992. The total catch for the Area 7 and 7A fishery in 1993 was 140,000 chum. This fishery was managed to maintain a traditional fishing pattern with both areas opened simultaneously. The final catch distribution between Area 7 and Area 7A was 57% and 43%, respectively.

4. *In 1993, the U.S. was to maintain the limited effort nature of its chum fishery in U.S. Areas 4B, 5, and 6C to minimize increased interceptions of Canadian chum. In addition, the U.S. was to monitor this fishery for increasing interceptions of Canadian chum.*

The U.S. chum fishery in the Strait of Juan de Fuca (Areas 4B, 5, and 6C) was limited, as it has been in past years, to participation by gillnet fishermen from the four Tribes that fish in the Strait of Juan de Fuca. The commercial catch of 40,000 chum was 29% lower than the 1985-1992 average Strait harvest. Genetic Stock Identification (GSI) samples were taken. However, the technical committee has not addressed the issue of "minimizing increased interceptions".

5. *When the catch of chum salmon in U.S. Areas 7 and 7A fails to achieve the specified ceiling, the ceiling in subsequent years will be adjusted accordingly.*

The U.S. Area 7 and 7A catch fell short of the 1993 ceiling by 2,500 fish. This deficit will be added to a future year's allowable catch (Table 1, Sec. 1.3).

6. *Catch compositions in fisheries covered by this chapter were to be estimated post-season using methods agreed upon by the Joint Chum Technical Committee.*

Fisheries covered by this chapter were sampled, and stock composition estimates were provided to the Joint Interception Committee. Methods for estimating stock composition are under continuing review by the committee.

7. *In 1993, Canada was to manage the Nitinat chum net fishery to minimize the harvest of non-targeted stocks.*

A gillnet only fishing area, used during combined gear fisheries only, was reduced in size by 50% in 1993 relative to 1991. In addition, the start of the Nitinat fishery was delayed by two weeks, to late September, to reduce the interception of non-target stocks. Canada conducted GSI sampling to quantify the incidence of interceptions of non-target stocks in Area 121. Additional GSI samples were not collected from Area 20-1. The technical committee has not addressed the issue of "minimizing the harvest of non-target stocks".

8. *In 1993, Canada was to conduct GSI sampling of the West Coast Vancouver Island troll fishery (Areas 121-124) if catch levels were predicted to reach levels similar to those in 1985 and 1986.*

Early season catch information from the West Coast Vancouver Island troll fishery did not indicate that the season's total chum catches would reach the 1985 and 1986 levels. As a result, Canada

did not conduct GSI sampling of this fishery. The total catch for this fishery was 8,400 chum salmon.

Table 1. Summary of U.S. Treaty chum allocations and catches for Areas 7 and 7A, 1986-1993.

Year	PST Specified Catch Level	Adjusted U.S. 7 & 7A Catch ¹	Actual Catch	Current Due U.S.
1986	80,000	80,000	92,984	N/A
1987	20,000	20,000	26,323	-6,323
1988	140,000	133,677	131,356	2,321
1989	120,000	122,321	81,021	41,300
1990	140,000	181,300	180,544	756 ²
1991	120,000	120,000 ²	138,361	-18,361
1992	140,000	121,639	119,210	2,429
1993	140,000	142,429	139,861	2,568

1. Takes into account underages or overages from previous years.

2. 1990 accumulated U.S. shortfall foregone through P.S.C. agreement.

B. JOINT NORTHERN BOUNDARY TECHNICAL COMMITTEE

Joint Northern Boundary Technical Committee. U.S./Canada Northern Boundary Area 1996 Salmon Fisheries Management Report and 1997 Preliminary Expectations. TCNB (97)-1. January, 1997.

This report reviews:

- 1) catch, effort, and management actions in the 1996 Northern Boundary Area pink, chum, sockeye, coho, and chinook salmon fisheries of southern Southeast Alaska Districts 101 to 106 and northern British Columbia Areas 1, 3, 4, and 5;
- 2) management performance relative to Treaty requirements;
- 3) historical catches by area, gear (purse seine, gillnet, toll, trap), year, week, and species (sockeye, pink, chum, coho, and chinook); 4) historical escapements; and 5) preliminary expectations and fishing plans for 1997.

In southern Southeast Alaska, the all-gear salmon harvest of 62.6 million was the largest since commercial fishing began in 1878. The harvest was comprised of 53.7 (85.8%) million pink, 5.6 (8.9%) million chum, 2.1 (3.4%) million sockeye, 1.2 (1.9%) million coho, and 24 (0.04%) thousand chinook salmon. Escapement indices for pink salmon were well distributed and, when summed across districts, was the second highest on record. Escapements of sockeye, chum, and coho salmon were generally strong throughout the region.

In Northern British Columbia, pink returns were larger than expected; 756,000 pink salmon were harvested in the Area 1 terminal net fishery, 1,232,215 pink salmon were harvested in Canadian Area 3 and 1,164,174 in the Area 4 fishery. Pink escapements were much higher than expected pre-season and targets were met or exceeded for most Skeena-Nass systems. Sockeye returns were well above average, 764,347 were harvested in Area 3 and 3,241,950 in Area 4. For the Nass escapement levels for sockeye were above, or near, targets. Skeena enhanced stocks were well above target levels while wild stocks were variable, at or below escapement targets. Escapements of summer chum salmon were below target, but improved over the brood year.

For the 1996 purse seine fishing season, no formal agreement had been reached with Canada on the conduct of the District 104 fishery. However, the management plan for the district was to conduct the fishery in a manner to limit pre-Statistical Week 31 fishing time and sockeye harvest rates to levels similar to that which occurred during the 1990 to 1993 annex arrangement under the Pacific Salmon Treaty. The abundance of sockeye salmon was exceptionally high in these early weeks and 215,144 sockeye were harvested in four openings totalling 31 hours of fishing. The number of days fished in 1996 was equal to that fished during the 1990 to 1993 period, the number of hours and boats was down 20% and 32%, and the sockeye catch per boat-day was up 133%.

In the Alaska District 101-11 (Tree Point) gillnet fishery the Pacific Salmon Treaty calls for an average annual harvest, beginning in 1985, of 130,000 sockeye salmon. The 1996 harvest of sockeye salmon at Tree Point was 212,403 fish. This brings the 1985 to 1996 average to 168,356 sockeye.

Under the Pacific Salmon Treaty the outside portions of Canada's Statistical Areas 3 and 5 are to be managed such that an average annual pink harvest of 900,000 is achieved. In 1996 937,995 pinks were harvested in Management Units 3(1-4). The catch in the outer sub-areas of Area 5 were not monitored in 1996, in recent years, this catch has been very low. The current average annual pink harvest from 1985-1996 in the treaty area is 1,806,784.

As for Alaska's District 104 seine fishery, there were no specific annex arrangements under the Pacific Salmon Treaty governing the conduct of the Canadian Area 1 troll fishery for pink salmon. Preliminary saleslips indicate the Area 1 troll catch was 732,000 fish with 290,000 taken in the A-B line strip.

Strong harvests are forecasted for Southeast Alaska pink salmon in 1997. The Alaska Department of Fish and Game forecasts a harvest of between 26 and 48 million pink salmon in all of Southeast Alaska in 1997. Separate forecasts for northern and southern Southeast are no longer made. Returns of coho, sockeye, and chum are projected to be strong, comparable to the levels observed in recent years.

In Canada, average to good sockeye fisheries are anticipated in Area 3, 4 and 5 in 1996, while moderate pink catches are predicted.

C. JOINT TRANSBOUNDARY TECHNICAL COMMITTEE

Joint Transboundary Technical Committee - Estimates of Transboundary River Salmon Production, Harvest, and Escapement, 1993. TCTR (96)-1. April, 1996.

Estimates of catches and escapements of Pacific salmon returning to the transboundary Stikine, Taku, and Alsek rivers for 1993 are presented and compared with historical patterns. Relevant

information pertaining to the management of appropriate U.S. and Canadian fisheries is presented and the use of in-season management models is discussed.

The 1993 Stikine sockeye run is estimated at 280,700 fish, of which an estimated 157,300 fish were harvested in various fisheries, 4,500 were used for brood stock, and 118,900 escaped to spawn. Both the total run and the catch were the highest recorded since 1982 when stock identification techniques were first used for marine catches and the escapement was the second highest estimated for the 1979 to 1982 period. The estimated U.S. marine commercial and test fishery catches of Stikine sockeye salmon were 104,400 and 200 fish, respectively; the Canadian in-river commercial, aboriginal, terminal, and test fishery catches were 40,200, 7,000, 1,800, and 3,700 fish, respectively. The pre-season forecast of the run was 135,000 sockeye salmon. In 1993 the Stikine Management Model (SMM) correctly predicted a larger than average run for the Tahltan stock and for the entire Stikine sockeye run. Weekly in-season model forecasts ranged from 190,600 to 268,500 sockeye salmon; the final in-season prediction was 237,500 fish. Canada and the U.S. harvested less than the Total Allowable Catch (TAC) allowed under the Pacific Salmon Treaty. The U.S. harvest was 8% below the mid-range of 50% of the TAC, while the Canadian harvest was 58% below the same TAC. The sockeye escapement to Tahltan Lake was 51,600 fish, 81% above the 1983 to 1992 average, and above the revised goal of 24,000 fish.

A total of 4,500 sockeye salmon were removed from the escapement for brood stock, leaving a natural spawning escapement of 47,100 fish. The estimated escapement of 71,800 non-Tahltan Stikine sockeye salmon was also above the escapement goal range for this stock group of 20,000 to 40,000 fish.

The chinook catch in Canadian commercial and aboriginal fisheries in the Stikine River was 2,100 fish, 92% of the 1983 to 1992 average, with approximately 49% harvested in commercial fisheries and 51% harvested in the aboriginal fishery. An additional 700 chinook salmon were taken in the Canadian in-river test fishery. The U.S. marine catch of chinook salmon in the District 106 and 108 mixed stock gillnet fisheries was 2,600 fish, approximately 48% above the 1983 to 1992 average catch. The chinook spawning escapement through the Little Tahltan River weir in 1993 was a record 11,400 large adults, 139% above the 1985 to 1992 average and 116% above the joint U.S./Canada escapement goal of 5,300 fish. Escapement surveys of other Stikine tributaries were all above average.

The U.S. marine harvest of Stikine River coho salmon is not known since there is no stock identification program in place; however, total mixed stock coho catches of 231,000 and 14,300 in District 106 and 108, respectively, were more than 94% and 76% above the respective 1983 to 1992 averages. Alaskan hatchery fish comprised approximately 32% (79,000 fish) of the combined coho harvest from the two districts. The Canadian in-river coho catch 2,600 fish was less than the treaty entitlement of 4,000 fish. Coho escapements in the Stikine River appeared to be below average based on test fishery results and aerial surveys.

The 1993 total Taku sockeye run estimate was 282,400 fish and included an estimated catch of 177,400 fish and an above-border escapement of 105,000 fish. The catch was the highest recorded since 1984 when a comprehensive run reconstruction program was developed. The total run size was 2% below the 1992 record of 286,500 fish. The escapement was 6% above the 1984 to 1992 average of 99,200 sockeye salmon and exceeded the upper level of the escapement goal range of 71,000 to 80,000 fish. The marine commercial catch was estimated by scale pattern analysis and incidence of the brain parasite *Myxobolus arcticus*. An estimated 141,000 Taku sockeye salmon were taken in the District 111 commercial fisheries and 2,900 taken in the U.S. in-river personal use fisheries. Canadian in-river commercial, aboriginal fishery, and test fishery catches were 33,200, 140, and 170 fish, respectively. The Pacific Salmon Treaty defines harvest sharing of Taku River sockeye salmon as 18% of the TAC to Canada and 82% to the U.S. Since

the escapement goal is expressed as a range, the resulting TAC is also expressed as a range. In 1993, Canada took an estimated 16% to 17% and the U.S. took 68% to 71% of the TAC.

The catch of large chinook in the Canadian commercial fishery in the Taku River was 1,600 fish, 149% above the 1983 to 1992 average; in addition, 170 jack chinook were caught compared to an average of 190 fish. The chinook catch in the District 111 mixed stock gillnet fishery was 6,700 fish, almost three times the 1983 to 1992 average. The majority (82%) of chinook caught were mature spawners; 43% of the catch was of Alaska hatchery origin. Above average escapements were observed in all six of the Taku River chinook index tributaries in 1993. The combined aerial survey count of the index tributaries was 13,200 fish, which is 69% above the 1983 to 1992 average of 7,800 fish, and equal to the revised index escapement goal.

The Taku coho run was strong in 1993. The U.S. harvest of 65,500 coho salmon in the District 111 mixed stock fishery was the fourth highest on record but equal to the previous 10-year average as a result of extremely large coho returns during the previous three years. Alaskan hatcheries contributed an estimated 11% of the District 111 harvest, or approximately 7,300 fish. The Canadian in-river commercial and food fishery catch was 3,000 coho salmon, equalling the Treaty limit of 3,000 fish. An additional 1,600 coho salmon were taken in the Canadian in-river test fishery. The in-river run size was estimated at 114,100. After upriver Canadian catches are subtracted from the in-river run, the resulting above-border escapement is estimated at 109,500 coho salmon, exceeding the interim escapement goal range of 27,500 to 35,000 fish.

The catch of pink salmon in District 111 was 17,100 fish, 91% below the 1983 to 1992 odd-year average catch. The Canadian commercial in-river harvest of pink salmon was 16 fish. The escapement of pink salmon to the Taku River was extremely poor, as evidenced by the fish wheel catch of 1,600 pink salmon compared to the 1985 to 1991 odd-year average of 31,300 fish.

The catch of chum salmon in the District 111 fishery was 166,500 fish, composed of 156,000 summer run fish (prior to mid-August) and 10,500 fall run fish. The catch of summer chum salmon was composed primarily of Alaskan hatchery stocks and was 6% above the previous record catch of 1991. The catch of fall chum salmon was composed of wild Taku River and Port Snettisham stocks and was 70% below the 1983 to 1992 average. The Canadian in-river catch of chum salmon was below average at 15 fish reported. Escapement appeared to be poor; the fish wheel catch of 350 chum salmon was 56% below average.

Although the catch of 20,000 Alsek sockeye was above the 1983 to 1992 average of 14,600 fish, the escapement of the Klukshu River weir of 16,700 fish was 9% below the 1983 to 1992 average. The early segment of the Alsek sockeye run was very strong as indicated by excellent early season catches in the Dry Bay fishery and above average early run escapement through the Klukshu River weir (count through August 15). The Klukshu weir counts of 5,400 early run and 11,400 late run sockeye were 70% above and 26% below the 1983 to 1992 averages, respectively.

The chinook run to the Alsek River was above average. The U.S. Dry Bay catch of 300 fish was 42% above the 1983 to 1992 average. The combined Canadian sport and aboriginal fishery catch of 300 fish was 36% below the 1983 to 1992 average. The 3,300 chinook count through the Klukshu River weir, was the second highest recorded since the weir was installed in 1976 and was 55% above the 1983 to 1992 average of 2,100 fish. The Klukshu River escapement goal is 4,700 chinook salmon. Aerial survey index counts of other spawning systems were average to above average.

The coho run to the Alsek River was below average. The U.S. Dry Bay catch of 1,200 fish was 28% of the 1983 to 1992 average while the combined Canadian in-river aboriginal and sport fishery catch of 40 fish was 74% below the 1983 to 1992 average. Operation of the Klukshu weir

does not provide a complete enumeration of the coho into this system since it is removed before the run is over, however, the count of 800 coho salmon was 45% of the 1983 to 1992 average.

Joint Transboundary Technical Committee - Transboundary River Salmon Production, Harvest, and Escapement Estimates, 1994. TCTR (96)-2. May, 1996.

Estimates of catches and escapements of Pacific salmon returning to the transboundary Stikine, Taku and Alsek rivers for 1994 are presented and compared with historical patterns. Relevant information pertaining to the management of appropriate U.S. and Canadian fisheries is presented and the use of in-season management models is discussed.

The 1994 Stikine sockeye run is estimated at 208,000 fish, of which an estimated 133,900 fish were harvested in various fisheries, 3,400 were used for brood stock, and 70,800 escaped to spawn. The catch was the second highest recorded since 1982 when stock identification techniques were first used for marine catches. The total run was the fourth highest, with the escapement slightly less than the 1984-1993 average of 77,000 sockeye. The estimated U.S. marine commercial catch of Stikine sockeye salmon was 80,500 fish; the Canadian in-river commercial, aboriginal, terminal, and test fishery catches were 40,900, 4,200, 6,900, and 1,400 fish, respectively. Enhanced sockeye salmon from outplants in Tahltan Lake contributed an estimated 18,300 and 6,400 fish to the U.S. and Canada catch, respectively. The pre-season forecast of the run ranged from 312,000 (Canada) to 346,000 (U.S.) sockeye, quite a bit greater than the post-season estimate of 208,000 sockeye. In 1994 the Stikine Management Model correctly predicted a larger than average run for both the Tahltan and the total Stikine sockeye stocks. Weekly in-season model forecasts ranged from 141,100 to 382,000 sockeye salmon; the final in-season prediction was 249,300 to 356,200 fish, Canadian and U.S. estimates, respectively. Canadian commercial and aboriginal fisheries harvested 29% of the total allowable catch, which was below their 50% allowance. The sockeye escapement to Tahltan Lake was 46,400 fish, 47% above the 1984-1993 average and above the spawning escapement goal of 24,000 fish. A brood-stock take and terminal fishery removed 3,400 and 6,900 sockeye salmon, respectively, from the escapement to the lake, leaving a spawning escapement of 36,100 fish. The estimated spawning escapement of 34,600 non-Tahltan Stikine sockeye salmon was within the escapement goal range (20,000-40,000 fish) for this stock group.

The chinook catch in Canadian commercial and aboriginal fisheries in the Stikine River was 2,100 fish, 93% of the 1984-1993 average; in 1994 approximately 58% was harvested in commercial fisheries and 42% in the aboriginal fishery. An additional 370 chinook salmon were taken in the Canadian in-river test fishery. The U.S. marine catch of chinook salmon in the District 106 and 108 mixed stock gillnet fisheries was 2,800 fish, approximately 39% above the 1984-1993 average catch. The chinook spawning escapement of 6,400 large adults through the Little Tahltan River weir in 1994 was 15% above the 1985-1993 average and 20% above the joint U.S./Canada escapement goal of 5,300 fish. Surveys of two other Stikine tributaries showed below average escapements.

The U.S. marine harvest of Stikine River coho salmon is unknown since there is no stock identification program for this species; however, total mixed-stock coho catches of 267,800 and 44,900 fish in Districts 106 and 108, respectively, represented record catches and were more than 97% and 459%, respectively, above the 1984-1993 averages. Alaskan hatchery fish comprised approximately 13% (41,900 fish) of the coho harvest from the two districts. The Canadian in-river coho catch of 3,400 fish was less than the expired treaty entitlement of 4,000 fish. The coho escapement above border was estimated at 46,000 fish, within the escapement goal range of 30,000 to 50,000 coho. Coho survey counts were above average.

The 1994 Taku River sockeye run estimate is 227,300 fish and included an estimated catch of 127,200 fish and an above-border escapement of 100,100 fish. The catch was 23% above the 1984-1993 average. The total run size was 3% above the 1984-1993 average of 203,300 fish. The escapement was about equal to the 1984-1993 average of 99,800 sockeye, however, it exceeded the upper level of the escapement goal range of 71,000 to 80,000 fish. An estimated 97,000 Taku sockeye were taken in the District 111 commercial fishery and 1,100 sockeye in the U.S. in-river personal use fisheries. Canadian in-river commercial and aboriginal fishery catches were 28,800, and 240 sockeye, respectively. The expired harvest agreement for wild Taku River sockeye salmon was 18% of the total allowable catch to Canada and 82% to the U.S. Since the escapement goal is expressed as a range, the resulting TAC is also repressed as a range. In 1994, Canada took an estimated 19% to 20% and the U.S. took 63% to 67% of the total allowable catch.

The catch of large chinook in the Canadian commercial fishery in Taku River was 2,100 fish, 2.6 times the 1984-1993 average of 800 fish; in addition, 240 jack chinook were caught compared to an average of 160 fish. The chinook catch in the District 111 mixed stock gillnet fishery was 5,000 fish, almost twice the 1984-1993 average. The majority (68%) of chinook caught were mature spawners; 58% of the catch was of Alaska hatchery origin. Above average escapements were observed in all six of the Taku River chinook index tributaries. The combined aerial survey count of the index tributaries was 9,900 fish, which is 11% above the 1984-1993 average of 8,900 fish, but 25% below the index escapement goal.

The Taku coho run was strong in 1994. The U.S. harvest of 188,500 coho salmon in the District 111 mixed stock fishery was the highest on record and exceeded the previous 10-year average by 175%. Alaskan hatcheries contributed an estimated 14% of the District 111 harvest, or approximately 27,100 fish. The Canadian in-river commercial and food fishery catch was 14,700 coho salmon, well over the expired annex limit of 3,000 fish. The in-river run size was estimated at 111,000 coho. After upriver Canadian catches are subtracted from the in-river run, the resulting above-border escapement is estimated at 96,300 coho salmon, which far exceeds the interim escapement goal range of 27,500 to 35,000 fish.

The catch of pink salmon in District 111 was 401,500 fish, the largest catch in history and 2.5 times the 1984-1993 even-year-average catch. The Canadian commercial in-river harvest of pink salmon was 168 fish. The escapement of pink salmon to the Taku River was very good as evidenced by the fish wheel catch of 27,100 pink salmon, a record even-year count, and well above the 1984-1992 even-year-average of 10,900 fish.

The catch of chum salmon in the District 111 fishery was 214,200 fish, composed of 198,000 summer run fish (prior to mid-August) and 16,200 fall run fish. The catch of summer chum salmon, primarily of Alaskan hatchery stocks, was 27% above the previous record catch of 1993. The catch of fall chum salmon, composed of wild Taku River and Port Snettisham stocks, was 51% below the 1984-1993 average. The Canadian in-river catch of 18 chum salmon was below average. Escapement appeared to be poor; the fish wheel catch of 370 chum salmon was 50% below average.

For the Alsek River, the U.S. commercial catch of 19,600 Alsek sockeye was above the 1984-1993 average. Canadian catches of 1,745 sockeye in the aboriginal fishery was 261 in the sport fishery are 12% and 22% below average, respectively. The escapement of the Klukshu River weir of 15,000 fish was 17% below the 1984-1993 average. The early segment of the Alsek sockeye run was forecast to be strong and fishery performance also indicated this with good catches in the Dry Bay fishery; however escapement counts at the weir were above average. The Klukshu weir counts of 3,200 early run (count through August 15) and 11,800 late run sockeye were 5% above and 21% below the 1984-1993 averages.

The chinook run to the Alsek River was above average. The U.S. Dry Bay catch of 800 fish were over three times the 1984-1993 average. The combined Canadian sport and aboriginal fishery catch of 500 fish was similar to the 1984-1993 average. The 3,700 chinook count through the Klukshu River weir was the second highest recorded since the weir was installed in 1976 and was 70% above the 1984-1993 average of 2,200 fish. The Klukshu River escapement goal is 4,700 chinook salmon. Aerial survey index counts of other spawning systems were average to above average.

The coho run to the Alsek River was believed to have been below average, but present stock assessment programs prevent an accurate comparison with historical runs. The U.S. Dry Bay catch of 4,200 coho was slightly above the 1984-1993 average, while the combined Canadian in-river aboriginal and sport fishery catch of 80 fish was 36% below the 1984-1993 average. Operation of the Klukshu weir does not provide a complete enumeration of the coho into this system since it is removed before the run is over, however, the count of 1,200 coho salmon was 69% of the 1983 -1994 average.

Publications of the Pacific Salmon Commission

PART VI

PUBLICATIONS OF THE PACIFIC SALMON COMMISSION

Documents listed herein are available to domestic fishery agencies of Canada and the United States, research organizations, libraries, scientists and others interested in the activities of the Commission, through the offices of the Secretariat, 600 - 1155 Robson Street, Vancouver, B.C., V6E 1B5. Photocopying charges may be levied for documents which are out of print.

Documents listed here are those which were published during the period covered by this report. For previous publications, please refer to the Pacific Salmon Commission 1989/90 Fifth Annual Report and 1994/95 Tenth Annual Report, or contact the Pacific Salmon Commission Library.

A. ANNUAL REPORTS

11. Pacific Salmon Commission 1995/96 Eleventh Annual Report. October, 1996.

This report contains a summary account of the Commission's eleventh year of operation.

B. REPORTS OF JOINT TECHNICAL COMMITTEES

i. Joint Chinook Technical Committee

No reports were finalized for publication during this reporting period.

ii. Joint Chum Technical Committee

18. TCCHUM (96-1) - *Final 1993 Post Season Summary Report*. December, 1996

iii. Joint Coho Technical Committee

No reports were finalized for publication during this reporting period.

iv. Joint Northern Boundary Technical Committee

18. TCNB (97)-1 - *U.S./Canada Northern Boundary Area 1996 Salmon Fisheries Management Report and 1997 Preliminary Expectations*. January, 1997.

v. Joint Transboundary Technical Committee

25. TCTR (96)-1 - *Estimates of Transboundary River Salmon Production, Harvest, and Escapement, 1993*. April, 1996.

26. TCTR (96)-2 - *Transboundary River Salmon Production, Harvest, and Escapement Estimates, 1994*. May, 1996.

vi. Joint Technical Committee on Data Sharing

No reports were finalized for publication during this reporting period.

vii. Joint Interceptions Committee

No reports were finalized for publication during this reporting period.

C. REPORTS OF THE FRASER RIVER PANEL

6. *Report of the Fraser River Panel to the Pacific Salmon Commission on the 1992 Fraser River Sockeye Salmon Fishing Season.* PSC Staff. May 1996.
7. *Report of the Fraser River Panel to the Pacific Salmon Commission on the 1993 Fraser River Sockeye and Pink Salmon Fishing Season.* PSC Staff. August 1996.

D. TECHNICAL REPORT SERIES OF THE PACIFIC SALMON COMMISSION

No reports were finalized for publication during this reporting period.

E. PUBLICATIONS BY PACIFIC SALMON COMMISSION SECRETARIAT STAFF

No reports were finalized for publication during this reporting period.

F. REPORTS OF THE INTERNATIONAL PACIFIC SALMON FISHERIES COMMISSION

Responsibility for maintenance of the library of the International Pacific Salmon Fisheries Commission, on its termination December 31, 1985, was transferred to the Pacific Salmon Commission. Documents in the Library include historical archival papers which are available to researchers and other interested parties through contact with the Pacific Salmon Commission's Librarian.

Publication of John F. Roos' History of the International Pacific Salmon Fisheries Commission, and P. Gilhousen's Estimation of Fraser River Sockeye Escapements ended all publication series of the International Pacific Salmon Fisheries Commission. Copies of all in-print Progress Reports and Bulletins of the International Pacific Salmon Fisheries Commission are available free of charge through the Library of the Pacific Salmon Commission. Copies of the History of the International Pacific Salmon Fisheries Commission may also be ordered through the Library of the Pacific Salmon Commission.

G. DOCUMENTS SUBMITTED BY THE PARTIES

In compliance with provisions of the Treaty, the Parties provide annual post-season fishery reports and updates on their respective salmonid enhancement programs to the Commission. Documents received during 1996/97 were:

1. *Post-Season Report for Canadian Treaty Limit Fisheries.* Canada Department of Fisheries and Oceans. December 10, 1996.

2. *Preliminary 1996 Post-Season Report for United States Fisheries of Relevance to the Pacific Salmon Treaty.* United States Section, Pacific Salmon Commission. December, 1996.
3. *Update Report for the Salmonid Enhancement Program in British Columbia.* Canada Department of Fisheries and Oceans. November 30, 1996.
4. *Annual Report on the Salmonid Enhancement Activities of the United States in the Areas of the Pacific Salmon Treaty.* United States Section, Pacific Salmon Commission. April 22, 1997.

Report of the Auditors for 1996/97

PART VII
AUDITORS' REPORT AND FINANCIAL STATEMENTS
FOR THE PERIOD APRIL 1, 1996 TO MARCH 31, 1997

AUDITORS' REPORT TO THE COMMISSIONERS

We have audited the balance sheet of Pacific Salmon Commission as at March 31, 1997 and the statements of revenue and expenditures and fund balances for the year then ended. These financial statements are the responsibility of the Commission's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the Commission, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Commission as at March 31, 1997 and the results of its operations for the year then ended in accordance with the Financial Regulations of the Commission applied on a basis consistent with that of the preceding year.

KPMG

Chartered Accountants

New Westminster, Canada

May 12, 1997

PACIFIC SALMON COMMISSION


Balance Sheet

March 31, 1997, with comparative figures for 1996

	1997	1996
Assets		
General fund:		
Current assets:		
Cash and term deposits	\$ 1,870,074	\$ 1,411,402
Accounts receivable	25,389	55,320
Interest receivable	5,130	8,016
Prepaid expenses	32,695	29,588
	<u>1,933,288</u>	<u>1,504,326</u>
	\$ 1,933,288	\$ 1,504,326
Working capital fund:		
Cash and term deposit	\$ 89,882	\$ 66,515
Capital asset fund:		
Capital assets	\$ 190,744	\$ 194,028
Yukon River Salmon Restoration and Enhancement Fund:		
Cash and term deposits	\$ 572,617	\$ 195,722
Mediation Fund:		
Cash	\$ -	\$ 30,690
Liabilities and Fund Balances		
General fund:		
Current liabilities:		
Accounts payable and accrued liabilities	\$ 150,623	\$ 199,907
Deferred revenue (note 3)	777,652	780,463
Fund balance (note 4)	1,005,013	523,956
	<u>\$ 1,933,288</u>	<u>\$ 1,504,326</u>
Working capital fund:		
Fund balance	\$ 89,882	\$ 66,515
Capital asset fund:		
Equity in capital assets	\$ 190,744	\$ 194,028
Yukon River Salmon Restoration and Enhancement Fund:		
Fund balance	\$ 572,617	\$ 195,722
Mediation Fund:		
Fund balance	\$ -	\$ 30,690

On behalf of the Commission:

 Chair, Standing Committee on Finance and Administration

 Vice-Chair, Standing Committee on Finance and Administration

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

General Fund

Statement of Revenue and Expenditures and Fund Balances

Year ended March 31, 1997, with comparative figures for 1996

	1997	1996
Fund balance, beginning of year	\$ 523,956	\$ 737,198
Revenue:		
Contributions from contracting parties	1,800,000	1,600,000
Interest	47,258	65,028
Other	35,526	691
Test fishing	1,055,706	761,174
	2,938,490	2,426,893
Expenditures:		
Salaries and employee benefits	1,302,569	1,380,805
Travel and transportation	66,048	80,560
Rents and communication	85,626	96,659
Printing and reproductions	11,788	15,568
Contract services	113,656	223,270
Materials and supplies	33,683	42,577
Loss on disposal of capital assets	4,996	—
Test fishing	715,983	669,723
	2,334,349	2,509,162
Excess (deficiency) of revenue over expenditures	1,128,097	(82,269)
Transfer to capital asset fund	(123,084)	(130,973)
Fund balance, end of year	\$ 1,005,013	\$ 523,956

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Working Capital Fund

Statement of Revenue and Expenditures and Fund Balances

Year ended March 31, 1997, with comparative figures for 1996

	1997	1996
Fund balance, beginning of year	\$ 66,515	\$ 62,886
Revenue:		
Interest	2,982	3,731
Balance of Mediation Fund	30,690	-
	33,672	3,731
Expenditures:		
Inquiry	-	102
Stakeholder meeting costs	10,305	-
	10,305	102
Excess of revenue over expenditures	23,367	3,629
Fund balance, end of year	\$ 89,882	\$ 66,515

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Capital Asset Fund

Statement of Revenue and Expenditures and Fund Balances

Year ended March 31, 1997, with comparative figures for 1996

	1997	1996
Fund balance, beginning of year	\$ 194,028	\$ 165,379
Net additions during the year funded by transfer from the General Fund	123,084	130,973
Amortization	(126,368)	(102,324)
Fund balance, end of year	\$ 190,744	\$ 194,028

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Yukon River Salmon Restoration and Enhancement Fund

Statement of Revenue and Expenditures and Fund Balances

Year ended March 31, 1997, with comparative figures for 1996

	1997	1996
Fund balance, beginning of year	\$ 195,722	\$ -
Revenue:		
Contributions	558,440	188,426
Foreign exchange on opening balance	7,300	-
Interest earned on term deposit	6,609	7,296
	572,349	195,722
Transfers to the Yukon River Panel	195,454	-
Fund balance, end of year	\$ 572,617	\$ 195,722

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Mediation Fund

Statement of Revenue and Expenditures and Fund Balances

Year ended March 31, 1997, with comparative figures for 1996

	1997	1996
Fund balance, beginning of year	\$ 30,690	\$ —
Revenue:		
Contributions	—	135,158
	—	135,158
Expenditures:		
Mediation fees	—	68,812
Travel and other	—	35,656
Transferred to working capital fund	30,690	—
	30,690	104,468
Excess of revenue over expenditures	(30,690)	30,690
Fund balance, end of year	\$ —	\$ 30,690

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Notes to Financial Statements

Year ended March 31, 1997, with comparative figures for 1996

Nature of organization:

The Pacific Salmon Commission was established by Treaty between the Governments of Canada and the United States of America to promote cooperation in the management, research and enhancement of Pacific salmon stocks. The Treaty was ratified on March 18, 1985 and the Commission commenced operations on September 26, 1985.

1. Significant accounting policies:

(a) Fund accounting:

The General Fund includes funds provided annually through contributions from the Contracting Parties. Any unappropriated balance remaining at the end of one fiscal year is used to offset the contributions by the Parties in the following year.

The Capital Assets Fund reflects the Commission's capital asset transactions. Amortization is charged to the Capital Fund.

The Working Capital Fund represents monies contributed by the Parties to be used temporarily pending receipt of new contributions from the Parties at the beginning of a fiscal year, or for special programs not contained in the regular budget but approved during the fiscal year. Any surplus above a pre-determined fixed limit in the account at the end of the fiscal year is transferred to the General fund and is treated as income.

The Yukon River Salmon Restoration and Enhancement Fund reflects funding provided on the creation of a separate entity, the Yukon River Panel. As the Commission staff is not responsible for managing this fund, the monies are held in trust for the Yukon River Panel.

The Mediation Fund reflects funding received from the contracting parties and expenditures made to mediate certain sections of the treaty.

(b) Basis of accounting:

The operations of the Commission are generally accounted for on an accrual basis except that purchase order expenditures are recognized at the time that the commitment for goods and services are made, rather than at the time that the goods or services are delivered.

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)

Year ended March 31, 1997, with comparative figures for 1996

1. Significant accounting policies: (continued)

(c) Capital assets:

Capital assets are stated at cost. Costs of repairs and replacements of a routine nature are charged as a current expenditure while those expenditures which improve or extend the useful life of the assets are capitalized. Amortization is provided using the straight-line method of rates sufficient to amortize the costs over the estimated useful lives of the assets. The rates of amortization used on an annual basis are:

Automobiles	20%
Boats	20%
Computer equipment and software	30%
Equipment	20%
Films	33%
Furniture and fixtures	10%
Leasehold improvements	10%

(d) Income taxes:

The Commission is a non-taxable organization under the Privileges and Immunities (International Organizations) Act (Canada).

(e) Foreign exchange translation:

Transactions originating in foreign currencies are translated at the exchange rate prevailing at the transaction dates. Assets and liabilities denominated in foreign currency at the balance sheet date are translated to equivalent Canadian amounts at the current rate of exchange.

(f) Statement of Changes in Financial Position:

A statement of changes in financial position has not been provided as it would not provide any additional meaningful information.

(g) Financial instruments:

The Commission has applied retroactively the new accounting standard with respect to the presentation of financial instruments. The adoption of the new standards had no impact in the financial statements except the additional disclosure in note 6.

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)

Year ended March 31, 1997, with comparative figures for 1996

2. Capital assets:

	Cost	Accumulated amortization	1997 Net book value	1996 Net book value
Automobiles	\$ 99,535	\$ 92,984	\$ 6,551	\$ 12,374
Boats	88,011	79,851	8,160	5,820
Computer equipment	419,610	345,722	73,889	44,254
Equipment	426,352	347,653	78,699	93,594
Films	1,800	1,800	—	—
Furniture and fixtures	233,189	228,119	5,069	28,198
Computer software	104,750	86,374	18,376	7,835
Leasehold Improvements	19,532	19,532	—	1,953
	\$ 1,392,779	\$ 1,202,035	\$ 190,744	\$ 194,028

3. Deferred revenue:

Deferred revenue consists of cash contributions received from a contracting party in the current year that represent funding for programs and services to be carried out in the following year. Deferred revenue includes accrued interest on the contributions up to March 31, 1997.

4. General fund balance:

The Commission has approved a carryover of the unexpended funds in the General Fund to be utilized as follows:

	1997	1996
(a) Continuing operations	\$ 972,318	\$ 494,368
(b) Reserve for prepaid expenses	32,695	29,588
	\$ 1,005,013	\$ 523,956

5. Pension plan:

The Commission maintains a defined benefit pension plan for its employees. Actuarial valuations of this pension plan are carried out triennially and provide estimates of present value of accrued pension benefits at a point in time, calculated on the basis of various assumptions with respect to pension plan costs and rates of return on investments.

At the date of the most recent actuarial valuation as amended, January 1, 1996, the present market value of related assets exceeds accrued benefits by \$120,000.

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)

Year ended March 31, 1997, with comparative figures for 1996

6. Financial instruments:

The financial instruments consist of cash and term deposits, amounts receivable and interest receivable, and accounts payable and accrued liabilities. The carrying amounts of these financial instruments are a reasonable estimate of the fair values.

7. Subsequent event:

The full balance in the Yukon River Salmon Restoration and Enhancement Fund was transferred on May 6, 1997, to the Yukon River Panel.

Appendices

Appendix A

Letter of Transmittal to Governments regarding fishery regimes for 1996

The Honourable Fred J. Mifflin, P.C., M.P.
Minister of Fisheries and Oceans
Ottawa, Ontario
K1A 0E6

The Honorable Warren M. Christopher
Secretary of State
U.S. Department of State
2201 C Street N.W.
Washington, D.C. 20520

The Honourable Lloyd Axworthy, P.C., M.P.
Secretary of State for External Affairs
Ottawa, Ontario
K1A 0G2

The Honorable Mickey Kantor
Secretary of Commerce
U.S. Department of Commerce
14th Street and Constitution Avenue N.W.
Washington, D.C. 20230

July 19, 1996

Dear Sir:

I have the honour to report to you understandings reached by representatives of the Governments of Canada and the United States regarding certain of the fishery regimes in Annex IV of the Pacific Salmon Treaty, and agreed to by the Chair and Vice-Chair of the Commission.

This interim agreement is for 1996 only, and reflects the Commission's interest in conservation and stable fisheries. It is hoped that this interim agreement will facilitate achievement of the Parties' long term objectives. The agreement set forth herein was reached without prejudice to any position to be taken by either Party in the future, and shall not be construed as an indication of an acceptable long-term approach to either Parties' objectives.

With regards to coho and chum management regimes (Annex IV, Chapters 5 and 6), Canada and the United States intend to fish in a manner that reflects past Treaty arrangements. Canada has agreed it will manage its west coast troll fishery not to exceed 1.0 million coho.

In accordance with Article XIII, Paragraph 2 of the Treaty, the Parties recommend implementation of the following agreement for 1996 relative to Annex IV, Chapter 4, concerning Fraser River Sockeye and Pink Salmon, the provisions of which shall apply for only the year 1996 and are without prejudice to any future agreements except for clauses which apply to 1997:

1. Based on the pre-season forecast and escapement objectives provided by Canada, Canada and the U.S. agree to conduct no commercial fisheries on Fraser River sockeye salmon in 1996.
2. In the event that a TAC is identified in-season for Fraser River sockeye, as defined in paragraph 3 below; the U.S. share of the TAC to be harvested in the Panel area, inclusive to the harvest taken pursuant to Paragraph 5, below, shall be as follows:
 - i) When the estimated TAC is less than 2 million fish, the U.S. catch shall not exceed 16.1 percent of the TAC;

- ii) When the estimated TAC is between 2 and 5 million fish, the U.S. catch shall not exceed 322,000 fish plus 8 percent of the TAC between 2 and 5 million fish;
 - iii) When the estimated TAC is greater than 5 million fish, the U.S. catch shall not exceed 562,000 fish plus 4 percent of the TAC above 5 million fish, but the U.S. catch will not exceed 800,000 fish in 1996.
3. Total allowable catch (TAC) shall be defined as the remaining portion of the annual aggregate Fraser River sockeye run after the spawning escapements, the Fraser Indian fishery exemption, and the catch in Panel authorized test fisheries including the U.S. gear modification study up to 15,000 fish have been deducted. The following definitions apply to TAC determination and calculation:
- a. For the purposes of in-season management by the Fraser Panel, the spawning escapement objective is the target set by Canada including any extra requirements that may be determined by Canada and agreed to by the Fraser Panel, for natural, environmental or stock assessment factors, to ensure the fish reach the spawning grounds at target levels. The Commission has agreed that extra requirements shall be applied to the summer stock groupings, but in a manner that reduces the U.S. share by no more than 17,900 sockeye. Any additional escapement amounts believed necessary by Canada for reasons other than the foregoing will not affect the U.S. catch.
 - b. The Fraser Indian fishery exemption is the amount up to 400,000 Fraser River sockeye which is harvested by Canadian First Nation fisheries. Any Canadian First Nation fishery harvests in excess of 400,000 Fraser River sockeye shall be part of the TAC upon which U.S. shares are calculated.
 - c. For computing TAC by stock management groupings, the Fraser Indian fishery exemption shall be allocated to management groups in accordance with the agreements signed between First Nations and the Canadian Dept. of Fisheries and Oceans, unless otherwise agreed.
4. The U.S. agrees to direct no commercial fisheries on the Early Stuart and Early Summer stock groups and, during any fishery opening planned to harvest a TAC as defined in paragraph 3 above, to minimize the incidental harvest of these stocks to the extent practical consistent with achieving the intended harvest of summer group fish.
5. Notwithstanding Paragraphs 1 or 3, for 1996, at the pre-season summer run size, the U.S. may conduct a limited fishery in the Panel Area of up to 50,000 sockeye to meet basic needs, of which up to 10,000 may be taken in the Strait of Juan de Fuca and the balance in Areas 6, 7, and 7A. Fish harvested under this provision shall be taken into account in computing any additional share pursuant to Paragraphs 2 and 3.
6. The U.S. fishery identified in Paragraph 5, above, will be scheduled, to the extent practicable, to harvest sockeye from the summer stock group. The initial opening will be designed to harvest no more than 30,000 of the intended harvest just prior to the peak timing of passage of the summer run through the relevant fishery based on the assumption of normal run timing (Aug. 3 in Area 20) and the pre-season forecast level of abundance unless substantial in-season information to the contrary is available from the PSC staff. The difference between the actual catch from this first opening and the intended harvest of 50,000 will be subject to in-season confirmation that the summer run group is at least as large as the pre-season forecast.

7. Canada and the U.S. agree that the dispute referred to in Canada's note 189 of November 24, 1992 and the Department of State's note of December 8, 1992 will be addressed in negotiations on arrangements for 1997.

8. The Fraser Panel will develop fishing plans to implement the provisions of this agreement.

The Commission expects that the relevant management agencies will manage fisheries under their responsibility consistent with these understandings.

The Commission respectfully requests your early approval of these recommendations.

Sincerely
Pacific Salmon Commission

Robert Turner,
Chair

Appendix B

Revised Annex IV to the Pacific Salmon Treaty effective May 17, 1991

Annex IV

Chapter 1

TRANSBOUNDARY RIVERS

1. Recognizing the desirability of accurately determining exploitation rates and spawning escapement requirements of salmon originating in the Transboundary Rivers, the Parties shall maintain a Joint Transboundary Technical Committee (Committee) reporting, unless otherwise agreed, to the Northern Panel and to the Commission. The Committee, *inter alia*, shall

- (a) assemble and refine available information on migratory patterns, extent of exploitation and spawning escapement requirements of the stocks;
- (b) examine past and current management regimes and recommend how they may be better suited to achieving preliminary escapement goals;
- (c) identify enhancement opportunities that:
 - (i) assist the devising of harvest management strategies to increase benefits to fishers with a view to permitting additional salmon to return to Canadian waters;
 - (ii) have an impact on natural Transboundary river salmon production.

2. The Parties shall improve procedures of co-ordinated or co-operative management of the fisheries on Transboundary River stocks.

3. Recognizing the objectives of each Party to have viable fisheries, the Parties agree that the following arrangements shall apply to the United States and Canadian fisheries harvesting salmon stocks originating in the Canadian portion of

(a) the Stikine River:

- (i) Assessment of the annual run of Stikine River sockeye salmon shall be made as follows:
 - a. A pre-season forecast of the Stikine River sockeye run will be made by the Transboundary Technical Committee prior to March 1 of each year. This forecast may be modified by the Transboundary Technical Committee prior to the opening of the fishing season.
 - b. In-season estimates of the Stikine River sockeye run and the Total Allowable Catch (TAC) shall be made under the guidelines of an agreed Stikine Man-

agement Plan and using a mathematical forecast model developed by the Transboundary Technical Committee. Both U.S. and Canadian fishing patterns shall be based on current weekly estimates of the TAC. At the beginning of the season and up to an agreed date, the weekly estimates of the TAC shall be determined from the pre-season forecast of the run strength. After that date, the TAC shall be determined from the in-season forecast model.

- c. Modifications to the Stikine Management Plan and forecast model may be made prior to June 1 of each year by agreement of both Parties. Failure to reach agreement in modifications shall result in use of the model and parameters used in the previous year.
 - d. Estimates of the TAC may be adjusted in-season only by concurrence of both Parties' respective managers. Reasons for such adjustments must be provided to the Transboundary Technical Committee.
- (ii) Harvest sharing of naturally occurring Stikine River sockeye salmon for the period 1988 to 1992, contingent upon activities specified in the February 1988 Understanding between the United States and the Canadian Section of the Pacific Salmon Commission concerning Joint Enhancement of Transboundary River Salmon Stocks (Understanding) shall be as follows:
- a. When the estimated TAC of Stikine River sockeye salmon is zero or less:
 - 1. Canada may conduct its native food fishery but the catch shall not exceed 4,000 fish, there will be no commercial fishing;
 - 2. The United States shall not direct commercial fisheries at Stikine River sockeye salmon in District 108;
 - 3. The United States may fish in the commercial gillnet fisheries in the Sumner Strait portion of District 106 so long as the in-season estimate of the contribution of Stikine River sockeye salmon is less than 20 percent of the total catch to date of sockeye salmon in Sumner Strait.
 - b. When the estimated TAC of Stikine River sockeye salmon is between 1 and 20,000 fish:
 - 1. Canada shall conduct its commercial and native food fisheries so that the all gear catch is at least 10,000 fish and may increase its catch to include any surplus available in-river total allowable catch but not to exceed 15,000 fish;
 - 2. The United States shall not direct commercial fisheries at Stikine sockeye salmon in District 108;
 - 3. The United States may fish in the commercial gillnet fisheries in the Sumner Strait portion of District 106 so long as the in-season estimate of the contribution of Stikine River sockeye salmon is less than 25 percent of the total catch to date of sockeye salmon in Sumner Strait. If the contribution of Stikine River sockeye salmon is greater than 20 percent but less than 25 percent only one day of fishing per week will be permitted, if greater than 25 percent, no fishing will be permitted in Sumner Strait.

- c. When the estimated TAC of Stikine River sockeye salmon is between 20,001 and 60,000 fish:
 - 1. Canada shall conduct its commercial and native food fisheries so that the all gear catch is at least 15,000 fish and may increase its catch to include any surplus total allowable catch but not to exceed 20,000 fish;
 - 2. The United States may direct commercial fisheries at Stikine River sockeye salmon in District 108 if the total TAC of Stikine River sockeye salmon is greater than the actual catch of Stikine River sockeye salmon in District 106 plus 20,000.
 - d. When the estimated TAC of Stikine River sockeye salmon is greater than 60,000 fish:
 - 1. Canada shall conduct its commercial and native food fisheries so that the all gear catch is at least 20,000 fish and may increase its catch to include any surplus total allowable catch but not to exceed 30,000 fish;
 - 2. The United States may direct commercial fisheries at Stikine River sockeye salmon in District 108 if the total TAC of Stikine River sockeye salmon is greater than the actual catch of Stikine River sockeye salmon in District 106 plus 30,000.
 - e. United States incidental catches of Stikine River sockeye salmon in District 108 shall not be counted when computing TAC available for the Canadian fishery. For the purpose of calculation, the Canadian in-river allowable catch of sockeye salmon will be based on a 10 percent harvest rate of Stikine River sockeye salmon in the District 106 drift gillnet fishery.
- (iii) Canada shall harvest no more than 4,000 coho salmon annually in the Stikine River from 1988 through 1992.
 - (iv) Canadian harvests of chinook, pink, and chum salmon may be taken as an incidental harvest in the directed fishery for sockeye and coho salmon.
 - (v) Both Parties shall take the appropriate management action to ensure that the necessary escapement goals for the chinook salmon bound for the Canadian portions of the Stikine River are achieved by 1995.
 - (vi) If the United States unilaterally withdraws from mutually agreed enhancement goals and activities as specified in the Understanding, then the harvest sharing of naturally occurring Stikine River salmon as stated in sections (ii) through (iv) above shall remain in effect.
 - (vii) If Canada unilaterally withdraws from mutually agreed enhancement goals and activities as specified in the Understanding, then the harvest sharing of naturally occurring Stikine River sockeye salmon shall be as follows:
 - a. When the estimated TAC of Stikine River sockeye salmon is zero or less:
 - 1. Canada may conduct its native food fishery but the catch shall not exceed 4,000 fish, there will be no commercial fishing;

2. The United States shall not direct commercial fisheries at Stikine River sockeye salmon in District 108;
 3. The United States may fish in the commercial gillnet fisheries in the Sumner Strait portion of District 106 so long as the in-season estimate of the contribution of Stikine River sockeye salmon is less than 20 percent of the total catch to date of sockeye salmon in Sumner Strait.
- b. When the estimated TAC of Stikine River sockeye salmon is between 1 and 20,000 fish:
1. Canada shall conduct its commercial and native food fisheries so that the all gear catch is at least 4,000 fish and may increase its catch to include any surplus available in-river total allowable catch but not to exceed 7,000 fish;
 2. The United States may direct commercial fisheries at Stikine sockeye salmon in District 108 if the total TAC of Stikine River sockeye salmon is greater than the actual catch of Stikine River sockeye salmon in District 106 plus 7,000;
 3. The United States may fish in the commercial gillnet fisheries in the Sumner Strait portion of District 106 so long as the in-season estimate of the contribution of Stikine River sockeye salmon is less than 25 percent of the total catch to date of sockeye salmon in Sumner Strait.
- c. When the estimated TAC of Stikine River sockeye salmon is between 20,001 and 60,000 fish:
1. Canada shall conduct its commercial and native food fisheries so that the all gear catch is at least 7,000 fish and may increase its catch to include any surplus total allowable catch but not to exceed 15,000 fish;
 2. The United States may direct commercial fisheries at Stikine River sockeye salmon in District 108 if the total TAC of Stikine River sockeye salmon is greater than the actual catch of Stikine River sockeye salmon in District 106 plus 15,000.
- d. When the estimated TAC of Stikine River sockeye salmon is greater than 60,000 fish:
1. Canada shall conduct its commercial and native food fisheries so that the all gear catch is at least 15,000 fish and may increase its catch to include any surplus total allowable catch but not to exceed 25,000 fish;
 2. The United States may direct commercial fisheries at Stikine River sockeye salmon in District 108 if the total TAC of Stikine River sockeye salmon is greater than the actual catch of Stikine River sockeye salmon in District 106 plus 25,000.
- e. United States incidental catches of Stikine River sockeye salmon in District 108 shall not be counted when computing TAC available for the Canadian fishery. For the purpose of calculation, the Canadian in-river allowable catch of sockeye

salmon will be based on a 10 percent harvest rate of Stikine River sockeye salmon in the District 106 drift gillnet fishery.

- f. Canada shall harvest no more than 2,000 coho salmon annually.
- g. Canadian harvest of chinook, pink, and chum salmon may be taken as an incidental harvest in the directed fishery for sockeye and coho salmon.

(b) the Taku River:

- (i) Harvest sharing of naturally occurring Taku River sockeye salmon for the period 1988 to 1992, contingent upon activities specified in the February 1988 Understanding concerning Joint Enhancement of Transboundary River Salmon Stocks (Understanding), shall be as follows:
 - a. Canada shall harvest no more than 18 percent of the TAC of the sockeye salmon originating in the Canadian portion of the Taku River each year.
 - b. Canada shall harvest no more than 3,000 coho salmon each year.
 - (ii) Canadian harvests of chinook, pink and chum salmon may be taken as an incidental harvest in the directed fishery for sockeye and coho salmon.
 - (iii) Both Parties shall take the appropriate management action to ensure that the necessary escapement goals for chinook salmon bound for the Canadian portions of the Taku River are achieved by 1995.
 - (iv) If the United States unilaterally withdraws from mutually agreed enhancement goals and activities as specified in the Understanding, then the harvest sharing of naturally occurring Taku River salmon as stated in sections (i) and (ii) above shall remain in effect.
 - (v) If Canada unilaterally withdraws from mutually agreed enhancement goals and activities as specified in the Understanding, then Canada's share of naturally occurring Taku River sockeye salmon shall be 15 percent of the TAC. Furthermore, Canada shall commercially harvest coho, chinook, pink, and chum salmon only incidentally during a directed sockeye salmon fishery.
4. The Parties agree that if the catch allocations set out in paragraph 3 are not attained due to management actions by either Party in any one year, compensatory adjustments shall be made in subsequent years. If a shortfall in the actual catch of a Party is caused by management action of that Party, no compensation shall be made.
5. The Parties agree that the following arrangements shall apply to United States and Canadian fisheries harvesting salmon stocks originating in Canadian portions of the Alsek River: Recognizing that chinook and early run sockeye stocks originating in the Alsek River are depressed and require special protection, and in the interest of conserving and rebuilding these stocks, the necessary management actions shall continue until escapement targets are achieved.
6. The Parties agree to consider co-operative enhancement possibilities and to undertake as soon as possible studies on the feasibility of new enhancement projects on the Transboundary Rivers and adjacent areas for the purpose of increasing productivity of stocks and providing greater harvests to the fishers of both countries.

7. Recognizing that stocks of salmon originating in Canadian sections of the Columbia River constitute a small portion of the total populations of Columbia River salmon, and that the arrangements for consultation and recommendation of escapement targets and approval of enhancement activities set out in Article VII are not appropriate to the Columbia River system as a whole, the Parties consider it important to ensure effective conservation of up-river stocks which extend into Canada and to explore the development of mutually beneficial enhancement activities. Therefore, notwithstanding Article VII, paragraphs 2, 3, and 4, during 1985, the Parties shall consult with a view to developing, for the transboundary sections of the Columbia River, a more practicable arrangement for consultation and setting escapement targets than those specified in Article VII, paragraphs 2 and 3. Such arrangements will seek to, inter alia,

- (a) ensure effective conservation of the stocks;
- (b) facilitate future enhancement of the stocks on an agreed basis;
- (c) avoid interference with United States management programs on the salmon stocks existing in the non-transboundary tributaries and the main stem of the Columbia River.

Chapter 2

NORTHERN BRITISH COLUMBIA SOUTHEASTERN ALASKA

1. Considering that the chum salmon stocks originating in streams in the Portland Canal require rebuilding, the Parties agree in 1990 and 1991 to jointly reduce interceptions of these stocks to the extent practicable and to undertake assessments to identify possible measures to restore and enhance these stocks. On the basis of such assessments, the Parties shall instruct the Commission to identify long-term plans to rebuild these stocks.

2. With respect to sockeye salmon, the United States shall

(a) with respect to District 4 purse seine fishery:

- (i) for the four year period, 1990 through 1993, limit its fishery in a manner that will result in a maximum four-year total catch of 480,000 sockeye salmon prior to United States Statistical Week 31;
- (ii) when the annual catch reaches 160,000 sockeye salmon, no further daily fishing periods in District 4 will be allowed prior to Statistical Week 31;
- (iii) all underages not to exceed 20% of the Annex ceiling will add to, and overages will subtract from, the subsequent four-year period.

(b) limit its drift gillnet fishery in Districts 1A and 1B in a manner that will result in an average annual harvest of 130,000 sockeye salmon.

3. With respect to pink salmon, Canada shall

(a) limit its net fishery in Areas 3-1, 3-2, 3-3, 3-4, and 5-11 in a manner that will result in an average annual harvest of 900,000 pink salmon;

(b) with respect to the Area 1 troll fishery:

- (i) for the four year period, 1990-1993, limit its Area 1 pink salmon troll catch to a total of 5.125 million;
- (ii) during the period 1990 through 1993, close the pink salmon troll fishery in the most northerly portion of Area 1 in management units 101-4, 101-8, 101-3 north of 54 degrees 37 minutes N. and 103 north of 54 degrees 37 minutes N to pink salmon trolling when the pink salmon fishery has lasted 22 days starting with the beginning of the troll season in Area 1, but no earlier than July 22, except that the most northerly portion of the area shall close to pink salmon trolling whenever the catch in that area reaches 300,000 pinks.
- (iii) limit the maximum harvest in the entire Area 1 in any one year to 1.95 million pink salmon; and,
- (iv) all underages, not to exceed 20% of the Annex ceiling, will add to, and overages will subtract from, the subsequent four-year period.

4. In 1987 and thereafter, in order to ensure that catch limits specified in paragraphs 2 and 3 are not exceeded, the Parties shall implement appropriate management measures which take into account the expected run sizes and permit each country to harvest its own stocks.
5. In setting pink salmon fisheries regimes for 1987 and thereafter, the Parties agree to take into account information from the northern pink tagging program.
6. The Parties shall at the earliest possible date exchange management plans for the fisheries described herein.
7. In order to accomplish the objectives of this Chapter, neither Party shall initiate new intercepting fisheries, nor conduct or redirect fisheries in a manner that intentionally increases interceptions.
8. The Parties shall maintain a Joint Northern Boundary Technical Committee (Committee) reporting, unless otherwise agreed, to the Northern Panel and the Commission. The Committee, inter alia, shall
 - (a) evaluate the effectiveness of management actions;
 - (b) identify and review the status of stocks;
 - (c) present the most current information on harvest rates and pattern on these stocks, and develop a joint data base for assessments;
 - (d) collate available information on the productivity of stocks in order to identify escapements which produce maximum sustainable harvests and allowable harvest rates;
 - (e) present historical catch data, associated fishing regimes, and information on stock composition in fisheries harvesting these stocks;
 - (f) devise analytical methods for the development of alternative regulatory and production strategies;
 - (g) identify information and research needs, including future monitoring programs for stock assessments; and,
 - (h) for each season, make stock and fishery assessments and recommend to the Northern Panel conservation measures consistent with the principles of the Treaty.

Chapter 3

CHINOOK SALMON

1. Considering the escapements of many naturally spawning chinook stocks originating from the Columbia River northward to southeastern Alaska have declined in recent years and are now substantially below goals set to achieve maximum sustainable yields, and recognizing the desirability of stabilizing trends in escapements and rebuilding stocks of naturally spawning chinook salmon, the Parties shall

- (a) instruct their respective management agencies to establish a chinook salmon management program designed to meet the following objectives:
 - (i) halt the decline in spawning escapements in depressed chinook salmon stocks; and,
 - (ii) attain by 1998, escapement goals established in order to restore production of naturally spawning chinook stocks, as represented by indicator stocks identified by the Parties, based on a rebuilding program begun in 1984;
- (b) continue the chinook working group to clarify policy issues relating to the execution of this Chapter; for example, the definition of pass-through, and the development of common procedures for adjusting catch ceilings in response to changes in abundance, positive incentives and enhancement add-ons; the chinook working group will develop options for consideration by the Commission and Panels as appropriate;
- (c) jointly initiate and develop a co-ordinated chinook management program;
- (d) maintain a Joint Chinook Technical Committee (Committee) reporting, unless otherwise agreed, to the Northern and Southern Panels and to the Commission, which inter alia, shall
 - (i) evaluate management actions for their consistency with measures set out in this Chapter and for their potential effectiveness in attaining these specified objectives;
 - (ii) evaluate annually the status of chinook stocks in relation to objectives set out in this Chapter and, consistent with paragraph (d) (v) beginning in 1986, make recommendations for adjustments to the management measures set out in this Chapter;
 - (iii) develop procedures to evaluate progress in the rebuilding of naturally spawning chinook stocks;
 - (iv) recommend strategies for the effective utilization of enhanced stocks;
 - (v) recommend research required to implement this rebuilding program effectively; and,
 - (vi) exchange information necessary to analyze the effectiveness of alternative fishery regulatory measures to satisfy conservation objectives;
- (e) ensure that

- (i) in 1991, the all-gear catch in Southeast Alaska shall not exceed the base ceiling of 263,000 chinook salmon plus 10,000; in 1992, the all-gear catch in Southeast Alaska shall not exceed 263,000 chinook salmon; these catches exclude the Alaska hatchery add-on as described in the letter of transmittal; in 1991 and 1992 Alaska shall open its general summer troll fishery on July 1; the June fishery shall not exceed 40,000 chinook salmon (excluding the Alaska hatchery add-on) taken in a manner similar to 1989 and 1990; and areas of high chinook abundance shall be closed during chinook non-retention periods to reduce incidental mortalities;
- (ii) in 1991, the all-gear catch in Northern and Central B.C. shall not exceed the base ceiling of 263,000 chinook salmon plus 10,000; in 1992, the all-gear catch in Northern and Central B.C. shall not exceed 263,000 chinook salmon; these catches exclude a portion of the catch in extreme terminal areas as described in the letter of transmittal;
- (iii) in 1991 and 1992, the annual troll catch off the west coast of Vancouver Island shall not exceed 360,000 chinook salmon;
- (iv) in 1991 and 1992, the total annual catch by the sport and troll fisheries in the Strait of Georgia shall not exceed 275,000 chinook salmon; Canada will undertake management measures to achieve the target of rebuilding Lower Georgia Strait and Fraser River chinook stocks by 1998;
- (v) adjustments to the ceilings may be made in response to reductions in chinook abundance so that the indicator stocks are rebuilt by 1998;
- (vi) fishing regimes are reviewed by the Committee and structured so as not to affect unduly or to concentrate disproportionately on stocks in need of conservation;
- (vii) starting with the 1987 season, a 7.5 percent management range is established above and below a catch ceiling. On a continuing basis, the cumulative deviation (in numbers of fish) shall not exceed the management range. In the event that the cumulative deviation exceeds the range, the responsible Party shall be required in

- (iv) beginning in 1989, the Chinook Technical Committee shall
- a. review reports provided by the Parties on an annual basis, unless directed by the Commission, and estimate the magnitude of all quantifiable sources of associated fishing mortalities;
 - b. evaluate their impact on the rebuilding schedule and recommend management actions that will achieve the objectives of the chinook rebuilding program, taking into account the effects of all fishing mortalities; and
 - c. develop technical procedures and standardize methodologies to quantify the magnitude of associated fishing mortalities, including savings of fish, and assess their impacts upon the rebuilding program, including pass-through commitments;
- (v) the Commission shall annually take into account, starting in 1988, the impacts of fishing mortalities, as determined by the Chinook Technical Committee, in establishing regional fishing regimes and may adjust allowable catches accordingly, to assure rebuilding by 1998;
- (g) manage all salmon fisheries in Alaska, British Columbia, Washington and Oregon, so that the bulk of depressed stocks preserved by the conservation program set out herein principally accrue to the spawning escapement;
- (h) establish, at the conclusion of the chinook rebuilding program, fishery regimes to maintain the stocks at optimum productivity and provide fair internal allocation determinations. It is recognized that the Parties are to share the benefits of coastwide rebuilding and enhancement, consistent with such internal allocation determinations and this Treaty; and,
- (i) exchange annual management plans prior to each season.
2. The Parties agree that enhancement efforts designed to increase production of chinook salmon would benefit the rebuilding program. They agree to consider utilizing and redirecting enhancement programs to assist, if needed, in the chinook rebuilding program. They agree that each region's catches will be allowed to increase above established ceilings based on demonstrations to the Commission and assessment by it of the specific contributions of each region's new enhancement activities, provided that the rebuilding schedule is not extended beyond 1998, and provisions of Subsection 1(e)(vi) of this Chapter are adhered to.
3. The Parties shall submit a report to the Commission by December 1991 which presents
- (a) joint recommendations for chinook salmon escapement goals in the transboundary rivers;
 - (b) given the goals recommended in 3(a), a jointly accepted assessment of progress toward rebuilding chinook stocks in these transboundary rivers based on escapement data available through 1991, and the likelihood of achievement of these goals by 1995; and,
 - (c) co-operatively developed management options to be identified by December 1991 and initiated in 1992 and following seasons to ensure rebuilding of chinook stocks in the transboundary rivers which are identified in 3(b) as requiring further management actions.

Chapter 4

FRASER RIVER SOCKEYE AND PINK SALMON

1. In order to increase the effectiveness of the management of fisheries in the Fraser River Area (hereinafter the Area) and in fisheries outside the Area which harvest Fraser River sockeye and pink salmon, the Parties agree

- (a) that the preliminary expectations of the total allowable catches of Fraser River sockeye and pink are:

	<u>Sockeye</u>	<u>Pink</u>
1985	6.6 million	11.0 million
1986	12.5 million	
1987	3.1 million	12.0 million
1988	3.6 million	
1989	7.1 million	14.0 million
1990	13.0 million	
1991	3.1 million	14.0 million
1992	3.6 million	

- (b) that

- (i) based on these preliminary expectations, the United States shall harvest as follows:

	<u>Sockeye</u>	<u>Pink</u>
1985	1.78 million	3.6 million
1986	3.0 million	
1987	1.06 million	3.6 million
1988	1.16 million	

- (ii) the United States catches referred to in paragraph 1(b)(i) herein shall be adjusted in proportion to any adjustments in the total allowable catches set out in paragraph 1(a) herein that are due to any agreed adjustments in pre-season or in-season expectations of run-size. When considering such adjustment, the Parties shall take into account all fisheries that harvest Fraser River sockeye and pink salmon including annual Fraser River Indian food fish harvests in excess of 400,000 sockeye. The United States catches shall not be adjusted to any adjustments in the total allowable catch that may be caused by changes in escapement goals that form the basis for the agreed total allowable catches set out in paragraph 1(a) herein;

- (iii) notwithstanding the agreed United States and Canadian catch levels for Fraser River sockeye and for coho off the west coast of Vancouver Island, as provided in paragraph 1(b)(i) herein and in Chapter 5, respectively, and subject to paragraph 1(b)(ii), in 1985 the United States catch of Fraser River sockeye shall be 1.73 million and the Canadian catch of coho off the west coast of Vancouver Island shall not exceed 1.75 million; and in 1986, the United States catch of Fraser River sockeye shall be 2.95 million and the Canadian catch of coho off the west coast of Vancouver Island shall not exceed 1.75 million;

- (c) in 1985, to instruct the International Pacific Salmon Fisheries Commission to develop regulatory programs in the Area to give effect to the provisions of paragraph 1(b);
 - (d) to instruct the Fraser River Panel for 1986 through 1992 to develop regulations to give effect to the provisions of paragraphs 1(b) and 1(f);
 - (e) to instruct the Fraser River Panel that if management measures fail to achieve such sockeye and pink catches, any difference shall be compensated by adjustments to the Fraser fishery in subsequent years;
 - (f) in the period 1989 to 1992, the Fraser River Panel shall determine the annual United States catch level so that the total United States catch in this period shall not exceed 7 million sockeye in the aggregate. In the years 1989 and 1991, the United States harvest shall not exceed 7.2 million pink salmon, in the aggregate. Notwithstanding the foregoing, these levels shall be reduced in proportion to any decreases in the total allowable catches set out in paragraph 1(a) herein that are due to any agreed decreases in pre-season or in-season expectations of run size. When considering such reductions, the Parties shall take into account all fisheries that harvest Fraser River sockeye and pink salmon including annual Fraser River Indian food fish harvests in excess of 400,000 sockeye. The United States catches shall not be reduced due to any decreases in the total allowable catch that may be caused by changes in escapement goals that form the basis for the agreed total allowable catches set out in paragraph 1(a) herein;
 - (g) to consider no sooner than 1989 adjusting the regime in accordance with the principles of Article III;
 - (h) to instruct the Fraser River Panel that in managing Fraser River sockeye and pink salmon, it shall take into account the management requirements of other stocks in the Area.
2. Notwithstanding the provisions of Paragraphs 1(b) and 1(f), and to ensure that Canada receives the benefits of any Canadian-funded enhancement activities undertaken following entry into force of this Treaty, any changes in the total allowable catch due to such activities shall not result in adjustment of the United States catch.
 3. The Parties shall establish data-sharing principles and processes which ensure that the Parties, the International Pacific Salmon Fisheries Commission, the Commission and the Fraser River Panel are able to manage their fisheries in a timely manner consistent with this Chapter.
 4. The Parties may agree to adjust the definition of the Area as necessary to simplify domestic fishery management and ensure adequate consideration of the effect on other stocks and species harvested in the Area.
 5. In managing the fisheries in the Area, the Parties, the Commission, and the Fraser River Panel shall take into account fisheries inside and outside the Area that harvest Fraser River sockeye and pink salmon. The Parties, the Commission, and the Fraser River Panel shall consider the need to exercise flexibility in management of fisheries outside the Area which harvest Fraser River sockeye and pink salmon.
 6. The Parties shall establish a technical committee for the Fraser River Panel:
 - (a) the members shall co-ordinate the technical aspects of Fraser River Panel activities with and between the Commission staff and the national sections of the Fraser River Panel, and shall report to their respective national sections of the Panel. The committee may

receive assignments of a technical nature from the Fraser River Panel and will report results directly to the Panel.

- (b) membership of the committee shall consist of up to three such technical representatives as may be designated by each national section of the Commission.
- (c) members of the technical committee shall analyze proposed management regimes, provide technical assistance in the development of proposals for management plans, explain technical reports and provide information and technical advice to the respective national sections of the Panel.
- (d) the technical committee shall work with the Commission staff during pre-season development of the fishery regime and management plan and during in-season consideration of regulatory options for the sockeye and pink salmon fisheries of Fraser Panel Area waters to ensure that:
 - (i) domestic allocation objectives of both Parties are given full consideration;
 - (ii) conservation requirements and management objectives of the Parties for species and stocks other than Fraser River sockeye and pink salmon in the Fraser River Panel Area during periods of Panel regulatory control are given full consideration; and,
 - (iii) the Commission staff is timely informed of management actions being taken by the Parties in fisheries outside of the Fraser River Panel Area that may harvest sockeye and pink salmon of Fraser River origin.
- (e) the staff of the Commission shall consult regularly in-season with the technical committee to ensure that its members are fully and timely informed on the status of Fraser River sockeye and pink salmon stocks, and the expectations of abundance, migration routes and proposed regulatory options, so the members of the technical committee can brief their respective national sections prior to each in-season Panel meeting.

Chapter 5

COHO SALMON

1. Recognizing that for the past several years some coho stocks have been below levels necessary to sustain maximum harvest and that recent fishing patterns have contributed to a decline in some Canadian and United States coho stocks, and in order to prevent further decline in spawning escapements, adjust fishing patterns, and initiate, develop, or improve management programs for coho stocks, the Parties shall

- (a) instruct their respective management agencies to continue to develop coho salmon management programs designed to meet the following objectives
 - (i) prevent overfishing; and,
 - (ii) provide for optimum production;
- (b) maintain a Joint Coho Technical Committee (Committee), reporting, unless otherwise agreed, to the Panels and the Commission. The membership of the Committee shall include representation from the Northern and Southern Panel Areas. The Committee, inter alia, shall, at the direction of the Commission and relevant Panels
 - (i) evaluate management actions for their consistency with measures set out in this Chapter and for their potential effectiveness in attaining the objectives established by the Commission;
 - (ii) annually identify, review, and evaluate the status of coho stocks in relation to the objectives set out in this Chapter and make recommendations for adjustments to the management measures consistent with those objectives;
 - (iii) present the most current information on exploitation rates and patterns on these stocks, and develop a joint data base for assessments;
 - (iv) collate available information on the productivity of coho stocks in order to identify the management objectives necessary to prevent overfishing;
 - (v) present historical catch data and associated fishing regimes;
 - (vi) estimate stock composition in fisheries of concern to the Commission and Panels;
 - (vii) devise analytical methods for the development of alternative regulatory and production strategies;
 - (viii) identify information and research needs, including future monitoring programs for stock assessments;
 - (ix) investigate the feasibility of alternative methodologies for implementing indicator stock programs in all areas;
 - (x) for each season, make stock and fishery assessments and recommend to the Commission conservation measures consistent with the principles of the Treaty;

- (xi) develop programs to assure the attainment of spawning escapement goals and prevent overfishing;
 - (xii) exchange information necessary to analyze the effectiveness of alternative fishery regulatory measures in achieving conservation objectives; and,
 - (xiii) work to develop, under the direction of the Joint Northern and Southern Panels, standard methodologies for coho stock and fishery assessment; and,
- (c) unless otherwise agreed, in any area where fisheries of one Party may intercept coho stocks originating in the rivers of the other which require conservation action or such other action as the Commission may determine, that Party will endeavour to limit incidental coho catches in fisheries targeting on other species.
2. For coho stocks shared by fisheries of the United States and Canada, recommendations for fishery regimes shall be made by the Northern Panel for coho salmon originating in rivers with mouths situated between Cape Caution and Cape Suckling and by the Southern Panel for coho salmon originating in rivers with mouths situated south of Cape Caution, as provided in Annex I. At the direction of the Commission, each Party shall establish regimes for its troll, sport, and net fisheries consistent with management objectives approved by the Commission.
3. The Parties agree
- (a) for 1991 and 1992, the west coast of Vancouver Island (Canadian Management Areas 21, 23, 24, 25, 26, 27, 121, 123, 124, 125, 126, 127, and 130-1) annual troll harvest shall not exceed 1.8 million Coho;
 - (b) for 1991 and 1992, the Swiftsure Bank area will be closed to chinook and coho salmon trolling in order to address conservation concerns expressed by both Parties. Troll fishing for sockeye and pink salmon shall, upon appropriate prior notice, be permitted only in order to attain Canadian domestic troll allocation objectives on sockeye and pink;
 - (c) to avoid any alterations in coho fisheries along the west coast of Vancouver Island that would increase the proportional interception of U.S. coho stocks;
 - (d) that in 1991 and 1992, for Canadian Area 20, and U.S. Areas 7 and 7A, fisheries directed at coho salmon will be permitted. Notwithstanding this agreement, if the Commission determines that conservation concerns expressed by either Party warrant further restrictions, then the Parties shall limit their catch of coho salmon to that taken incidentally during fisheries under the control of the Fraser Panel and those permitted under the provisions of Annex IV, Chapter 6. Both Parties agree that in 1987, due to conservation concerns expressed by both Parties and agreed to by the Commission, coho fisheries in Canadian Area 20 and U.S. Areas 7 and 7A shall be limited by the levels of incidental coho catch anticipated during fisheries conducted under the control of the Fraser Panel and provisions of Annex IV, Chapter 6;
 - (e) for 1991 and 1992, the United States shall adhere to presently agreed management objectives in Strait of Juan de Fuca Areas 4B, 5, and 6C; and,
 - (f) to develop in 1993 and thereafter, troll fishery regimes for the west coast of Vancouver Island that

- (i) implement conservation measures approved by the Commission and take into account any increased contributions by the Parties to the fishery; and,
- (ii) provide for the sharing of benefits of coho production of each Party consistent with the principles of Article III.

4. Notwithstanding any other provisions of this Chapter, the Commission, for 1993 and thereafter, may set specific fishery regimes as appropriate, which may include troll harvest ceilings, for coho salmon in the intercepting fisheries restricted under this Chapter that

- (a) implement conservation measures approved by the Commission;
- (b) take into account increased production;
- (c) provide for the recognition of benefits of coho production of each Party consistent with the principles of Article III;
- (d) take into account actions taken by each Party to address its conservation concerns; and,
- (e) take into account time and area management measures which will assist either Party in meeting its conservation objectives while avoiding undue disruption of fisheries.

5. Starting with the 1987 season, a 7.5 percent management range is established above and below a catch ceiling. On a continuing basis, the cumulative deviation (in numbers of fish) shall not exceed that management range. In the event that the cumulative deviation exceeds the range, the responsible Party shall be required, in the succeeding year, to take appropriate management actions to return the cumulative deviation, plus any penalty assessed, to a level within the established management range. Negative cumulative deviations shall not accumulate below the management range. It is the intent of this section to insure that, on average, the annual catch in ceilinged fisheries is equal to the agreed target ceiling.

6. The Parties agree that enhancement efforts designed to increase production of coho salmon would, when combined with catch ceilings and/or time/area management measures, aid in rebuilding depressed natural stocks by reducing the exploitation rates on these stocks. They agree that utilizing this opportunity in the future to rebuild natural stocks is, in most cases preferable to reductions in fishing levels. A major objective of enhancement is to lay the foundation for improved fisheries in Annex areas in the future.

SOUTHERN BRITISH COLUMBIA AND WASHINGTON STATE CHUM SALMON

1. The Parties shall maintain a Joint Chum Technical Committee (Committee) reporting, unless otherwise agreed, to the Southern Panel and the Commission. The Committee, inter alia, will undertake to

- (a) identify and review the status of stocks of primary concern;
- (b) present the most current information on harvest rates and patterns on these stocks, and develop a joint data base for assessments;
- (c) collate available information on the productivity of chum stocks to identify escapements which produce maximum sustainable harvests and allowable harvest rates;
- (d) present historical catch data, associated fishing regimes, and information on stock composition in fisheries harvesting those stocks;
- (e) devise analytical methods for the development of alternative regulatory and production strategies;
- (f) identify information and research needs, to include future monitoring programs for stock assessment; and,
- (g) for each season, make stock and fishery assessments and evaluate the effectiveness of management.

2. In 1991 and 1992, Canada will manage its Johnstone Strait, Strait of Georgia, and Fraser River chum fisheries to provide continued rebuilding of depressed naturally spawning chum stocks, and, to the extent practicable, minimize increased interceptions of United States origin chum. Terminal fisheries conducted on specific stocks with identified surpluses will be managed to minimize interception of non-targeted stocks.

3. In each of 1991 and 1992,

- (a) for Johnstone Strait run sizes less than 3.0 million
 - (i) Canada, taking into account the catch of Canadian chum in United States Areas 7 and 7A, will limit its harvest rate in Johnstone Strait to less than 10 percent, resulting in a Johnstone Strait catch level of up to 225,000 chum; and,
 - (ii) when the catch in Johnstone Strait is 225,000 chum or less, the United States catch of chum in Areas 7 and 7A shall be limited to chum taken incidentally to other species and in other minor fisheries, but shall not exceed 20,000, provided, however, that catches for the purposes of electrophoretic sampling shall not be included in the aforementioned limit;
- (b) for Johnstone Strait run sizes from 3.0 million to 3.7 million

- (i) Canada, taking into account the catch of Canadian chum in United States Areas 7 and 7A, will limit its harvest rate in Johnstone Strait to 20 percent, resulting in a Johnstone Strait catch level of 225,000 to 640,000 chum; and,
 - (ii) when the catch in Johnstone Strait is from 225,000 to 640,000 chum, the United States catch of chum in Areas 7 and 7A shall not exceed 120,000;
- (c) for Johnstone Strait run sizes of 3.7 million and greater
- (i) Canada, taking into account the catch of Canadian chum in United States Areas 7 and 7A, will harvest at a rate in Johnstone Strait of 30 percent or greater, resulting in a Johnstone Strait catch level of 640,000 chum or greater; and,
 - (ii) when the catch in Johnstone Strait is 640,000 chum or greater, the United States catch of chum in Areas 7 and 7A shall not exceed 140,000;
- (d) it is understood that the Johnstone Strait run sizes, harvest rates, and catch levels referred to in 3(a), 3(b), and 3(c) are those determined in season, in Johnstone Strait, by Canada; and,
- (e) the United States shall manage in a manner that, as far as practicable, maintains a traditional proportion of effort and catch between United States Areas 7 and 7A, and avoids concentrations of effort along the boundary in Area 7A.
4. In 1991 and 1992, the United States shall conduct its chum fishery in the Strait of Juan de Fuca (United States Areas 4B, 5 and 6C) so as to maintain the limited effort nature of this fishery, and, to the extent practicable, minimize increased interceptions of Canadian origin chum. The United States shall continue to monitor this fishery to determine if recent catch levels indicate an increasing level of interception.
5. If the United States chum fishery in Areas 7 and 7A fails to achieve the 1991 and 1992 catch levels specified in paragraphs 3(a)(ii), 3(b)(ii), and 3(c)(ii), any differences shall be compensated by adjustments to the Areas 7 and 7A fishery in subsequent years, except that chum catches below the level specified in paragraph 3(a)(ii) shall not be compensated.
6. Catch compositions in fisheries covered by this chapter will be estimated by post-season analysis using methods agreed upon by the Joint Chum Technical Committee.
7. Canada will manage the Nitinat net chum fishery to minimize the harvest of non-targeted stocks.
8. In 1991 and 1992, Canada shall conduct electrophoretic sampling of chum taken in the West Coast Vancouver Island troll fishery if early-season catch information indicates that catch totals for the season may reach levels similar to 1985 and 1986. Sampling, should it occur, will include catches taken from the southern areas (Canadian Areas 121-124).

Chapter 7

GENERAL OBLIGATION

With respect to intercepting fisheries not dealt with elsewhere in this Annex, unless otherwise agreed, neither Party shall initiate new intercepting fisheries, nor conduct or redirect fisheries in a manner that intentionally increases interceptions.

Appendix C

Appointment of Officers for 1996/97

Effective December 11, 1996, a new slate of officers for the Pacific Salmon Commission was identified as follows:

(a)	Commission Chair	Can.	P.S. Chamut
(b)	Commission Vice-Chair	U.S.	D. Benton
(c)	Fraser River Panel Chair	Can.	A.F. Lill
(d)	Fraser River Panel Vice-Chair	U.S.	A.D. Austin
(e)	Northern Panel Chair	Can.	C. Dragseth
(f)	Northern Panel Vice-Chair	U.S.	K. Duffy
(g)	Southern Panel Chair	U.S.	T. Williams
(h)	Southern Panel Vice-Chair	Can.	P. Sprout
(i)	Meetings of the Northern and Southern panels		
	- Chair	U.S.	N/A
	- Vice-Chair	Can.	P. Sprout
(j)	Meetings of the Fraser and Southern panels		
	- Chair	Can.	A.F. Lill
	- Vice-Chair	U.S.	N/A
(k)	Stan. Comm. on F&A - Chair	Can.	C.C. Graham
(l)	Stan. Comm. on F&A - Vice-Chair	U.S.	R. Rousseau
(m)	Stan. Comm. on R&S - Chair	U.S.	N/A
(n)	Stan. Comm. on R&S - Vice-Chair	Can.	B. Valentine

Appendix D

Approved Budget FY 1997/98

1 INCOME

A. Contribution from Canada	\$800,000
B. Contribution from U.S.	\$800,000
Sub total	<u>\$1,600,000</u>
C. Carry-over from 1996/97	\$909,938
D. Interest	\$30,000
E. Other income	\$0
F. Total Income	<u>\$2,539,938</u>

2 EXPENDITURES

A. 1. Permanent Salaries and Benefits	\$1,269,643
2. Temporary Salaries and Benefits	\$186,322
3. Total Salaries and Benefits	<u>\$1,455,965</u>
B. Travel	\$72,106
C. Rents, Communications, Utilities	\$128,624
D. Printing and Publications	\$19,500
E. Contractual Services	\$252,071
F. Supplies and Materials	\$45,294
G. Equipment	\$114,465
H. Mission Research - Split Beam	\$141,037
J. Total Expenditures	<u>\$2,229,062</u>

3 BALANCE (DEFICIT)	<u>\$310,876</u>
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4 TEST FISHING PROGRAM

A. Forecast Revenues	\$1,105,109
B. Forecast Expenditures	\$1,044,912
C. Forecast Balance	<u>\$60,197</u>

5 TOTAL BALANCE (DEFICIT)	<u>\$371,073</u>
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Appendix E

Pacific Salmon Commission Secretariat Staff as of March 31, 1997

EXECUTIVE OFFICE

Ian Todd
Executive Secretary

Teri Tarita
Records Administrator/Librarian

Vicki Ryall
Meeting Planner

Janice Abramson
Secretary

FINANCE & ADMINISTRATION

Kenneth N. Medlock
Finance and Administration

Bonnie Dalziel
Accountant

FISHERY MANAGEMENT

James C. Woodey
Chief Biologist

Jim Gable
Head, Racial Identification Group

Jim Cave
Head, Stock Monitoring Group

Mike Lapointe
Project Biologist, Sockeye

Peter Cheng
Project Biologist, Acoustics

Bruce White
Project Biologist, Pinks

Yunbo Xie
Hydroacoustics Biologist

Keith Forrest
Racial Data Biologist

Ian Guthrie
Head, Biometrics

Jullie Andersen
Senior Scale Analyst

Doug Stelter
Statistician

Maxine Reichardt
Scale Analyst

Kathy Mulholland
Computer Systems Manager

Holly Derham
Assistant Scale Analyst

Appendix F

Membership Lists for Standing Committees, Panels, Joint Technical Committees and other Appointments as of March 31, 1997

CANADA

UNITED STATES

1. STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

Mr. C.C. (Bud) Graham (Chair)
Mr. Patrick S. Chamut
Ms. Joyce Quintal-McGrath
Ms. Heather James
Mr. A.W. (Sandy) Argue

Mr. Rollie Rousseau (Vice-Chair)
Mr. David Benton
Mr. Charles K. Walters
Mr. James Heffernan
Mr. W. Ron Allen
Dr. John L. McGruder

Staff: I. Todd (ex. officio)

Editorial Board

Mr. A.W. (Sandy) Argue

Dr. Norma Jean Sands

Staff: I. Todd (ex. officio)

2. STANDING COMMITTEE ON RESEARCH AND STATISTICS

Mr. Bill Valentine (Chair)
Dr. Brian Riddell
Mr. Ron Kadowaki
Mr. Sandy Johnston
Dr. Max Stocker
Dr. Jake Rice
Ms. Susan Bates
Mr. Al Macdonald

Dr. Norma Jean Sands
Mr. Ben Van Alen
Dr. Jack H. Helle
Dr. Gary S. Morishima
Mr. Gary R. Graves
Mr. Michael Grayum
Mr. James B. Scott

Research and Statistics Working Group

Mr. A.W. (Sandy) Argue
Ms. Susan Steele
Ms. Frances Dickson

Dr. Norma Jean Sands
Mr. Larry Rutter
Mr. Thomas D. Cooney
Mr. Lee H. Blankenship
Mr. Charles K. Walters
Mr. Mike Matylewich

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