# Pacific Salmon Commission


## 1988/89
## Fourth 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

## Fourth Annual Report 1988/89

**Vancouver, B.C.**
**Canada**

# PACIFIC SALMON COMMISSION

ESTABLISHED BY TREATY BETWEEN CANADA
AND THE UNITED STATES OF AMERICA
MARCH 17, 1985

600 - 1155 ROBSON STREET
VANCOUVER, B.C. V6E 1B9
TELEPHONE: (604) 684-8081
FAX: (604) 666-8707


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 Fourth Annual Report of the Commission.

This report summarizes the activities of the Commission for the fiscal year April 1, 1988 to March 31, 1989. The text of agreements recommended to the Parties by the Commission to establish fishery regimes for the 1988 season is contained within this report as is the amended Annex IV to the Pacific Salmon Treaty.

The Commission wishes to note particularly that significant progress was made in the development of coordinated enhancement and management measures for the transboundary rivers of northern British Columbia and southeastern Alaska. Agreement was also reached that the Joint Northern Boundary Technical Committee will undertake a detailed assessment of the status of chum salmon stocks in the Portland Canal area to prepare management and enhancement measures designed to restore these stocks to their former levels of abundance.

Further, the Commission struck two ad hoc working groups; the first to develop an overview of the Parties' long term management plans; and the second to attempt to resolve technical differences in estimates of interception and thus to provide a basis for the Commission to begin to address the question of equity.

These agreements clearly indicate that the Commission is addressing issues which will lead to implementation of the cornerstone principles of the Pacific Salmon Treaty. At the same time, however, the Commission was extremely disappointed that agreement was not reached to amend fishing regimes contained in Annex IV of the Treaty. The Commission intends to work over the next year to attempt to resolve the impasses which prevented progress from being made.

Reports on meetings of the Standing Committees on Finance and Administration, and Research and Statistics, are presented in summary, as are the activities of the Northern, Southern and Fraser River Panels. Executive summaries of reports 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, 1987 to March 31, 1988, as approved by the Commission, is presented for your consideration.

Yours truly,

C.W. Shinners
Chair

# PACIFIC SALMON COMMISSION

## OFFICERS for 1988/89

| | |
|---|---|
| Chair | Mr. S.T. Wapato (to Sept. 30, 1988)<br>Mr. D.A. Colson (Oct. 1 to Nov 30, 1988)<br>Mr. C.W. Shinners (from Dec. 1, 1988) |
| Vice-Chair | Mr. C.W. Shinners (to Nov. 30, 1988)<br>Mr. D.A. Colson (from Dec. 2, 1988) |

## COMMISSIONERS

| Canada | United States |
|---|---|
| Mr. C.W. Shinners | Mr. S.T. Wapato |
| Mr. C. Atleo | Mr. D.W. Collinsworth |
| Mr. R. Wright | Mr. W.R. Wilkerson (to Sept. 30, 1988) |
| Mr. L.P. Greene | Mr. D.A. Colson |
| Mr. G.E. Jones | Mr. G.R. McMinds |
| Mr. J. Gosnell | Mr. K. Parker (to Sept 30, 1988) |
| Ms. S. Hewlett | Dr. J.R. Donaldson |
| Mr. J. Nichol | Mr. H.R. Beasley |
| | Mr. J. Blum (from Oct 1, 1988) |
| | Mr. G. Slaven (from July 12, 1988) |

## SECRETARIAT STAFF

| | |
|---|---|
| Executive Secretary | Mr. I. Todd |
| Deputy Executive Secretary | Mr. T.C. Jensen (to Feb 28, 1989) |
| Administrative Officer | Mr. K. Medlock |
| Chief Biologist | Dr. J.C. Woodey |

# Contents

## Appendices

# INTRODUCTION

Interception of Pacific salmon bound for rivers of one country by fishermen 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 research identified that Alaskan fishermen were catching salmon bound for British Columbia, Oregon and Washington. Canadian fishermen, primarily off the west coast of Vancouver Island, were capturing salmon bound for rivers of Washington and Oregon. Fishermen in northern British Columbia were intercepting salmon returning to Alaska, and United States fishermen 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 is 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 objectives for international conservation and harvest sharing of intermingling salmon stocks. Each country retains jurisdictional management authority for its fisheries but must take into account and manage its fisheries in a manner consistent with provisions of the Treaty. Implementation of the principles of the Treaty enables 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 has responsibility for salmon originating south of Cape Caution, other than Fraser River sockeye and pink salmon.

Functions of the panels are to review annual post-season reports, annual pre-season fishing plans and ongoing and planned salmonid enhancement programs of each country to provide recommendations to the Commission for development of annual fishery regimes in accordance with the objectives of the Treaty. These plans, once adopted, are implemented by the management agencies in each country. The Northern and Southern Panels also meet in joint session to review coastwide concerns on chinook salmon.

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. Scientific and technical work is conducted for the Panel by the Fishery Management Division of the Commission's Secretariat staff.

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, 1988 to March 31, 1989, the Commission met on five occasions:

1. Special Executive Session — April 27, 1988 at Seattle, Washington;
2. Consultation with Panel Chairs/Vice-Chairs and Joint Technical Committee Co-chairs — October 20 — 22, 1988 at Sitka, Alaska;
3. Post 1988 fishing season meeting — November 28 — December 2, 1988 at Vancouver, B.C.;
4. Special Executive Session — January 20, 1989 at Vancouver, B.C.; and
5. Fourth Annual Meeting of the Commission — February 7 — 17, 1989 at Portland, Oregon.

This, the fourth annual report of the Pacific Salmon Commission, provides a synopsis of the activities of the Commission and its subsidiary bodies during its fourth fiscal year of operation, April 1, 1988 to March 31, 1989.

During this year, the Commission faced a major challenge. All fishing arrangements originally established in Annex IV to the Treaty prior to the 1985 season were open for evaluation and re-negotiation, with the possible exception of Fraser River sockeye and pink salmon allocation arrangements.

The principle of "equity" (i.e., the interception of fish bound for one country by fishermen of the other) was to be discussed in a substantive manner for the first time since the Treaty was entered into force.

Other events also influenced the Commission's deliberations during the period covered by this report. In particular, Canada's acceptance of an international ruling which required elimination of certain export controls was felt to limit Canada's ability to realize full benefits under the provisions of the Pacific Salmon Treaty. This subject constituted the agenda for a special meeting held April 27, 1988 and impacted on both the January 1989 and February Annual meeting of the Commission.

The results of the extensive and intensive deliberations of the Commission during the past year did not match the expectations of many of the participants. On reflection, however, progress was made: fishery regimes were agreed for 1989; implementation of the transboundary joint enhancement and management plans was moved a step forward; the Commission embarked on a review of the long range management plans for the major intercepting fisheries of the two countries; and a committee was established to review estimates of interceptions prepared by the two countries and attempt to resolve technical differences in those estimates, thus providing the basis for further substantive discussion on the question of equity.

Many of these same issues will again be in front of the Commission during the next year. Innovative mechanisms have to be found to resolve some of the issues, and the Commission will continue to work toward its goals to enable the two countries to improve Pacific salmon production and for each to receive benefits equivalent to the production from its own rivers.

# Activities of the Commission

# PART I
# ACTIVITIES OF THE COMMISSION

## A. SPECIAL EXECUTIVE SESSION OF THE PACIFIC SALMON COMMISSION
### April 27, 1988 — Seatac Airport

This special meeting was called at the request of the Canadian section to create the opportunity for Canada to inform the United States section on Canadian concerns related to a recent ruling by a General Agreement on Tariffs and Trade panel regarding Canadian export controls for sockeye salmon, pink salmon and roe herring. The Canadian section explained its concerns that under this ruling, which will allow export of unprocessed salmon, the full benefits of Canadian salmon production may not continue to accrue to Canada. Significant diminution of values to Canada could result in reduced support for Canada's domestic salmonid enhancement program and for the Pacific Salmon Treaty in its current form.

The United States section expressed appreciation for the statement of Canada's concerns but concluded that resolution of this GATT issue could not be achieved through the Pacific Salmon Commission. Suggestions were raised that further dialogue might be useful through appropriate government to government channels.

## B. CONSULTATION OF THE COMMISSION WITH THE PANEL CHAIRS/VICE-CHAIRS AND JOINT TECHNICAL COMMITTEE CO-CHAIRS
### October 20 — 22, 1988 — Sitka, Alaska

The Chair of the Commission, Mr. D.A. Colson, stated that the purpose of the meeting was to identify a realistic list of issues for negotiation during the 1988/89 meeting cycle, and to provide panels and joint technical committees instructions for their deliberations. Representatives of the panels and joint technical committees provided reports to the Commission on lists of issues and assignments which had been developed through bilateral discussion. The Commission reviewed those lists and divided them into two categories; those that required resolution through negotiation for development of the 1989 fishery regime, and those that could be discussed for clarification but did not require resolution for 1989.

**Fraser Panel Issues for 1988-1989 Meeting Cycle**

1. Post-Season Accounting
   (a) Review of sockeye escapements in 1988
   (b) Review stock composition estimates of 1985 and 1987 pink catches
   (c) Identify sockeye and pink salmon payback balances for the period 1985-1988

2. In-Season Management
   (a) Role of Commission staff and Panel in in-season management measures

3. Develop a means of identifying production from Canadian "escapement add-ons"

4. 1989 Pre-Season Planning

(a) Determination of the 1989 U.S. fishing levels for sockeye and pink salmon within the provisions of the Treaty and subsequent agreements
(b) Develop detailed 1989 fishing plan in response to run size forecasts, escapement goals, and international and domestic allocation objectives

**Northern Panel Issues for Northern Boundary Area for 1988-89 Meeting Cycle**

Issues for Panel negotiation

1. Canada Area 1 Troll — Expired paragraphs of Chapter 2 of Annex IV

2. Management of total interceptions of Canadian sockeye in Southeastern Alaska

3. U.S. Noyes Island sockeye catch prior to week 31 — expired paragraphs of Chapter 2 of Annex IV

4. Portland Canal chum salmon — expired paragraphs of Chapter 2 of Annex IV

5. Tree Point sockeye management vs. Nass sockeye conservation and harvest sharing

6. Canadian total Area 3 pink catch and management

Issues for Panel Discussion and Clarification

1. Northern boundary coho data exchange and technical review based on previously exchanged papers

2. Portland Canal research understanding update

Information Request

1. Snettisham Central Incubation Facility Enhancement Project Update

2. Update Northern Panel on habitat issues involving Portland Canal and adjacent areas for chum salmon — November 1988

**Northern Panel Issues for Transboundary Rivers for 1988-89 Meeting Cycle**

Issues for Panel Negotiation

1. Transboundary Enhancement
   — Management of enhanced stocks
   — Harvest sharing arrangements
   — Project selection
   — Project funding plan

Issues for Panel Discussion and Clarification

1. Management of Taku harvest to achieve agreed harvest sharing

2. Chapter 1 of Annex IV compliance regarding incidental catch of chinook in Canadian fisheries

**Southern Panel Issues for 1988-89 Meeting Cycle**

Issues for Panel Negotiation

1. Coho Issue List
   (a) Harvest ceiling for WCVI
   (b) Duration of Chapter 5 to Annex IV

2. Chum Issue List
   (a) Quotas for 7/7A within clockwork approach
   (b) Limitations (catch, geographical) and scope of controls for additional fisheries, if any
      (1) Nitinat
      (2) Strait of Juan de Fuca (4B,5,6C)
   (c) Duration of Chapter 6 to Annex IV

Issues for Panel Clarification and Discussion

1. Coho Issue List
   (a) Southcoast data exchange and technical review
   (b) Long-term perspectives, management goals and objectives, by fisheries
   (c) In-season implementation/communication process
   (d) Status of coho stocks
   (e) Examination of ways to improve management compatibility and conserve coho stocks
   (f) Research/monitoring needs

2. Chum Issue List
   (a) Management intent, by fisheries
   (b) Status of Stocks
   (c) In-season implementation/communication process
   (d) Research/monitoring needs

**Northern/Southern Panel Issues for 1988/89 Meeting Cycle**

Issues for Panel Negotiation

1. Chinook Issue List
   (a) Appropriateness of PSC management regimes to achieve rebuilding by 1998
      - Expired harvest ceilings
      - Effectiveness of pass-through measures
      - Needs for additional measures
      - Duration of Chapter 3 to Annex IV
   (b) Hatchery Add-on
      - 1989
      - Process proposal
   (c) Induced (Associated) Fishery Mortalities
      - Positive incentive program
   (d) Overages/Underages
      - Adjustments as required in 1989
      - U.S. paper on penalties
   (e) Exclusion of catches in terminal areas of rebuilt stocks from N/C B.C. all gear catch ceiling

Issues for Panel Discussion and Clarification

   (a) Canadian response to U.S. information requests on Georgia Straits Management and impacts of size limit change

(b) Regional Enhancement Overviews — Chinook/Coho
(c) Canadian response to U.S. information request made last year as to why some chinook salmon catches are not being reported in Northern/Central British Columbia all-gear catch
(d) Procedures for resolving escapement goals in the Transboundary Rivers
(e) Alteration or re-structuring of ocean fisheries to meet chinook re-building goals

**Panel Assignments to Joint Technical Committees**

Assignments from the Northern Panel to the Joint Northern Boundary Area Technical Committee

1. Clarify that the February 1988 instructions from the Commission concerning Portland Canal and adjacent area chum stocks are an ongoing assignment. Progress report — November 1988 — possible new instructions from Northern Panel

2. Prepare annual report on conduct of 1988 Boundary Area fisheries and update historical tables — January 1989

3. Review current research programs in Northern Boundary Area — November 1988

Assignments from the Northern Panel to the Joint Transboundary Technical Committee

1. Finalize report on the status of transboundary river salmon stocks and fishery performance for 1987 — November 1988

2. Preliminary report on the status of transboundary river salmon stocks and fishery performance for 1988 — November 1988

3. Prepare an Enhancement Report including 1988 activities in transboundary rivers, preliminary cost estimates and recommendations for program direction — November 1988

4. Prepare a long-term research plan for transboundary rivers — ongoing assignment

5. Prepare agreed to 1989 management plans for the Stikine and Taku rivers — June 1989

Assignments to other Joint Technical Committees

No new assignments were provided to the other joint technical committees. They were, however, instructed to continue work on previously assigned tasks.

**Conclusions**

The Commission instructed the Panels to meet as often as necessary to complete their tasks, and directed them to present agreements on issues for final approval by the Commission.

The Commission agreed that the complex issue of "equity" should not be a subject for panel discussion or negotiation. This subject was referred to the agenda of the Commission for first discussion during the November 1988 meeting.

The Commission reviewed and adopted a report from the Standing Committee on Research and Statistics concerning the current status of interception information and other related matters. The Commission also reviewed and adopted a report presented by the Standing Committee on Finance and Administration which included a review of budgetary and other administrative matters.

## C. POST 1988 FISHING SEASON MEETING OF THE COMMISSION November 27, 1988 — December 2, 1988 — Vancouver, B.C.

**First Plenary Session**

The first plenary session of this meeting, held on December 1, 1988, was chaired by Mr. S.T. Wapato. He expressed pleasure in having the opportunity to serve as chair of the Commission during the past year. A number of progressive changes have taken place in the way the Treaty has been approached by the Parties. In particular, it is encouraging that longer range management cycles are being looked at even though the current chapters of Annex IV contain relatively short term arrangements. He stressed that it is imperative for both countries to plan long range enhancement projects and to secure the necessary funding if production is to be increased. Increased production will help get the Commission out of short term management difficulties.

He noted that working relationships between key staff members in both countries continue to improve. This atmosphere must be fostered in both countries so that creative solutions for some of the management "boxes" may be developed.

He reviewed changes in the United States slate of commissioners, noting that within the U.S. section the position of chair changes on October 1 of each year. He introduced Mr. David Colson as the new chair of the United States section and noted the following changes:

- Dr. J. Donaldson, formerly an alternate commissioner, is now an acting commissioner replacing Mr. W. Wilkerson
- Mr. J. Blum has been appointed alternate commissioner to Dr. Donaldson
- Mr. Gary Slaven has been appointed alternate commissioner, replacing Mr. Ken Parker.

Mr. C.W. Shinners, on behalf of Canada, welcomed the delegates to Vancouver and to the Four Seasons Hotel. He noted that the Treaty has now been in place for four years. A number of opportunities now are available for the Parties to adjust sharing arrangements, to establish longer term Chapters to Annex IV which might eliminate the necessity for lengthy annual discussions, to focus on increased production including enhancement, and perhaps to be more creative in dealing with mutual problems. Canada is prepared to address these opportunities in negotiations beginning in January and hopes that the United States will also be prepared to enter these broad discussions.

Mr. Wapato announced that the chair of the Commission now passes to Mr. Shinners for the 1988/89 year. Mr. Shinners noted that changes to chairs of standing committees and panels will now take place. The new roster for 1988/89 is:

| | OFFICE | 1988/89 |
|---|---|---|
| 1. | Commission Chair | Can. — C.W. Shinners |
| 2. | Commission Vice-Chair | U.S. — D.A. Colson |
| 3. | Fraser River Panel Chair | U.S. — R.A. Turner |
| 4. | Fraser River Panel Vice-Chair | Can. — F.J. Fraser |
| 5. | Northern Panel Chair | Can. — N. Lemmen |
| 6. | Northern Panel Vice-Chair | U.S. — S. Pennoyer |
| 7. | Southern Panel Chair | U.S. — R. Whitener |
| 8. | Southern Panel Vice-Chair | Can — P. Sprout |
| 9. | Meetings of the Northern and Southern Panels — Chair | U.S. — S. Pennoyer |
| | Vice-Chair | Can. — N. Lemmen |
| 10. | Meetings of the Fraser and Southern Panels — Chair | Can. — F.J. Fraser |
| | Vice-Chair | U.S. — R. Whitener |
| 11. | Stand. Comm. on F&A Chair | Can. — C.W. Shinners |
| 12. | Stand. Comm. on F&A Vice-Chair | U.S. — S.T. Wapato |
| 13. | Stand. Comm. on R&S Chair | U.S. — J.R. Donaldson |
| 14. | Stand. Comm. on R&S Vice-Chair | Can. — S. Hewlett |

Mr. Shinners commented that post-season reports are not available as the panels, except for the Fraser Panel, had not yet had an opportunity to meet in bilateral session. He requested the panels to complete their post-season review by 3:00 p.m. today, following which full national sections will meet at 3:30 p.m. Further panel bilateral sessions will be scheduled for tomorrow.

He noted that this meeting is intended to permit a full review of the 1988 season and to clarify instructions developed during the Sitka meeting. He asked if any of the panels or technical committees required clarification of the Sitka instructions. Hearing no response, he declared the plenary session adjourned.

**Second Plenary Session**

The second plenary session of this meeting, held on December 2, 1988, was chaired by Mr. C.W. Shinners. The purpose of this session was to receive reports on progress made by the panels during their bilateral sessions.

Fraser Panel

Mr. Turner presented the report of the Fraser River Panel. The Panel has initiated work on the Sitka agenda by reviewing preliminary catch and escapement data for 1988. Final review and accounting of the 1988 run are expected to be completed during the January 18 — 25, 1989 meeting. The Panel has conducted an overview of a planned discussion on the roles of the Panel, the Commission staff and domestic agencies in in-season management. This subject will be addressed in detail at a special meeting of the Panel scheduled for January 9 and 10, 1989. Information on domestic management processes in both countries will also be reviewed at that time.

He noted that the Panel requires information on how production from "add-on" escapements is to be treated. The development of fishing plans for 1989 will not take place until later in the spring.

Northern Panel

Mr. Lemmen presented the report of the Northern Panel. The December 1 bilateral session consisted of a review of the post-season report which will be completed for the January meeting.

On behalf of the Panel, he requested that the Commission approve the addition of an item for clarification to the list accepted at Sitka. The Panel wishes to discuss the status of sockeye and chinook runs to the Alsek River, as there is a question as to whether or not they are rebuilding. Specific items which are proposed include escapement objectives, system productivity data, harvest information, and management plans. The Commission approved this request.

Southern Panel

Mr. Whitener reported for the Southern Panel. He commented that instructions developed at Sitka had been reviewed and were clear. The Panel is ready to begin work on coho issues. The Panel also had reviewed progress reports on priorities of the joint technical committees. Mr. Sprout added that guidelines for data exchange and technical review of coho salmon stocks and fisheries had been completed. Agreement has been reached to exchange the following data:

1) Catch data for the years 1979 to 1988.

2) Effort levels and distribution of effort by time and area for the years 1979 to 1988.

3) Stock composition data used in the management of fisheries of concern.

4) An update to the 1986 Coho Technical Committee report on the status of coho stocks in the Southern Panel area. This will involve a short narrative summary and any relevant supporting data.

5) An update on research aimed at improving coho stock assessment and monitoring capabilities in the Southern Panel area.

Each party will provide the available data for the following fisheries:
1) West Coast of Vancouver Island troll, net and sport
2) Georgia Strait troll, net and sport
3) Fraser River gillnet and Indian food fishery
4) Canadian Area 20 net
5) U.S. Areas 7 and 7A troll, sport and net
6) U.S. Areas 4B, 5 and 6C troll, sport and net
7) Washington coastal troll, sport and net
8) Puget Sound troll, sport and net by statistical area
9) Total Washington

U.S. data should be subdivided into Treaty and non-Treaty components where applicable. Where possible, data should be exchanged in both tabular and graphical format. Data tables and graphs for data item 1 will be collated and exchanged at the Coho Technical Committee Stock Composition Working Group meeting during the week of January 9th, 1989, while the target date for the remainder of the data exchange will be January 18th.

Northern/Southern Panels

Mr. Pennoyer reported that the Northern and Southern Panels had met in joint bilateral session for one and a half hours on the morning of December 2. The issues list was reviewed and some questions were raised about scheduling. The United States has requested that Canada, as an issue of clarification, provide a report on the status of Robertson Creek hatchery returns. The Commission approved this request.

The United States agreed to provide a paper to Canada on the status of the Spring Creek Hatchery shortly following this session. The chinook working group announced its plans to meet in Seattle during the week of January 9, 1989. Recommendations and conclusions of the Chinook Technical Committee will be discussed by the working group. The Panels reviewed 1988 fisheries and anticipate further discussion in January. Time did not permit discussion on enhancement details as previously planned, but the Parties will exchange written data by January, 1989.

Post-Season Summary Reports

Canada presented its post 1988 season summary report. The United States later compiled a single document and presented it through the offices of the Secretariat.

**Other Actions by the Commission**

The Commission, in executive session, reviewed initial statements presented by the two sections concerning the question of "equity". Further exploration of this question will, it was agreed, be conducted by the Commission in executive session during the January 18-25, 1989 meeting of the panels. A single format will be developed for presentation of estimates of interceptions calculated separately by technical staff of the two countries.

The Commission also agreed to meet in executive session during the January panel negotiating session to exchange clear statements on national section positions for all issues under negotiation.

On other matters, the Commission reviewed and adopted a report presented by the Standing Committee on Finance and Administration which included the budget for fiscal year 1989/90. The Commission also approved the following meeting schedule:

| | |
|---|---|
| January 22 — 26, 1990 | Panel Negotiations — Juneau, Alaska |
| February 5 — 9, 1990 | Annual Meeting of the Commission — Vancouver, B.C. |

The Commission also received a progress report from the Standing Committee on Research and Statistics including a recommended "goals statement" to guide the Committee's activity. This statement was adopted. A draft process for developing an overall plan of research, information collection and analysis for the Parties' assistance in planning activities to meet Treaty obligations was also reviewed.

The Commission also approved the following work schedule for the January 18 — 25, 1989 negotiating session:

| | |
|---|---|
| Days 1 — 3: | National Sections Meetings |
| Day 3, P.M.: | Commission to exchange draft proposed new chapters to Annex IV and positions on equity in executive session |
| Day 4: | National Sections Meetings |
| Days 5 — 8: | Bilateral Panel Negotiations. |

## D. MEETING OF THE COMMISSION January 18 — 20, 1989 — Vancouver, B.C.

In accordance with the schedule approved during the December 1, 1988 executive session, meetings of the national sections of the Commission began on January 18, 1989 in closed session and continued through to the late afternoon of January 20.

The Commission met bilaterally in executive session on the evening of January 20, 1989. As planned, the two sections exchanged views on the status of interceptions. Canada, however, was not prepared to present positions on the issues to be negotiated as planned, due to deep concerns over the impact of potential changes to fish handling and landing practices resulting from Canada's acceptance of a ruling by General Agreement on Tariffs and Trade (GATT) on export regulations. At the same time, Canada expressed its strong support for the fundamental principles of the Treaty and a continuing commitment toward it.

The United States noted that negotiations could begin as soon as Canada could exchange its position papers.

In view of this inability to exchange position papers, bilateral sessions of the panels, with the exception of the Fraser Panel, which had been scheduled for January 22 through 25 were cancelled.

## E. FOURTH ANNUAL MEETING OF THE COMMISSION February 7 — 17, 1989 — Portland, Oregon

### First Plenary Session

The first plenary session of the fourth annual meeting of the Pacific Salmon Commission was chaired by Commissioner C.W. Shinners on February 10, 1989. He welcomed the delegates and introduced the Canadian commissioners. Vice-chair, Mr. D.A. Colson, extended the United States welcome to Portland and introduced the United States commissioners.

The purpose of this plenary session was to permit each national section to present statements and exchange perspectives on the question of "equity". At the chair's request, Mr. Colson presented the views of the United States, which follow here in an abridged form:

"Thank you Mr. Chairman. I welcome the opportunity today to present to the Canadian section of the Pacific Salmon Commission the United States' position on the matter of equity. In summary it is our feeling that the Commission's approach to equity must be positive, it must have the support of both governments and fishing groups in both countries and be oriented toward providing better management for our fisheries.

Our general approach is that we should proceed on two tracks. On one track, we need to begin to identify the reasons for the differences in the papers that we passed a few weeks ago in Vancouver and receive recommendations for means by which those differences might be overcome.

On a second track, however, we also believe that the Commission should request the Parties to describe to the Commission their long-term objectives for the salmon fisheries in the two countries and begin a Commission deliberative process concerning those objectives.

Our reasoning for this position is as follows:
Article III, para. 1(b) of the Pacific Salmon Treaty establishes that one principle of the Treaty is to provide for each Party to receive benefits equivalent to the production of salmon originating in its waters.

There are two other principles in Article III and they are on an equal footing with the equity principle. Those two principles are to prevent overfishing and to provide for optimum production.

Thus, the equity principle does not stand alone, it stands with two other principles and all three must be balanced and accommodated in the Commission process. The Treaty makes clear that in implementing Article III, para. 1 of the Treaty, three other considerations must be taken into account -the desirability of avoiding undue disruption in existing fisheries, the desirability of reducing interceptions and acknowledging the annual variations that occur in the fisheries.

With this background, we recall that during the lengthy Treaty negotiations there were many efforts to address the equity issue. These efforts sought to calculate the benefits available to both sides in regards to the salmon each country produces. In the end, we did not succeed during the Treaty negotiations and the Treaty simply established the principle and left it to this Commission to apply in the overall context of the Treaty.

Now, the Commission's task is not easy. We must expect that Commission actions will reflect a balancing of all considerations that I have mentioned rather than the ascendancy of any one of them. A flexible approach is going to be needed.

Now, anticipating the difficulties that the Commission would face, the negotiators set out their view of how equity was to be implemented in a Memorandum of Understanding associated with the Treaty. That MOU takes a long-term and short-term approach to the equity issue.

It establishes understandings which are to guide the Commission as it looks at a long-term approach and in reviewing these it appears to me that they are as valid today as they were four years ago. They included the following points: data on the extent of interceptions is imprecise; in some cases the total production of salmon from each country's rivers is not known; methods for evaluating benefits may differ; more research is needed.

It may take some time before the Commission can deal with the equity principle. Over the long-term, if it is determined that one country or the other is deriving substantially

greater benefits than those provided from its rivers, a phased program would be developed taking account of Article III, para. 3 of the Treaty. Redress of imbalances may involve fishery adjustments or enhancement projects. And finally, the necessary adjustments are to take place in the agreed fishery regimes established through the Commission.

For the short-term, the MOU sets forth a somewhat different approach. It says, and I quote: "The Commission shall ensure that the annual fishery regimes and understandings regarding enhancement are developed in an equitable manner taking into account the principle outlined in Article III, para. 1(b). In particular the Commission's decisions should take into account changes in the benefits flowing to each of the Parties through alteration in fishing patterns, conservation actions, or as the result of changes in the abundance of runs".

Over the last four years within the deliberations of the Commission the term equity has been used in several ways. It has been referred to in the long-term concept contemplated by the MOU. It is also being used to refer to the status quo, maintaining the levels of interception or the relationship between levels of interception established in the fishery regimes set out originally in the Treaty. From time to time, in discussions within the Commission, equity has been used simply to indicate fairness and it has also been used in reference to a payback concept.

When we discuss equity it is important to understand how we are using the term in the discussion. Now, the equity principle is important to both countries. It is not just a principle that is important to Canada — it is a principle that is important to the United States. And the reason it is important to the United States is that it means that each side is going to be dealt with fairly under this Treaty. It means that each side can expect a return on its investment and it means that each side has hope for a more productive salmon fishery in the future.

But because equity is related to interception, and both countries do have intercepting fisheries, equity also is the principle that holds out a lot of uncertainty and even threatens some of our fishermen. Is it the objective of the Treaty to eliminate intercepting fisheries or is it the objective of the Treaty to ensure that the intercepting fisheries in each country are controlled so as to allow the country of origin to plan, manage and build its runs knowing it will reap its return?

In defining our future in the Salmon Commission, the principle of no undue disruption of traditional fisheries is a reality that will constrain the Commission politically.

The U.S. side believes it is unrealistic for the Commission to plot a course that contemplates elimination of intercepting fisheries. If the Commission is perceived as only providing for cut-backs in traditional fisheries we are not likely to obtain the necessary political support to accomplish positive objectives.

Taking a negative approach will mean that the viability of Commission over time will be substantially diminished.

In our view, the Commission should adopt an approach to equity that is positive. It should be one that focuses on the fulfillment of our respective objectives and expectations. In this regard we need a focus that takes account of equity, conservation and optimum production. We need a focus as well that does not contemplate the undue disruption of traditional fisheries.

Now, having said that, it might be that even my colleagues on the Canadian side of the table could agree with much of what I have said up to this point. But we are aware that Canada believes that the interception balance today shows that the U.S. intercepts more Canadian fish than vice versa. We don't believe that is the case and, as you know, a few weeks ago we exchanged papers indicating our particular beliefs about what the interception picture shows.

Now, as I look at the data provided by Canada, I am not only shocked, I am amazed, by the amount of difference that we have. After so many years and so much debate we appear far apart on some very basic information.

For instance, in some situations such as pink salmon, estimates differ only in selected years. In some years we would appear to be talking about the same language but in '83 and '87 we have vastly different perceptions about what happened during those fisheries. In other cases like coho we have a systematic difference in perception.

There is a vast difference in perception that is somehow related to the way that we are evaluating these fisheries. Chinook would show something not quite so dramatic but would again give you basically a similar picture. On the optimistic side are cases like sockeye which reflect the successful application of stock identification programs by the Fraser Panel and by other management groups where our estimates are quite close to one another.

Now the recent Research and Statistics Committee report which the Commission approved in Sitka foreshadowed this difference. We are a long way from agreement on the matter of quantifying interceptions. Obviously much technical knowledge needs to be developed before we are going to be able to narrow our differences. I have heard it said recently that the United States hadn't been interested and was not involved in trying do some work to make progress on the interception issues. That really isn't true. The United States side has made a beginning in seeking the necessary information to look at the interception issue.

The U.S. section does not design its research and management program solely to answer the equity issue.

Improving management of the resources is the priority and intent of the majority of the research initiated by U.S. management entities. But, in our pursuit of improved fisheries management we have invested substantial funds to programs that are directly applicable to the general issue of intercepting fisheries. In fiscal year '88 for example the United States section spent approximately $4.5 million (U.S.) on stock ID work. This included genetic stock identification, coded wire tagging and recovery, adult tagging, scale pattern analysis. We spent about $1.5 million on stock monitoring associated with the U.S./ Canada indicator stocks and about $340,000 on other fishery monitoring.

Now, these amounts reflect new research efforts and new research monies available to the United States side since the signing of the Treaty. They are carried out by the States of Alaska, Washington, Oregon and Idaho, the Columbia River Inter-Tribal Fish Commission, the Northwest Indian Fisheries Commission, the Metlakatla Indian Community, the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. We are initiating similar levels of related programs for FY '89.

Most of the fishery management agencies have substantial additional programs, that are also applicable, that were funded and underway prior to the Treaty. Those program dollars are not included in the amounts I just mentioned.

Thus, we are spending a great deal of money and involved in quite a bit of work which is going into stock identification. So where does all of this leave us?

We come back to the view that the Commission's approach to equity must be positive. We must have the support of both governments and groups of fishermen. To do this equity cannot be seen as a threat to livelihoods and traditions. Thus we must make equity the hope we all have of seeing our expectations fulfilled. To achieve that through some kind of a process that counts the fish, places a value on them and then theoretically requires the loser of the balancing game to adjust its fisheries appears to us to be fundamentally unrealistic. Now, we are not saying we won't engage in technical exchange about intercepting fisheries. Indeed we believe cooperative programs to understand intercepting fisheries are of high value. We are prepared to work on more cooperative programs

directed towards reaching agreement on stock composition of the intercepting fisheries. We believe that those programs should be oriented towards providing better management for the fisheries with the stock identification work being a residual benefit.

We are sceptical, however, that technical debate on interceptions, then a quasi-technical economic debate to identify benefits is the means through which we might obtain the expectations we have for our fisheries. We regard it as unlikely, no matter how that debate comes out, that one side will ever be prepared to restructure its fisheries for the sole purpose of meeting the other side's expectations.

If this Commission is to work, there must be something in it for both sides.

Therefore, we believe equity should embrace a positive approach wherein both sides can realize their expectations through cooperation. Understanding the interception picture better and working together to provide for the realization of expectations is what we believe we should be about.

Thus, as I said at the beginning, we believe we should proceed on two tracks; first, we propose that through the R & S Committee we should identify the reasons for the differences in the two interception tables and we should provide recommendations to the Commission for the means by which these differences might be overcome; and second, we believe the Commission should request the Parties to describe to the Commission their long-term objectives for their salmon fisheries. What is Canada's vision, what is our vision? Then the Commission should examine those visions. How can the Commission assist in realizing those objectives? Perhaps the Commission can point out the areas where international cooperation will be required if national objectives are to be realized.

Perhaps the Commission can suggest ways of reconciling competing objectives. Perhaps the Commission is the forum wherein to reach the kinds of agreements necessary to ensure the fulfillment of our individual objectives.

Let me close with an example. How can Canada maintain a west coast coho troll fishery while the U.S. rebuilds its west coast coho stocks with a long-term assurance of healthy U.S. coastal fisheries?

We believe that is the kind of question the Commission should be asking and resolving along with many others. A part of that is knowing each other's objectives and another part is having an agreed understanding of the interception picture in the fisheries concerned. We believe that this is a job that the Commission can do. Thank you."

Mr. Shinners followed with the Canadian views on this issue, again presented here in an abridged version:

"Thank you very much. Just as an opening comment there is certainly a lot in your presentation in terms of the basic principles of the Treaty and that Canada can agree with. Your conclusions give us some problems, however, in the sense that you are asking us to look at equity in the longer term — we have to look at it in the sense of additional production, more research, more information and eventually down the road there will be a resolution.

Unfortunately from the Canadian perspective we feel we have a problem right now that has to be dealt with in some way. We support enhancement and taking all the necessary steps to improve our management and to assist you in improving yours. We have no argument with those approaches. However, we still feel there is an issue to be dealt with in some way before we can in any meaningful sense deal with the longer term. At the present time we do not feel that Canada is receiving justice in terms of the balance of interceptions. We feel the base is not an equitable one.

I don't think anyone doubts Canada's commitment and Canada's desire to have this Treaty and I think it is a well known fact that Canada was ready to sign this Treaty many years

before the U.S. was ready to come onside. So I just wanted to be clearly understood. We are not threatening this Treaty, we are firmly committed to this Treaty and I think we pushed for implementation of this Treaty, even at a time when we felt that we were not getting an equitable deal. Canada realized that the situation during the early '80's was deteriorating; the resource was going down the tube and we all knew it and something had to be done. The warring that was going on, to whatever level it was going on, had to stop and it was on that basis that Canada entered into this Treaty. This has to stop, we have to begin mutually, bilaterally doing a better job of managing our fisheries.

If we continued on the path that we were on at that point in time we probably wouldn't have much to talk about and in ten years people could get on with damming other rivers than the Columbia. So something had to be done and we decided we were prepared to come onside and to sign the Treaty even though we felt that there were still some imbalances in place. We felt that because of the same reasons that Mr. Colson said we can do a better job of managing, we can get on with some additional production, we can get on with enhancement, we can get on with protecting our rivers because we have a viable resource in those river systems.

And we certainly felt, based on the Treaty and the wording of the Treaty and the Memorandum of Understanding, that Canada's concerns with regards to equity would be dealt with at some point down the road and it was our understanding that was provided for in the arrangement signed by the two Parties.

Four years have gone by since the signing and Canada from time to time has questioned when the Commission is going to start dealing with equity, and we are still trying to come to grips with that question. We certainly feel that now is the time; we can't set it aside any longer if we are going to make progress.

I would like to present Canada's perspective at the time we signed the Treaty. At that point in time prior to the Treaty, for chinook and coho there was an advantage to Canada and with chum, pink and sockeye an advantage to the U.S. Since the Treaty it is certainly Canada's perspective that the situation has deteriorated. In terms of chinook there is an increase in Canada's favor.

In terms of coho we feel it has gone in the favor of the U.S. The same thing with chum there has been an increase in the favor of the United States. With pink we recognize the problem with the odd and even years and the time-frame that is used. In terms of sockeye we see an even further erosion between '82/84 and '85/87. So that is a broad perspective of where Canada is coming from and we put a great deal of emphasis on sockeye in particular.

Canada believes in and strongly supports the principles of the Treaty whether it be the one that deals with equity or the producing nation getting the benefits of its production.

We support the opportunity provided under the Treaty to increase production. We support the principle under which we are better able to manage and to assist one another in managing our respective fisheries. But the challenge of this Commission at the present time is to decide how to deal with this question of equity.

When we signed the Treaty in 1985 there was really no technical provision provided for the implementation of the equity principle. We had an MOU which identified that we would move towards equity over time. Canada appreciates that. This is not an issue that can be dealt with in any one year and it will take time to address it.

But we also feel that some short-term steps or short-term adjustments moving in the right direction towards equity are also appropriate. It is not something that can be put off while we develop 5-10-15 year plans for each of our domestic fisheries. So we feel that we cannot ignore the question any longer and we have to make a start now.

I think we took that first step in January in Vancouver when we exchanged for the first time our respective views on equity and, like Mr. Colson, the Canadian section was disappointed that after all of this additional four years of work and research and stock ID that we appear to be further apart than we might have been at the time we signed the Treaty. Our perspectives are quite a bit different.

The question now is, where do we go from here and what do we want to do about it? Are we serious about trying to address this problem?

Canada is prepared to enter into bilateral discussions with the U.S. at both the Commission level and at the technical level in an attempt to see if we can bridge or narrow the gaps. There is a need for some further technical explanation of both the U.S. view of the world and the Canadian view of the world. Hopefully, with that type of technical exchange we can have a better understanding of where the U.S. is coming from and its perspective and maybe hopefully from the Canadian side, as well, you will gain a better understanding. I guess there are two aspects to this whole issue. One is a very technical issue. The other is then, once we have that technical information, what we want to do with it or what we want to do about it. As Mr. Colson suggested, and I haven't seen that proposal prior to him making it here, we are prepared to discuss whether it be the Standing Committee on Research and Statistics or some other mechanism. But Canada is very supportive of beginning some technical discussion on this issue.

I honestly don't feel that even with the technical discussion — because don't forget that we have been talking in technical terms for the last four years and 20 years before that leading up to the Treaty — that we will eliminate major differences of opinion. But maybe we can narrow the gap and we will do our best to see that happens. In the end, however, I would suggest that we would still have differences and at that time it might be worth at least raising and having people think about the possibility of going to a mechanism provided in the Treaty for technical dispute settlement.

Maybe we would be well advised after debating the technical analysis to turn it over to a third party to provide another view of the situation and to report back to the Commission, or if not to the Commission, then to the governments.

Equity has to be dealt with and at the same time it has to be set aside. Set aside in the sense that I don't think we can allow it to interfere with the job that has to be done here this week and next fall. We have an important job to do and until this is resolved or on the road towards resolution I think it is going to continue to interfere with the ability to deal with issues here in the short term. So Canada is prepared to discuss the technical review of the data and would like as well to explore the possibility of moving it to a third party at some early point in time under the technical dispute settlement mechanism to have it dealt with, if that is possible once and for all.

I don't want to close with a negative statement or what appears to be negative. All I want to do is express Canada's great concern with equity. If the United States can prove its case that indeed Canada is wrong, then fine let's prove it, let's deal with it and get it out of the way. We would like the same opportunity to convince you that our view of the world backed by good technical information is the correct one. Then I assume we will be able to get on with the development of fishing plans for next year, the year after, 10 years down the road.

Canada remains firmly committed to the Treaty and the principles of the Treaty. I think, in spite of our view of the world here, we have made some considerable progress under this Treaty. We have made progress in the sense that the stocks, whether they are southeast Alaska or Columbia River stocks have improved as a result of this Treaty and that's the first thing that we are all committed to and remain committed to. I think we have a much better understanding of one another and our management objectives than we had prior to the Treaty.

That's a move in the right direction and we continue to support that type of development and better understanding.

But Canada has to have some meaningful dialogue and discussion on the question of equity and we have to move down that road. We are going to do everything we can here during the course of this week not to let this issue detract us from the job at hand, that is, arrangements for 1989/1990 or longer. That has to be done and I think if in the next few days the Commission can agree on a course of action that will hopefully deal with this issue we have no problem either at the Commission level or at the Panel level getting on with 1989/1990 arrangements and we are here to do just that. Thank you."

The balance of Commission business was conducted in executive session. Panels continued discussion of issues in front of them from February 7 through to February 15 and made their reports to the Commission in executive session. All unresolved issues were referred to the Commission for action.

The Commission, on February 17, 1989, reached consensus on recommendations to present to the Governments of Canada and the United States concerning fishery regimes to be adopted for 1989 (Appendix A). All regimes in place during 1988 remained intact and generally unchanged for 1989, but the sides were unable to come to agreement on provisions in Annex IV that would apply beyond 1989 (Appendix B). The Fraser Panel did not complete its development of fishing plans for 1989 pending the outcome of domestic allocation decisions in both countries.

The Commission did, however, make progress on several important fronts, reaching understandings on the following issues:

(a) an expansion of the agreement on joint enhancement in Transboundary rivers (Appendix C), including arrangements on project feasibility, harvest and cost sharing;

(b) an agreement to exchange detailed information available on Northern British Columbia and Southeastern Alaska coho stocks and fisheries, including proposals for research programs to improve the data base (Appendix D);

(c) an agreement of the Fraser River Panel for the purpose of calculating benefits to Canada in 1989 from escapement add-ons provided in 1985 (Appendix E);

(d) an agreement to form a joint interception committee to exchange data and methods used by the two sections to calculate estimates of interception and attempt to resolve technical differences by October 1989 (Appendix F);

(e) an agreement to form a joint committee to document both short and long term perspectives on the management and enhancement programs of the Parties, to identify areas where international cooperation will be required, to identify areas of incompatible objectives, and to complete a report to the Commission by December 1989 (Appendix G);

(f) an agreement for the Joint Northern Boundary Technical Committee to identify possible measures for restoring and enhancing chum salmon stocks in Portland Canal;

(g) a re-affirmation of the assignment to the Chinook Working Group to report to the Panels in November 1989 on development of a common understanding of the definition of rebuilding; and

(h) an agreement that the current division of responsibilities between Canada, the Fraser River Panel, and Commission scientific staff defined in the diplomatic note exchanged between the Parties August 13, 1985 shall remain in effect but will be reviewed every four years.

On administrative matters, the Commission approved the following schedule of meetings for the 1989/90 cycle:

(i) October 17-19, 1989 — Prince Rupert, B.C.
Consultation with Panel chairs/vice-chairs and Technical Committees' co-chairs.

(ii) November 28 — December 1, 1989 — Vancouver, B.C.
Post-season meeting with full Panels and Technical Committees.

(iii) January 22 — 26, 1990 — Juneau, Alaska
Panels' negotiating session.

(iv) February 5 — 9, 1990 — Vancouver, B.C.
Fifth Annual Meeting of the Commission

# Activities of the Standing Committees

# Part II
# Activities of the Standing Committees

## A. MEETINGS OF THE STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

The Standing Committee on Finance and Administration, led by commissioners Wapato and Shinners, met twice during fiscal year 1988/89; on April 20, 1988 in Ottawa, Ontario and on November 29, 1988 in Vancouver, B.C. A brief review of the major actions recommended by the Committee and later adopted by the Commission is presented in chronological order of meetings.

**Meeting of the Committee — April 20, 1988 — Ottawa, Ontario**

The Committee reviewed the Executive Secretary's final report on income, expenditures and balances in accounts for fiscal year 1987/88. A surplus was identified and retained in Commission accounts for credit against the Parties' contributions for fiscal year 1988/89, subject to verification of the final amount by the auditors.

The Committee reviewed the base budget approved for fiscal year 1988/89 and accepted amendments which reflected decisions made by the Committee to adopt classification and salary schedules and benefit plans for staff which parallel those of the Public Service Commission of Canada.

The Committee reviewed detailed budget proposals for fiscal year 1989/90 and fiscal year 1990/91. It was noted that meaningful increases in the basic level of contributions from the Parties will be required if the program expectations of the Fraser Panel are to be met, and if administrative support of the Commission is to be continued at present levels. The Executive Secretary explained that Fraser River Panel programs in 1988/89 are at low levels because of the small sockeye run and the absence of pinks. In the other three years of the four-year cycles, costs will rise as programs are extended to cover longer seasons with greater sockeye abundance and the presence of pinks in two of those years.

The Committee expressed concern about the ability of the Parties to increase contributions above 1988/89 levels by approximately $410,000. in 1989/90 and $340,000. in 1990/91.

The Committee recognized that the Secretariat has been called upon to perform tasks additional to those originally forecast, but expressed deep concern that major increases requested could be provided.

The Committee, after further deliberation, agreed that contractual salary increases and the needs of monitoring the fisheries in high cycle years, were eroding the Commission's base budget. Both Parties agreed to explore opportunities for securing an increase, if not for 1989/90 then for 1990/91. The Committee approved the recommendations of the staff to:

(a) obligate the forecast surplus from 1988/89 against program costs for 1989/90; and

(b) expend test-fishing surpluses against program costs in-season, provided that such surpluses are not used to cover permanent personnel salary and benefits costs.

On other administrative matters, the Committee:

— reviewed the Executive Secretary's recent correspondence in his continuing efforts to secure privileges and immunities in Canada reciprocal to those provided in the United States. A representative of the Department of External Affairs reported that

an Order-in-Council could now be drafted and implemented in approximately three months; and

— meet with representatives of the International Fishery Commissions Pension Society to discuss cost-sharing between employer and employee for new provisions currently under consideration for amending the pension plan.

**Meeting of the Committee — November 29, 1988 — Vancouver, B.C.**

The Committee reviewed the status of income and expenditure including projections for the balance of the current fiscal year. The financial position forecast for the end of the fiscal year indicated that revenues from the test-fishing program will exceed expenditures.

The Executive Secretary reviewed the results of a study undertaken by the International Fisheries Commissions Pension Society comparing the Commission's pension plan with the pension plan provided Canadian Public Service employees. The study indicates that Commission and Government employees receive pension and benefit packages of equivalent net value. The Committee noted that this situation is consistent with Commission personnel policy.

The Committee reviewed the staff's proposed 1989/90 budget. Several Committee members enquired into the basis of calculation of anticipated interest income. The Executive Secretary commented on this matter and provided an overview of planned technical programs. The Executive Secretary confirmed that the Fraser River Panel had reviewed and approved the staff programs.

The Executive Secretary reviewed two alternative budgets, one incorporating increased contributions to cover increased personnel costs (the "A" budget), the other based on level funding (the "B" budget).

The Committee chair advised the Executive Secretary that the U.S. is prepared to provide the Commission with additional funding to cover increased personnel costs. Canada indicated that it could not support an increased budget at this time, particularly in light of the surpluses projected to be developed from test fishing operations. The Executive Secretary commented on the uncertainty and risk associated with projection of test fishing revenues and emphasized the importance of providing a secure, adequate funding base for Commission personnel and program costs.

The Executive Secretary noted that budgeted capital expenditures do not include sums for acquisition or replacement of computers, FAX machines or other equipment originally purchased by the Commission and provided to national section personnel.

The Committee approved the "B" budget proposal which incorporated the forecast unexpended balance at the end of fiscal year 1988/89 to offset program costs for fiscal year 1989/90 (Appendix H).

The Committee reviewed the staff budget forecast for fiscal year 1990/91. The Executive Secretary again emphasized the uncertainty underlying forecasts of test fishing revenue, noting that the Commission faces substantial deficits if test fishing revenues do not materialize as forecast.

On other matters, the Committee:

— agreed to allocate repair costs for Commission-owned equipment on permanent loan to the Parties effective April 1, 1989. The Committee also agreed in principle to transfer ownership of this equipment to the Parties effective April 1, 1989, subject to establishment of a mechanism in the United States to acquire ownership;

— approved in principle a capital acquisition/replacement plan produced by staff, subject to annual review of proposed capital expenditures by the Committee;

— reviewed the status of the Commission's request for a grant of privileges and immunities from the Government of Canada equivalent to the grant received from the United States Government. The Committee noted its deep concern that after two years of effort, including correspondence with the Minister of External Affairs, no appreciable progress had been made. The United States Section expressed the view that, in the absence of privileges and immunities, its representatives are becoming resistant to meeting in Canada;

— reviewed a memorandum detailing certain federal taxation problems encountered by U.S. citizens employed on the Secretariat staff. The Committee agreed to support the staff proposal to secure tax preparation assistance for U.S. citizens during their first two years of employment with the Commission;

— agreed to meet in late April 1989 in Washington, D.C. to review year-end financial reports, revised budgets for 1989/90 and forecasts for 1990/91 and 1991/92.

Other Administrative Matters

1. Staffing

Several changes occurred within the Secretariat staff during the period covered by this report:

— Mr. T.C. Jensen, Deputy Executive Secretary, resigned effective February 28, 1989 to move to Washington, D.C.

— Ms. Ellen Mochizuki, accountant, resigned effective January 31, 1989

— Mrs. Linda Ford was appointed accountant effective February 1, 1989

The staff organizational structure and membership at March 31, 1989 is presented in Appendix I.

2. Membership Lists

An updated membership list for standing committees, panels, joint technical committees, sub-committees and ad hoc working groups as at March 31, 1989 is presented in Appendix J.

## B. MEETINGS OF THE STANDING COMMITTEE ON RESEARCH AND STATISTICS

The Standing Committee on Research and Statistics, led by commissioners Hewlett and Donaldson, met twice during the period covered by this report; June 14 and 15, 1988 in the offices of the Pacific Salmon Commission, Vancouver, B.C. and September 13 and 14, 1988 at Warm Springs, Oregon.

**Meeting of the Committee — June 14 — 15, 1988 — Vancouver, B.C.**

This session marked the first meeting of the Standing Committee on Research and Statistics which had been restructured to include the co-chairs of the joint technical committees as members.

The Committee discussed its role in implementation of the Treaty at length. The Committee concluded that a major uncertainty restricting it from achieving its objectives under the Treaty is whether equity (interceptions) or improved management (conservation, optimum production) is to be the form. The Committee adopted the following goal statement which was later approved by the Commission;

> "Potential benefits attainable under the Pacific Salmon Treaty can best be furthered by pursuing an appropriate balance of long- and short-term research activities for Treaty implementation. To ensure that the information needs of the Commission are met, and recognizing the limited resources available for research, the Committee shall develop and advocate a balanced research plan designed to prevent overfishing, improve management

procedures, quantify interceptions, and maintain and increase production from our salmon stocks".

The Committee reviewed a draft synopsis of letters received from the co-chairs of the joint technical committees concerning the status of information available on interceptions and stock identification. The Committee agreed to finalize the report at its next meeting in September.

The Committee discussed ways and means of implementing its terms of reference numbers 1 and 2 which are to:

1. develop an overall plan of research, information collection and analysis for the Parties' assistance in planning activities to meet Treaty obligations; and

2. review plans and results of projects developed by the Parties and the Commission; and assist in defining research priorities.

The Committee reviewed and adopted a set of terms of reference for the Joint Technical Committee on Data Sharing, and adopted a report from that Committee concerning prospects for coastwide sharing of catch and escapement information.

On recommendation from Data Sharing, the Committee proposed to the Commission that the Parties provide additional personnel resources to assist the Working Group on Mark Recovery Statistics. The Committee agreed to meet in Warm Springs, Oregon on September 13 and 14, 1988.

**Meeting of the Committee — September 13 — 14, 1988 — Warm Springs, Oregon**

The Committee reviewed and finalized a synopsis of the joint technical committee co-chairs views on the status of interception information. This report is to be presented to the Commission at its October meeting in Sitka. The executive summary and recommendations (accepted and approved as amended October 22, 1988 by the Commission) are presented as follows:

"EXECUTIVE SUMMARY

The Standing Committee on Research & Statistics asked the technical committee co-chairs to describe what is known about interception estimated for Pacific salmon species and stocks of concern to the Commission. The co-chairs were also asked to identify any matters that prevent fulfillment of the committee's terms of reference. The responses to the questions posed to the technical committee co-chairs describe, in general, what is known about stock identification of species and stocks of concern to the Commission. For some species/fishery combinations, fairly reliable interception estimates can be made. However, for the majority of these combinations, our ability to estimate interceptions is quite limited, both for recent years' catches and for fisheries in the near future.

With respect to interception, the technical committee co-chairs reached the following general conclusions:

(1) It will be technically difficult to arrive at agreed estimates of past interceptions for the majority of fisheries;

(2) These difficulties are largely rooted in data gaps and limitations in estimation methodologies for may stocks and fisheries; and

(3) Research programs are now underway to develop interception estimates for some stocks and fisheries, but, without substantial new resources, agreed estimates for all stocks and fisheries of concern to the Parties will be impossible to attain.

Impediments to obtaining accurate estimations of interceptions fall into two broad categories: scientific (technological) limitations, and administrative (human and fiscal) limitations. Scientific limitations result from the lack of technical procedures, questions about the

validity of current procedures, and concerns about the quality of the data to which procedures may be applied. The technical committee co-chairs' responses seem to indicate that these problems will diminish over time, as technology improves and existing programs come to fruition.

Administrative shortcomings simply reflect the fact that there are never enough people and dollars to address every task. Quantifying interceptions is, of course, but one of many tasks that the Parties, the Commission, and the technical committees must undertake to manage fisheries.

Desires to complete this task must be balanced against other needs, many of which compete for the same human and fiscal resources.

RECOMMENDATIONS

In light of the above, the Standing Committee on Research and Statistics makes the following recommendations:

(1) The Commission should embrace a longer term view toward the development of interception information, recognizing that present and future research will improve the technical capabilities to estimate interceptions over time. In the near term, the Commission and the Parties should continue their efforts to improve management of fisheries, estimates of interceptions, and abundance of stocks.

(2) The Commission should assign a high priority to development of a long-term research plan. This can best be accomplished by making a specific assignment to appropriate persons and directing them to complete a draft plan within a specified period of time. The Committee is developing a recommended procedure for creation of a long-term research plan. This will be presented to the Commission in November.

(3) To address concerns expressed by the technical committee co-chairs, the questions, work assignments, and associated deadlines developed by the Commission and panels for technical committees should be reported to the Standing Committee on Research and Statistics, in order to permit the Committee to advise the requesting entity as to whether the questions are posed in a manner which will generate the desired response and within the time frame specified. The Committee is prepared to meet as needed, including during Commission meetings, to conduct prompt review of technical assignments and provide advice on same. In addition, more dialogue is required between co-chairs and panels to ensure mutual understanding of the questions and their possible answers.

    This procedure will also ensure that the Committee is aware of the technical issues being discussed, thereby enabling it to advise the Commission on the utilization of available resources in relation to achieving the goals of the long-term plan.

(4) To address administrative concerns expressed by the co-chairs, the Committee further recommends that the Commission:

    (a) establish priorities for technical committee assignments and request the Parties to dedicate adequate resources to fulfill these assignments;

    (b) periodically review the composition of technical committees to assess the availability and skills of members in light of the assignments given; and,

    (c) discourage attempts to force instant, agreed-upon analysis of technical issues by the technical committees, especially during panel and Commission negotiations."

The Committee received reports from the Joint Technical Committee on Data Sharing concerning:

- progress of the Mark Recovery Statistics Working Group;
- progress of the Mark Recovery Database Working Group;
- progress in the development of a coastwide catch database;
- development of a letter to the Commission requesting additional personnel resources required by the Working Group on Mark Recovery Statistics.

The last item listed above was completed during the course of this meeting. Limited progress had been made on the other subjects and the Data Sharing Committee reported that it would meet prior to the October meeting of the Commission.

The Committee finalized a letter to be sent to directors of appropriate fisheries management agencies asking for information about their escapement estimation techniques.

The Committee plans to follow up the replies from this letter with a report and/or workshop to help evaluate and standardize escapement methodologies.

The Committee's Work Group presented a proposed draft process for implementing terms of reference 1 and 2 that was based on several proposals submitted by individual Committee members.

After some discussion it was decided that the Work Group would provide a synthesized document by the November meeting of the PSC. A document was subsequently produced but was not distributed at the November meeting. It was slated for discussion at the next Committee meeting scheduled for May 1989.

The Work Group also presented the first results of the collection of data for the Bilateral Inventory of Treaty Implementation Research Activities. The Committee discussed possible improvements to the inventory format and how the inventory might be used. The inventory is being kept at the PSC office.

The Committee established tentative meeting dates for 1989/90 of May 16 — 18 in Juneau, Alaska and September 12 — 14, 1989 in Smithers, B.C.

**Other Activities**

The Standing Committee on Research and Statistics reported to the Commission in October at Sitka and again in November, 1988 at Vancouver.

The tentatively scheduled meeting of September 12 — 14, 1989 was cancelled and re-scheduled for Vancouver on January 3 — 5, 1990 in view of the Committee's requirement to participate in the activities of the Joint Interception Committee, and the co-chairs' involvement with the report from the Joint Objectives and Goals Committee.

# Activities of the Panels

# PART III
# ACTIVITIES OF THE PANELS

## A. FRASER RIVER PANEL

The Fraser River Panel met in conjunction with the Commission, and in view of its special responsibilities concerning in-season management of fisheries on Fraser River sockeye and pinks in Panel Area waters, met frequently through-out the year. The Panel successfully negotiated fishing plans for 1988 and proposed a formula for calculating benefits which will accrue to Canada in 1989 from sockeye salmon production generated by "escapement add-ons" recorded in 1985.

The Panel initiated discussions and made substantial progress in the development of fishing plans for 1989. Discussions took place between the Fraser Panel, Northern Panel, Joint Northern Boundary Technical Committee, Fraser River Technical Committee, and Pacific Salmon Commission scientific management staff on sampling plans for southeast Alaska and northern British Columbia to identify contributions of sockeye and pink salmon of Fraser River origin in fisheries of those areas. Final development of 1989 fishing plans was deferred past March 31, 1989 pending the outcome of domestic allocation processes. The Commission's fishery management staff prepared, on behalf of the Panel, a report on the 1988 Fraser River sockeye salmon fisheries which was presented to the Commission. The executive summary is contained within Part IV of this report.

## B. NORTHERN PANEL

The Northern Panel met in conjunction with the Commission. The Panel conducted an extensive review of the 1988 fishing season, identified issues for negotiation during the 1988/89 meeting cycle, identified tasks for Joint Technical Committees, and exchanged views on cooperative research plans.

Substantial progress was made by the panel in its efforts to reach consensus on its assigned tasks. The Panel was able to reach agreement on a memorandum of understanding regarding activities to be undertaken by the Joint Northern Boundary Technical Committee concerning rehabilitation and enhancement of Portland Canal chum salmon stocks, and on enhancement proposals and sharing of enhanced fish for transboundary rivers. Progress was made on discussion of new fishery regimes for 1989 in fisheries of concern to the Panel, but these issues were forwarded to the Commission for resolution.

## C. SOUTHERN PANEL

The Southern Panel met in conjunction with the Commission. The Panel conducted an extensive review of the 1988 fishing season, identified issues for negotiation during the 1988/89 meeting schedule, identified tasks for joint technical committees, and exchanged views on the need for continued efforts on stock identification for coho. Progress was made on all major issues, but the Panel was unable to reach consensus and final arrangements were negotiated by the Commission.

## D. JOINT MEETINGS OF THE NORTHERN AND SOUTHERN PANELS

The Northern and Southern Panels met jointly during Commission meetings. At the late November meeting the panels reviewed topics identified at Sitka for negotiation and clarification. It was agreed that working groups would be struck prior to the January 1989 meetings to discuss approaches for dealing with the issues. Preliminary review of 1988 chinook fisheries was

conducted. The Committee also reviewed the final report for 1987 of the Joint Technical Committee on Chinook.

The panels did not meet in joint bilateral sessions during the shortened January 1989 panel negotiating session. The Northern and Southern Panels met jointly, but briefly, during the February 1989 Annual Meeting of the Commission to exchange questions of clarification regarding each national section's approach to the Chinook chapter of Annex IV.

# Review of 1988 Fisheries and Treaty-related Performance

# PART IV
# REVIEW OF 1988 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 at its November 1988 meeting. 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

1. The 1988 fishing season for Fraser River sockeye salmon was the fourth year (1985-1988) of management under the Pacific Salmon Treaty. While the 1988 season produced only moderate sockeye catches, a summation of the four years provides an overview of management performance. Cumulative escapements in the 1985 to 1988 period were 9,002,000 adult sockeye and 9,685,000 pink salmon, compared with Canadian goals which summed to 9,566,000 sockeye and 11,000,000 pink salmon. Catches by United States and Canadian fishermen provide another measure of management success. From 1985 to 1988, United States catches of sockeye totalled 8,284,000 fish, compared to the cumulative allocation of 8,372,000 fish. Canadian commercial catches in the four years reached 21,572,000 sockeye. The current estimates leave the United States 88,000 sockeye short of their allocation. Fraser River pink salmon catches in United States waters during the period totalled 5,138,000 fish, which was 103,000 short of the United States allocation of this species. Canadian commercial catches totalled 10,934,000 Fraser River pink salmon.

2. In May, the Panel developed a management plan for 1988 Fraser River sockeye fisheries that was designed to achieve the escapement goals and catch allocation objectives provided by the Parties. The Commission adopted the fishing regime and management plan and submitted these to the Parties.

3. In-season regulation of the Panel Area commercial fisheries for sockeye salmon focused on the conflicting requirements of conservation of Chilko River sockeye and the harvest of Stellako, Birkenhead and Weaver sockeye stocks. The Panel met 30 times during the season to adjust fishing schedules to meet these objectives.

4. Fraser River sockeye returns totalled 3,762,000 fish, of which 2,344,000 were harvested and 1,418,000 reached spawning grounds in the watershed. Canadian and United States commercial catches were 1,176,000 and 679,000 sockeye, respectively. Canadian Indian food fisheries harvested 423,000 sockeye and Canadian sport fisheries landed 16,000 fish. Test fisheries in Canada and the United States caught 50,000 sockeye.

5. Information from test fishing played an important role in managing the sockeye fisheries in 1988. Restricted fishing time during the peak of the Chilko River sockeye migration limited the data available from commercial fishery catches. Estimates of late-run sockeye escapement to the Strait of Georgia, based on test fishing results, were vital in the management of the fishery.

6. Estimates of stock composition from racial analyses revealed the weak return of Chilko River sockeye and provided information necessary for the Panel to take regulatory action to protect this stock. Current estimates place the Chilko River return at 579,000 fish

compared with the pre-season forecast of 850,000. In contrast, the Stellako River produced 743,000 fish (350,000 forecast), the Birkenhead River returned 527,000 (235,000 forecast) and Weaver Creek returns were 685,000 (450,000 forecast).

7. Spawning escapements of Fraser River sockeye were estimated by Canada Department of Fisheries and Oceans at 1,418,000 fish. Of the total, 1,370,000 were adult and 48,000 were jack sockeye. Escapement below the pre-season goal was recorded at Chilko River but escapement goals were exceeded at Stellako and Birkenhead Rivers.

8. The total allowable catch in 1988 was estimated at 2,018,000 sockeye. The United States share was 718,000, including a payback of 68,000 sockeye (5% of Canada's share of the TAC) derived from prior-year catch shortfalls. The actual United States catch was 679,000 sockeye, leaving a shortfall in 1988 of 39,000 sockeye. This shortfall, in addition to the carry-over shortfall of 49,000 sockeye from previous years, resulted in a cumulative shortfall of 88,000 Fraser River sockeye in United States catches.

9. Allocation Status.

   The Canada-United States allocation status of Fraser River sockeye and pink salmon is periodically revised as catch estimates are derived from final sales-slip and landing-slip data and from final racial composition estimates. The shortfalls in catches in any year are carried over to subsequent years, in accordance with the policy for paybacks that was ratified by the Pacific Salmon Commission in February, 1988. This policy specifies that catch shortfalls and overages be compensated during the following year for sockeye or two years hence for pink salmon, up to a maximum of 5% of the paying Party's share of the TAC of that species.

   The current status of sockeye catches shows a United States shortfall of 88,000 fish, the result of a 39,000 catch shortfall in 1988, and a 49,000 catch shortfall from previous years (Table 1).

   Re-evaluation of 1985 and 1987 Fraser River pink salmon catches was completed in April, 1989. Catches of Fraser River pink salmon by Canadian fishermen in northern British Columbia and United States fishermen in southeastern Alaska in 1985 were estimated using recoveries of tags applied in the International North Coast Salmon Tagging Program that year. In 1987, tissue samples were collected and used in protein electrophoretic analyses for genetic stock identification (GSI) of mixed-stock catches. These results provided data that were used to estimate interceptions of Fraser River pink salmon by Canadian and United States fishermen. The current allocation status shows a United States cumulative shortfall of 103,000 Fraser River pink salmon (Table 1).

   Based on the Commission policy for payback of prior year catch shortfalls, the United States will be compensated for both sockeye and pink salmon in 1989.

(Source Document) — *Report of the Fraser River Panel to the Pacific Salmon Commission on the 1988 Fraser River Sockeye Salmon Fishing Season.* Pacific Salmon Commission staff. May 1989.

**Table 1.** Allocation status of Fraser River sockeye and pink salmon for 1985-1988.[1]

| | Sockeye | | | | Pink | |
|---|---|---|---|---|---|---|
| | 1985 | 1986 | 1987 | 1988 | 1985 | 1987 |
| TOTAL RUN: | 13,879,000 | 15,904,000 | 7,694,000 | 3,762,000 | 19,038,000 | 7,136,000 |
| ESCAPEMENT & OTHER DEDUCTIONS: | 2,522,000 | 4,042,000 | 2,103,000 | 1,744,000 | 6,479,000 | 3,251,000 |
| TOTAL ALLOWABLE CATCH | 11,357,000 | 11,862,000 | 5,591,000 | 2,018,000 | 12,559,000 | 3,885,000 |
| UNITED STATES: | | | | | | |
| ALLOCATION | 3,013,000[4] | 2,797,000[5] | 1,912,000[6] | 650,000[7] | 4,110,000[8] | 1,166,000[9] |
| ACTUAL CATCH | 2,925,000 | 2,748,000 | 1,932,000 | 679,000 | 3,834,000 | 1,339,000 |
| ANNUAL ALLOCATION STATUS[2] | (88,000) | (49,000) | 20,000 | 29,000 | (276,000) | 173,000 |
| CUMULATIVE ALLOCATION STATUS[2] | (88,000) | (137,000) | (117,000) | (88,000) | (276,000) | (103,000) |
| CANADA: | | | | | | |
| ALLOCATION | 8,344,000 | 9,065,000 | 3,679,000 | 1,368,000 | 8,449,000 | 2,719,000 |
| ACTUAL CATCH/ESCAPEMENT[3] | 8,432,000 | 9,114,000 | 3,659,000 | 1,339,000 | 8,725,000 | 2,546,000 |
| ANNUAL ALLOCATION STATUS[2] | 88,000 | 49,000 | (20,000) | (29,000) | 276,000 | (173,000) |
| CUMULATIVE ALLOCATION STATUS[2] | 88,000 | 137,000 | 117,000 | 88,000 | 276,000 | 103,000 |

[1] — Based on Commission interpretations and Panel agreements in February, 1989.

[2] — ( ) indicate a negative number or shortfall.

[3] — Includes escapement add-ons requested or approved by Canada which will generate future benefits.

[4] — (1.78/6.60 million x 11,357,000) - 50,000

[5] — (3.0/12.5 million x 11,862,000) - 50,000

[6] — (1.06/3.1 million x 5,591,000)

[7] — (1.16/3.6 million x 2,018,000)

[8] — (3.6/11.0 million x 12,559,000)

[9] — (3.6/12.0 million x 3,885,00)

## B. 1988 POST SEASON REPORT FOR CANADIAN TREATY LIMIT FISHERIES

Catches reported below for 1988 are preliminary and are based on in-season estimates (hailed statistics), on-the-grounds counts by Fishery Officers, and/or sales slip data (troll and some net) processed to October 30, 1988. Comments are ordered in point form, starting with expectations and management objectives, followed by catch results by species, and where available and appropriate, escapements. The expectations, management objectives, catches and escapements presented below are only for those stocks and fisheries covered by the Pacific Salmon Treaty; domestic catch allocations have been excluded. The attached table summarizes catches in Canadian fisheries under limits imposed by the Pacific Salmon Treaty.

**Transboundary Rivers**

Stikine

— The Stikine River sockeye run was expected to return at slightly above average strength. As required by the new Transboundary Chapter of Annex IV, a pre-season total run forecast of 124,000 was made to guide initial fishing patterns of both countries.

— The annual harvest sharing arrangements for Stikine sockeye from 1988 until 1992, tied to commitments by the Parties to undertake cooperative enhancement, are as follows:

| Range in TAC | | Canadian Catch | |
|---|---|---|---|
| from | to | Minimum | Maximum |
| 0 | 0 | 4,000 | 4,000 |
| 1 | 20,000 | 10,000 | 15,000 |
| 20,001 | 60,000 | 15,000 | 20,000 |
| 60,001 | +60,001 | 20,000 | 30,000 |

— The Annex spells out management procedures to be followed including preparation of a pre-season forecast and management plan by the Joint Transboundary Technical Committee, execution of the fishery using an agreed management model, and data exchange.

— The Annex also provides for a Canadian catch of 4,000 coho. Catch of chinook, pink and chum are to be incidental to the harvest of sockeye and coho.

— The total Canadian in-river sockeye catch of 15,291 was in the lower part of the 15-20,000 range for a TAC of 20,001-60,000. At the end of the season the management model indicated that the Canadian fishery could still have caught an additional 4,709 sockeye. The forecasted total run at that time was 96,325 with a TAC of 36,325. Although both countries operated in-season in accordance with model predictions, the model overestimated the size of the Stikine sockeye run.

— Sockeye escapement past the Tahltan Lake weir was only 2,536, well below the 1980-87 average of 28,833. The preliminary estimate of non-Tahltan escapement was 17,804 based on in-season stock ID data (egg diameters) and timing information from the test fishery. This estimate is in stark contrast to the prediction of 48,000 non-Tahltan spawners by the in-season management model. Index counts from aerial surveys of sockeye spawning areas were the lowest on record. Final escapement estimates are in preparation.

— The total in-river coho catch was only 2,117 due to a very weak coho run. Index counts from aerial surveys of coho spawning areas are below average.

— The total 1988 chinook catch was 2,806 including 453 jacks. An estimated 1.3 million eyed eggs were obtained from holding and spawning 342 females and 90 males purchased

live from fishermen. The 1988 chinook count at Little Tahltan weir was a record 7,619 chinook (7,292 adults, 327 jacks) and aerial surveys confirmed that overall chinook returns in 1988 were well above average.

Taku

- Taku River sockeye were expected to return at average strength.

- The new arrangements for 1988 through 1992 for the Taku, also conditional on the Parties proceeding with a cooperative sockeye enhancement program, provide for a Canadian harvest of 18 percent of the Taku sockeye TAC.

- The 1988 sockeye catch was 12,269 by the commercial fishery and preliminary analyses suggest that this was 27-35 percent of the in-season TAC estimate. The high TAC share arose because late season stocks failed to return at predicted strength and the Canadian fishery was continued at a minimal level (one day per week) in order to monitor the run.

- Based on a joint Canada/U.S. tagging program, the estimated 1988 sockeye escapement of 76,000 fell within the interim target range of 71,000 to 80,000. Weir counts of sockeye in Taku tributaries (Little Trapper Lake, Little Tatsamenie Lake, Hackett River) were below returns observed in recent years.

- Coho catch was 3,221 by the commercial fishery, slightly above the 3,000 quota. Preliminary tagging and test fishing data suggest that the interim coho escapement goal was achieved, and that overall 1988 escapement was above average.

- Chinook weir counts were above average at Nakina, Tatsamenie and Hackett Rivers.

Alsek

- Canada and the United States have agreed to attempt to rebuild depressed chinook and early sockeye runs on the Alsek.

- Canada does not commercially fish these species but does conduct sport and Indian food fisheries. In keeping with the Annex provisions, Canadian catches of Alsek chinook and early sockeye continued to be restricted and were below average in 1988.

- At the Klukshu River, an Alsek tributary, the weir count of chinook was 2,030 which is slightly below average; this was confirmed by aerial surveys in other tributaries. The escapement of 9,337 sockeye past the Klukshu weir was the lowest on record.

**Northern British Columbia — Southeastern Alaska**

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

- Canadian pink stocks returning to Areas 3 and 4 were expected to provide a large harvestable surplus of pink salmon in 1988.

- The Canadian management objective, in keeping with the Treaty Annex, was to limit the above net fisheries in a manner that would result in an average annual harvest of 900,000 pink salmon.

- Canadian catch in 1988 was 323,000 in Areas 3-1 to 3-4 and 5-11, based on in-season estimates. This compares with an average catch of 1,685,000 for 1985 to 1987; including the 1988 catch, the average catch is 1,345,000. The low 1988 pink catch reflects the extremely poor 1988 returns.

- Pink escapements to rivers and streams in Areas 3 and 4 are below target levels.

Area 1 Pink Catch by Troll

— Canadian management objectives, in keeping with Annex IV of the Treaty, were to close the A-B line strip to trolling for pinks on July 22, or earlier if a 300,000 pink troll catch was taken in the strip before July 22. Area 1 was to close to pink trolling in subareas 101-1 to 101-5, 101-8 and 101-9 once the Area 1 pink ceiling of 1.7 million was reached.

— Based on in-season estimates, the Canadian troll catch in the A-B line strip was 23,000 when it closed to trolling at midnight on July 22.

— The Area 1 pink ceiling was estimated to have been reached on August 12 and the remaining domestic management zone closed August 13 for domestic reasons. Area 1 troll catch of pinks, based on in-season hails, totalled 1.75 million. Preliminary sales slip data indicates a catch of 1.66 million.

**Chinook**

North and Central Coasts (Areas 1 to 10, 101 to 111, 130-2, 130-3 and 142 for Net and Sport; Troll includes above Areas plus 11 and 111)

— The Canadian objective was to manage for a total chinook harvest by commercial and sport gear of 243,000.

— The 1988 troll catch was 181,000, based on sales slips processed as of October 30, 1988. This plus the net catch estimate of 45,000 from sales slip data and the sport catch estimate of 19,000 by Fishery Officers gives a total North/Central catch of 245,000.

— There was a seventeen day, troll non-retention fishery with no estimate of shaker catch.

— Based on very preliminary information, chinook escapements in 1988 are above 1987 levels.

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

— The Canadian objective was to manage for a 360,000 troll harvest of chinook. The minimum size limit in 1988 was 67 cm. as in 1987, and was greater than the 62 cm limit in 1986.

— The 1988 troll catch was 395,000, based on sales slips processed to October 30.

— The 1988 chinook season was the second shortest on record, July 1 to August 24. Closure of major chinook fishing areas (Chinook Conservation Areas) was instituted at the start of the season to reduce the rate of catch and extend the chinook season. Swiftsure Bank was closed for the season.

— There was no sampling to estimate chinook non-retention. The non-retention period lasted for two weeks and the WCVI troll fishery closed for the balance of the season on September 7.

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

— The Treaty catch ceiling for the Strait of Georgia is 275,000 chinook, of which 225,000 are allocated to sport and 50,000 are allocated to troll. In response to severe conservation concerns for the Lower Georgia Strait (LGS) chinook stocks (Fraser River stocks not included), Canada implemented a series of management actions to reduce LGS harvest rate by 20 percent. Therefore the Canadian management objectives in the Strait of Georgia for 1988 were to manage sport and troll fisheries for harvests below the Treaty ceiling.

— The Canadian objective for troll was to manage for a 31,000 chinook harvest (62 cm minimum size limit). Chinook were in low abundance this season and the troll catch was 19,000, 12,000 pieces below the troll allocation.

— The troll season for chinook lasted from July 1 to September 30; spot closures were in effect. There was no non-retention troll fishery for chinook in Georgia Strait in 1988.

— For the sport fishery in 1988, spot closures were in effect, new terminal closures were implemented, and a bag limit of 8 chinook per year was introduced on April 1 (down from 20 per year in 1987). A 62 cm sport size limit is expected to be in effect late in 1988 or early 1989 (current minimum size limit is 48 cm). The sport catch of chinook in 1988, based on creel survey results, is expected to be approximately 120,000 (January 1 to December 31), slightly less than the 1987 catch of 121,000.

**Fraser River Sockeye Salmon**

— Pre-season expectations were for a total Fraser run of 2.9 million sockeye.

— The 1988 return exceeded the pre-season forecast. Based on preliminary information as of October 13, 1988, the estimated total return was 3.7 million sockeye and for the purpose of determining the U.S. allocation, the TAC was 2.026 million. After application of the sharing percentage and current payback provisions, the U.S. share was 722,000; and the Canadian share was 1.304 million.

— The Canadian sockeye share consists of a 40,000 increase to the Early Stuart escapement, an additional Indian food fishery (IFF) catch above 400,000 (currently set at 106,000), a sport catch of 14,000 and a commercial allocation of 1,144,000.

— The preliminary estimate of the Canadian commercial catch was 1,190,000 sockeye. This includes a portion of the U.S. allocation that could not be harvested in U.S. fisheries. The preliminary estimate of U.S. catch was 676,000 leaving a shortfall of 46,000.

— As of November 8 the Fraser sockeye spawning escapement was estimated to be 1,500,000. This total includes sockeye in addition to the one million escapement goal established by Treaty background documents, such as an additional 40,000 Early Stuart escapement from the Canadian TAC, approximately 90,000 sockeye resulting from the difference between 500,000 provided for the IFF and the actual IFF catch of 410,000, an as yet undetermined jack escapement, and sockeye classified as inadvertent escapement.

— Pre-season escapement goals by stock grouping were 150,000 for Early Stuart sockeye, 725,000 for summer-run sockeye stocks, and 165,000 for late-run sockeye stocks. Escapement estimates are preliminary as the data are currently being reviewed and analyzed. Current estimates, including jacks, are 182,000 for Early Stuart, 1,080,000 for summer-run stocks, and in excess of 237,000 for late-run spawners. In almost all cases water temperatures and levels have been favorable for spawning.

**Coho Salmon**

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

— The Canadian objective was to manage for a 1.8 million troll catch of coho.

— Based on sales slips processed to October 30, the troll catch was 1.529 million.

— The 1988 coho season lasted from July 1 to September 7, when it closed to avoid high chinook shaker catches and a prolonged chinook CNR fishery. Closures of major fishing areas (Chinook Conservation Areas) plus Swiftsure Bank were in effect throughout the season.

**Southern British Columbia Chum Fisheries**

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

— Expectations were for a 4.09 million total chum run to the Johnstone Strait/Georgia Strait/Fraser River Study Area.

— The first fishery in Johnstone Strait (Areas 12 and 13) was the 3rd week of September assessment fishery held on September 14. The catch of 28,000 was below expectations; however, this may have been due to extremely low effort in response to a coincidental sockeye opening in the Fraser River. Consequently the data were not thought to be representative of the fish abundance. Since the catch was well below the 10% harvest rate prescribed by the Clockwork (or 225,000 chum catch specified in the chum annex), another assessment fishery was scheduled for September 26. The catch in this fishery of 178,000 indicated a run size of 2.8 million, which meant a harvest rate of 10% under the Clockwork management plan. Large test catches around October 10 resulted in the run size being upgraded to over 3 million, thereby allowing a 20% harvest rate and another fishery. The fishery was held on October 13 in Johnstone Strait and caught 502,000 chum, the largest ever one day catch. Subsequent run-size estimates, based on Clockwork methods, indicated a run of 4.1 million and thus a 30% harvest rate. This allowed for another fishery, on October 20, which caught 402,000 chum. The run size was subsequently upgraded to 4.3 million. At this run size the 30% harvest rate had been achieved, so no further fisheries were allowed under the Clockwork. It is still too early for a post-season assessment of the total run size.

— The commercial catch in Johnstone Strait was estimated in-season at 1.126 million, which compares with the target catch of 1.129 million for a total run of 4.3 million chum.

— Under a 30 percent harvest rate in Johnstone Strait, the U.S. catch in areas 7/7A should not exceed 140,000 chum.

— Terminal fisheries were also held: Fraser River 73,000 including PSC fisheries, Mid Vancouver Island 39,000, Sooke 12,000, Nanaimo 23,000, Cowichan 53,000.

— GSI samples to identify stock composition were taken from all weekly test fishing and commercial catches.

Outside Net (Areas 21 and 22)

— Pre-season expectations were for a harvestable surplus of 341,000 chum from the enhanced component of the Nitinat Lake return; the escapement objective was 175,000.

— Gillnet assessment fisheries were initiated September 26. Results of these fisheries and an assessment in Nitinat Lake indicated that the run was much stronger and earlier than expected. To effectively harvest this return the seine opening was advanced to October 5 (from October 11). Additionally, a seaward boundary extension (on October 7) was required to increase harvest rate and to reduce further escapements into Nitinat Lake. The fishery closed on November 14 with a total catch of 1.796 million.

— Late season, in-lake assessment indicated a potential escapement of 240,000 chum. As in 1987, the lake turned over, however no significant mortality was apparent as over 200,000 chum had already entered the river.

— GSI samples to estimate stock composition were taken during each fishing week.

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

— The 1988 troll catch of chum was 79,000, taken predominately during July and from waters north of Estevan Point. This catch compares to 18,000 in 1987 and 265,000 in 1986. GSI sampling was canceled after one week due to much reduced availability of samples.

(Source Document) — *Post-Season Report for Canadian Treaty Limit Fisheries.* Preliminary report prepared for November, 1988 Pacific Salmon Commission meeting by Canada Department of Fisheries and Oceans.

**Table 2.** Preliminary 1988 Catches in Canadian Treaty Limit Fisheries and 1985-87 Catches for Comparison. Prepared for November 1988 Pacific Salmon Commission Meetings.

| Fisheries/Stocks | Species | 1988 | 1987 | 1986 | 1985 |
|---|---|---|---|---|---|
| Stikine River | Sockeye | 15,291 | 9,615 | 17,434 | 25,464 |
| (all groups, Canada) | Coho | 2,117 | 5,731 | 2,280 | 2,175 |
| | Chinook Adults | 2,352 | 2,201 | 1,936 | 1,111 |
| | Chinook Jacks | 453 | 444 | 975 | 185 |
| | Pink | 418 | 647 | 142 | 2,383 |
| | Chum | 733 | 459 | 307 | 536 |
| | Steelhead | 261 | 219 | 194 | 240 |
| Taku River +* | Sockeye | 12,269 | 13,554 | 14,739 | 14,244 |
| (com. gillnet, Canada) | Coho | 3,221 | 5,599 | 1,783 | 1,770 |
| | Chinook Adults | 582 | 127 | 275 | 326 |
| | Chinook Jacks | 186 | 106 | 77 | 24 |
| | Pink | 1,030 | 6,250 | 58 | 3,373 |
| | Chum | 733 | 2,270 | 110 | 136 |
| | Steelhead | 86 | 223 | 48 | 32 |
| Areas 3 (1-4) and 5-11 (commercial net) | Pink | 323,000 | 1,851,000 | 1,928,000 | 1,276,000 |
| Area 1 (commercial troll) | Pink | | 495,000* | 416,000 | 687,000 |
| North/Central Coast (commercial/sport) | Chinook | 245,000 | 283,000 | 261,000 | 274,000 |
| West Coast Van. Is. | Chinook | 395,000 | 379,000 | 342,000 | 354,000 |
| Area 12 (com. troll) | Chinook | 1,800 | 1,800 | 4,000 | 3,600 |
| Georgia Strait | | | | | |
| (sport) | Chinook++ | 120,000 | 121,000 | 182,000 | 235,000 |
| (troll) | Chinook | 19,000 | 38,000 | 44,000 | 56,000 |
| | Total | 139,000 | 159,000 | 226,000 | 291,000 |
| Fraser River stocks** | Sockeye | 1,621,000 | 3,754,000 | 9,371,000 | 8,432,000 |
| (Total Canadian Catch) | Pink | — | 2,561,000 | — | 8,561,000 |
| Fraser River stocks** | Sockeye | 676,000 | 1,942,000 | 2,746,000 | 2,925,000 |
| (Total U.S. Catch) | Pink | — | 1,257,000 | — | 3,824,000 |
| West Coast Van. Is. (commercial troll) | Coho | 1,517,000 | 1,821,000 | 2,157,000 | 1,389,000 |
| Johnstone/Georgia/ Fraser (Canadian commercial, clockwork catch only) | Chum | 1,289,000 | 51,100 | 1,330,000 | — |

\+ 1988 catches: troll from DFO sales slips processed as of October 30, 1988; net from DFO in-season estimates (hailed), preliminary sales slip data and PSC data; sport from preliminary creel survey and Fishery Officer estimates.

++ 1988 catch projected to December 31, 1988.

* 495,000 based on sales slip catch prorated with hailed catch data.1,064,000 additional pink catch in Area 1 taken outside the Annex provisions.

** From preliminary estimates or Annual Reports of the Fraser Panel; 1988 catch by Canada includes 21,000 miscellaneous catch.

+* 1988, small IFF catches of sockeye and chinook included.

# C. 1988 POST-SEASON REPORT FOR UNITED STATES TREATY LIMITED FISHERIES

**Northern Boundary Area Fisheries**

Tree Point Drift Gill Net

The District 101 (Tree Point) drift gill net fishery was managed in 1988 to comply with the U.S./Canada Pacific Salmon Treaty (5 AAC 33.361), the District One Pink Salmon Management Plan (5 AAC 33.360), and to minimize the interception of salmon for watersheds where weak runs were being experienced.

The sockeye salmon fishery was managed in accordance with the U.S./Canada Pacific Salmon Treaty which specifies an average annual harvest of 130,000 sockeye salmon. The 1988 sockeye harvest at Tree Point was 116,000 (preliminary). The average annual harvest at Tree Point since inception of the Treaty (1985) is approximately 134,250 sockeye salmon. The yearly sockeye harvest is listed in Table 3.

**Table 3.** Tree Point yearly sockeye harvest

| Year | Catch |
|---|---|
| 1985 | 167,000 |
| 1986 | 146,000 |
| 1987 | 108,000 |
| 1988 | 116,000 |
| Average | 134,250 |

The District One Pink Salmon Management Plan was initiated July 10th (statistical week 29). During the following 7 weeks the gill net fishery was managed for pink salmon. During this period, catches of all species, other than chum salmon, were below average. The chum harvest continued at a level well above average. Fishing time was generally reduced below the previous 10 year average because of the poor return of pink salmon. The fishery was completely closed during week 35 because of conservation concerns for pink salmon.

Fishing periods during the final 4 weeks of the fishery were curtailed and confined to daylight openings with early morning and evening sets eliminated for coho conservation. A mesh restriction was also imposed to protect pink salmon.

Section 1-B remained closed through the season north of Akeku Point; this kept Portland Canal closed through the season. Chum escapements to Portland Canal watersheds appear to have been good. The chum catch of 497,000 at Tree Point is the highest on record. Estimates of the contribution of Nakat Inlet enhanced chum stocks are not yet available, but indications are that they contributed significantly, especially during the fall season. The 1988 catches at Tree Point are compared with the average catches since 1985 in Table 4.

**Table 4.** Tree Point 1988 drift gill net harvest

| | Chinook | Sockeye | Coho | Pink | Chum | Total |
|---|---|---|---|---|---|---|
| 1988 | 1,802 | 116,108 | 16,553 | 229,577 | 497,140 | 861,180 |
| 1985-1987 Avg. | 1,867 | 141,951 | 49,759 | 726,858 | 221,408 | 1,141,843 |

District 4, Purse Seine

The Alaska Board of Fisheries adopted regulations (5 AAC 33.361) requiring the District 4 salmon purse seine fishery be managed according to the provisions of the Pacific Salmon Treaty which requires a maximum four-year (1985-1988) total harvest of 480,000 sockeye salmon before statistical week 31.

During the first three years, 1985-1987, the catch of sockeye salmon was approximately 265,000; this left approximately 215,000 sockeye salmon to be harvested in 1988.

In 1988 the season opened in District 4 on July 3 (week 28) for 39 hours. Approximately 16,280 sockeye salmon were harvested by 81 boats during this opening. In statistical week 29, three fishing days were allowed and 131,000 sockeye salmon were harvested by 167 boats. This left approximately 67,720 sockeye to be harvested in statistical week 30. A fifteen hour opening on July 17 was allowed. A harvest of 101,500 sockeye salmon by 182 boats occurred during this opening. Thus, the total number of sockeye salmon caught before statistical week 31 in 1988 was approximately 248,780. This resulted in a four year harvest of 513,780 fish, approximately 33,780 over the Treaty ceiling. The harvest of 101,500 sockeye salmon during the 15 hour opening on July 17 was the largest single day catch of sockeye ever observed in District 4. Table 5 shows the 1985 to 1988 sockeye harvest in District 4 prior to statistical week 31.

**Table 5.** District 4 purse seine sockeye harvest for weeks 28-30.

| Year | Catch |
|---|---|
| 1985 | 101,000 |
| 1986 | 92,000 |
| 1987 | 72,000 |
| 1988 | 248,780 |
| TOTAL | 513,780 |

The 1988 harvest in District 4 is compared with the years 1985-1987 in Table 6.

**Table 6.** District 4 purse seine harvest.

| | Chinook | Sockeye | Coho | Pink | Chum | Total |
|---|---|---|---|---|---|---|
| 1988 | 10,111 | 591,354 | 94,458 | 3,560,855 | 273,105 | 4,529,883 |
| 1985-1987 Mean | 8,450 | 347,572 | 149,820 | 9,606,522 | 240,077 | 10,352,442 |

**Transboundary River Fisheries**

Alsek River

Annex IV, Chapter 1, requires the Parties to continue to take necessary management actions to rebuild sockeye and chinook salmon stocks. The runs of sockeye and chinook to the Alsek River in 1988 were weak (Table 7). The sockeye harvest was only 33% of average, and the chinook harvest in Alaska was only about 45% that of recent years. The escapement of chinook past the Klukshu weir was 81% of recent years while the sockeye escapement was only 50%.

**Table 7.** U.S. catches of Alsek River salmon and index escapement counts at the Canadian Klukshu weir in 1988.

| | Days Fished | Chinook | Sockeye | Coho | Pink | Chum |
|---|---|---|---|---|---|---|
| U.S. CATCH | | | | | | |
| 1988 Gill net | 34 | 218 | 6,188 | 4,819 | 7 | 636 |
| 1980 Average | 37 | 484 | 18,666 | 5,887 | 19 | 879 |
| % of Average | 92% | 45% | 33% | 82% | 37% | 72% |
| Klukshu Escapement | | | | | | |
| 1988 | | 2,030 | 7,733 | 2,777 | | |
| 76-87 Average | | 2,493 | 15,453 | 744 | | |
| % of Average | | 81% | 50% | 373% | | |

Stikine River

Management of Alaska's District 106 and 108 drift gill net fisheries for sockeye salmon was based on a preseason forecast and on a management model developed by the Transboundary Technical Committee in accordance with Annex IV, Chapter 1. Regulation of the fisheries is based on the preseason forecast for the first two weeks and on the model, thereafter. The forecast and model provide estimates of TAC while harvest sharing of the TAC is specified in the Annex.

Weekly estimates of the sockeye salmon TAC, specified fishing regimes and actual cumulative catches (Table 8) show that neither Party exceed its share of the TAC. However, preliminary estimates of the actual run (Table 9) indicates that the model overestimated the TAC. The return of the Tahltan Lake stock was substantially less than spawning escapement goals. Escapement to the mainstem stock was at the lower bound of the desired range.

**Table 8.** Weekly forecasts of run size and total allowable catch for Stikine River sockeye salmon as determined by the Stikine Management Model.

| | | | | Fishing Regimes | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Start | Forecasts | | U.S. | | | CANADA | CUMULATIVE CATCH | |
| Week | Date | Run Size | TAC | 6 | 8 | TAC | TAC | U.S. | CANADA |
| 26 | 19-Jun | 123,500[a] | 63,500 | I | D | 33,500 | 30,000 | 0 | 0 |
| 27 | 26-Jun | 123,500[a] | 63,500 | I | D | 33,500 | 30,000 | 187 | 0 |
| 28 | 03-Jul | 60,003[b] | 3 | I | N | I | 10,000 | 687 | 450 |
| 29 | 10-Jul | 47,540[c] | 0 | I | N | I | 4,000 | 1,389 | 1,028 |
| 30 | 17-Jul | 69,391[c] | 9,391 | I | N | I | 10,000 | 2,587 | 4,894 |
| 31 | 24-Jul | 73,316[c] | 13,316 | I | N | 3,316 | 10,000 | 2,884 | 8,523 |
| 32 | 31-Jul | 82,445[c] | 22,445 | I | D | 7,445 | 15,000 | 2,884[e] | 12,408 |
| 33 | 07-Aug | 93,673[c] | 33,673 | I | D | 13,673 | 20,000 | 2,884[e] | 14,430 |
| 34 | 14-Aug | 94,634[c] | 34,634 | I | D | 14,634 | 20,000 | 2,884[e] | 14,885 |
| 35 | 21-Aug | 96,405[c] | 36,405 | I | D | 16,405 | 20,000 | 2,884[e] | 15,137 |
| End of Fishing Season | | | | | | | | | |
| 39 | 18-Sep | 96,405[d] | 36,405 | | | 16,405 | 20,000 | 2,884[e] | 15,291 |

a. Preseason Forecast
b. Model forecast based on twice the average predicted run of Tahltan stock (district and inriver predictions).
c. Model forecast based on inriver cumulative CPUE of all sockeye salmon.
d. Final Model forecast.
e. No more Stikine fish found in catches according to scale pattern analysis.
I. Incidental catch allowed.
D. Directed catch allowed.
N. No directed fishing at Stikine sockeye salmon.

**Table 9.** Preliminary run reconstruction of Stikine River sockeye salmon for 1988.

| | Tahltan | Non-Tahltan | Total |
|---|---|---|---|
| Escapement | 2,536 | 17,804 | 20,340 |
| Canadian Harvest | | | |
| Indian Food | 1,959 | 218 | 2,177 |
| Upper Commercial | 313 | 35 | 348 |
| Lower Commercial | 1,149 | 11,617 | 12,766 |
| Total | 3,422 | 11,869 | 15,291 |
| % of Harvest | 77% | 86% | 84% |
| Test Fishery Catch | 496 | 744 | 1,240 |
| Inriver Run | 6,454 | 30,417 | 36,871 |
| District Harvest | | | |
| 106-41 & 42 | 787 | 1,093 | 1,880 |
| 106-30 | 132 | 129 | 261 |
| 108 | 99 | 644 | 743 |
| Total | 1,018 | 1,866 | 2,884 |
| % of Harvest | 23% | 14% | 16% |
| Test Fishery Catch | 26 | 44 | 70 |
| Total Run | 7,498 | 32,327 | 39,825 |
| Escapement Goal Range | 20,000-40,000 | 20,000-40,000 | 40,000-80,000 |
| Total Allowable Catch | 0 | 0-12,327 | 0 |

Taku River

Annex IV, Chapter 1, permits the U.S. to harvest 82% of the sockeye TAC. The run of Taku sockeye in 1988 was smaller than that observed in recent years. Preliminary information suggests that the run was from 110,000 to 120,000 fish (Table 10). The U.S. harvest was from 22,000 to 33,000 fish while Canada took 12,000. The sockeye escapement of 75,000 is in the middle of the desired range.

**Table 10.** Preliminary run reconstruction for Taku River and Port Snettisham sockeye salmon for 1988. Two scenarios are given which differ in the District 111 stock composition estimates used; scenario 1 assumes a Taku River contribution of 85% while scenario 2 uses the contribution estimates from in-season scale pattern analysis (58%).

| | Scenario 1 | | Scenario 2 | | |
|---|---|---|---|---|---|
| | Taku | Snettisham | Taku | Snettisham | Total |
| Escapement | 75,140 | 2,207 | 75,140 | 2,207 | |
| Canadian Harvest | | | | | |
| Commercial Inriver | 12,014 | | 12,014 | | |
| Inriver Food | 245 | | 245 | | |
| Inriver test fish | n/a | | n/a | | |
| Total. | 12,259 | | 12,259 | | |
| Percent of Harvest | 27.0% | | 35.4% | | |
| Inriver Run | 87,399 | | 87,399 | | |
| U.S. Harvest | | | | | |
| Dist. 111 Commercial | 33,119 | 5,845 | 22,388 | 16,576 | 38,964 |
| Percent of Harvest | 73.0% | | 64.6% | | |
| Total Run | 120,518 | 8,052 | 109,787 | 18,783 | |
| Taku Escapement Goal Range | 71,000-80,000 | | | | |
| Total Allowable Catch of Taku Fish | 40,518-49,518 | | 29,787-38,787 | | |

n/a data not available yet.

**Chinook Salmon**

Preliminary 1988 Chinook Catches in Ceilinged Fisheries in S.E. Alaska

Preliminary estimates of 1988 catch for each fishery managed under a harvest ceiling established by the Treaty are provided in the following table. These data are very preliminary and can be expected to change as fish ticket data replace in-season projections, errors are detected and corrected, and as the final landings are included in the catch (compiled with information available as of 11/15/88).

A 7 1/2% cumulative management range was established by the Commission in 1987. Deviations from catch ceilings since 1987 are as follows (numbers of fish in 1000's) (compiled with information available as of 11/15/88):

| Area and Fishery | Ceiling | 1987 Catch | 1988 Catch | Cumulative Deviations #'s | % | Action Required in the Following Year |
|---|---|---|---|---|---|---|
| SE Alaska (T,N,S) a/ | 263 | 266.1 | 253.4 | -6.5 | -2.5 | NONE |

a/ SE Alaska catches exclude hatchery add-ons of 16,000 and 23,900 for 1987 and 1988 respectively.

The preliminary 1988 chinook salmon catch by all Southeast Alaska fisheries was 277,300. This was 9,600 (3.3%) below the 1988 target ceiling of 286,900 which consisted of a base catch ceiling of 263,000 plus a hatchery add-on of 23,900. Chinook catches by gear type were: troll — 231,300 (83.4%); net — 22,900 (8.3%); recreational — 23,100 (8.3%).

Hatchery Add-on

Preliminary post-season analysis indicates Southeast Alaska hatcheries contributed an estimated 30,600 chinook salmon, or 11 percent of the total 1988 Southeast Alaska all-gear chinook harvest of 277,300. This resulted in a new hatchery production add-on of 23,900. The add-on is calculated by subtracting 5,000 for 1984 or pre-Treaty hatchery harvest and 1,700 for estimation error risk adjustment from the total hatchery contribution of 30,600. Total 1988 Alaska hatchery contributions by gear type were: troll — 18,974 (61.9%); net — 6,796 (22.2%); recreational — 4,870 (15.9%).

Troll Fishery

The 1988 troll chinook harvest of 231,300 occurred as follows: winter season — 60,400; June experimental fisheries — 8,700; summer season — 162,200. A winter troll fishery, limited to areas inside the "surf line", occurs from October 1 through April 14. The 1988 winter troll harvest of 60,400 was the largest to date and about 2.5 times the 1985-87 average of 24,600. The large 1988 winter catch was due to a combination of factors including increased effort, chinook availability and milder than normal weather conditions. An estimated 13.3 percent (8,039) of the winter catch consisted of Alaska hatchery chinook salmon. Experimental troll fisheries conducted during June in several near-terminal and terminal hatchery areas harvested 8,700 chinook of which approximately 33 percent (2,844) were from Alaska hatcheries. The beginning of the general summer troll season was delayed 11 days until July 1 in 1988, compared to June 20 in 1986 and 1987, to reduce chinook non-retention. Target catch levels were reached in 12 days, and the troll chinook season was closed on July 13. The 1988 fleet catch rate of 13,500 chinook per day was approximately 50 percent above the 1987 rate of 9,100. The 12-day summer chinook season in 1988 was 11 days less that in 1987 (23 days) and the shortest on record. (If an average winter catch of 24,600 chinook had occurred in 1988, the summer season would have lasted about 3 days longer.) Alaska hatcheries contributed about 5.0 percent (8,090) chinook to the summer troll fishery. Chinook non-retention was implemented after July 12 as the fishery continued for other species. Several outer coastal areas of frequent high chinook abundance were closed to all fishing to reduce chinook hook and release. Forty-seven days of chinook non-retention occurred in 1988 compared to 60 days in 1987. During 17 of the 47 days, the central and southern portions of the region were closed to all fishing for coho conservation which resulted in reduced effort levels. Chinook hook and release in the troll fishery was monitored again in 1988 through an onboard observer program.

**Net Fisheries**

The incidental catch of 22,900 chinook salmon by Southeast Alaska commercial net fisheries in 1988 occurred as follows: purse seine — 11,300 (includes only chinook over 5 lbs.); drift gillnet — 10,600; set gillnet (Yakutat) — 900; trap — 100. (Approximately 200 — 400 chinook salmon are reported annually from inriver native subsistence net fisheries; these have not been

included in ceiling catches.) Incidentally caught chinook salmon represented approximately 0.2 percent of the 15.1 million all species net salmon harvest in 1988. Chinook catches in Southeast Alaska net fisheries are limited by Board of Fisheries regulations to 20,000, excluding Alaska hatchery harvest. Area and nighttime closures are implemented as needed to limit incidental chinook catches by drift gillnets. Purse seine chinook catches are limited by a 28 inch minimum size limit (implemented in 1986), and by chinook non-retention regulations. Catch and release of chinook in the purse seine fishery is estimated from catch rates during retention periods and information obtained from a port sampling program.

**Recreational Fisheries**

Preliminary analysis indicates a projected 1988 recreational harvest of 23,100 chinook salmon. This is similar to the 1987 harvest of 24,300, and to the 1985-87 average of 23,900. Primary regulations for the recreational fishery include a two chinook per day bag limit plus a 28 inch minimum size.

Review of Other Fisheries

Puget Sound

Sport and commercial net fisheries in Puget Sound continued to be restricted to protect depressed spring and some summer chinook stocks. With several exceptions, Puget Sound summer/fall type chinook are healthy and support some terminal fisheries. Commercial net catch was the same as in 1987, about 164,000, down from 191,000 in 1986 and from 226,000 in 1985. The Puget Sound sport fisheries were managed in the same general manner as in the last several years. Sport catch data for 1988 are not available at this time.

Washington Coast

The Northern Washington coastal stocks from the Quillayute (except summer runs), Hoh and Queets Rivers are managed on the basis of escapement floors and terminal exploitation rates. Returns to the rivers for all of these stocks are above the floor levels, allowing limited commercial and in-river recreational fisheries. A minimal commercial fishery directed at excess hatchery fish was conducted on fall chinook stocks from Grays Harbor. Grays Harbor spring chinook are improving, but still remain a problem; the only terminal harvest of this stock was a small number taken by Indian net fisheries on the Chehalis Reservation.

Columbia River

The 1988 Columbia River net fisheries are estimated to have harvested approximately 462,000 chinook, as compared to 480,000 in 1987. To date, the freshwater sport fishery, including the buoy 10 fishery, has harvested approximately 91,000 chinook as compared to a season total of 84,000 in 1987. A lower river winter gillnet fishery, targeting on surplus lower river hatchery spring stocks, harvested 17,000 chinook. There were no directed commercial fisheries on depressed upper Columbia River spring or summer chinook stocks in 1988. During the 1988 commercial sockeye season 1,200 summer chinook adults were harvested incidentally, as compared to 900 fish in 1987. There were tribal ceremonial and subsistence fisheries which harvested about 6,300 upriver spring chinook. Commercial fisheries were directed primarily at lower river fall stocks and upriver bright fall stocks. Fall commercial seasons were structured to maximize harvest of surplus upriver brights and lower river tule (hatchery) stocks while providing protection for the depressed Spring Creek hatchery stock and steelhead. The spring chinook sport fishery was targeted on surplus lower river hatchery stocks, while the fall chinook sport fishery primarily harvested surplus upriver brights and lower river tule stocks.

Ocean Fisheries North of Cape Falcon

Ocean chinook fisheries off the Washington coast and the Oregon coast, north of Cape Falcon, were managed primarily for Columbia River chinook stocks. Far northerly migrating chinook stocks are taken incidentally to harvests directed at Columbia River Tule stocks. In 1988, the

coastwide impacts on chronically depressed upper Columbia River spring and summer run stocks were of particular concern to the Council in setting ocean troll and recreational quotas. There was also some continued concern for depressed Columbia River fall tule chinooks destined for Spring Creek hatchery. Ocean quotas were established for all fisheries north of Cape Falcon for the 1988 season. The total ocean troll harvest was 115,400 chinook. Washington landings were 112,600 chinook while Oregon landings north of Cape Falcon were 2,800 chinook. Ocean recreational fisheries north of Cape Falcon landed 19,500 chinook (19,000 Washington and 500 Oregon, North of Falcon). These fisheries were also limited by quotas similar to the troll quotas in that area.

Ocean Fisheries From Cape Falcon To Cape Blanco

Ocean fisheries between Cape Falcon and Cape Blanco (i.e., Central Oregon Coast) harvest a mixture of stocks including those originating south of this area such a Rogue, Klamath and Sacramento river stocks along with stocks originating in this area, such as Umpqua and north coastal far north migrating stocks as well as Columbia River stocks. Small, river mouth, ocean fisheries and inriver recreational fisheries target on far north migrating stocks as these mature fish return to spawn. The general season catches for ocean troll and recreational fisheries for the area are estimated by ODFW to be composed of less than 10 percent of far north migrating stocks.

Preliminary Review of 1988 Chinook Escapements

Some fall running chinook stocks are still spawning at this time. Consequently, only a brief preliminary escapement overview can be presented. We have prepared the following brief narratives to summarize the information which is currently available. This information should be considered very preliminary.

S.E. Alaska

Estimated total natural chinook salmon escapements to Southeast Alaska and transboundary rivers (based on ADF&G estimates) increased by 16 percent to 60,300 compared to 52,000 in 1987. However, the increase in total escapement in 1988 was due primarily to increased chinook escapements in the Stikine and Taku transboundary rivers (see below). Escapements in 8 of the 11 index systems decreased in 1988, by an average of 33 percent compared to 1987. The weakness in 1988 chinook escapements generally occurred throughout the region with the exceptions noted above.

Transboundary Rivers

Chinook escapements increased in 1988 compared to 1987 in two of the six transboundary systems, and decreased in four. The 1988 Stikine escapement of approximately 29,000 chinook is the largest since observations began in 1975. Escapement to the Taku in 1988 increased relative to 1987 (+44% U.S. estimate, +50% Canadian estimate), but remain at approximately half the goal. For the four systems with declining escapements, (Chilkat, Unuk, Chickamin, and Alsek), decreases ranged from 11 to 24 percent.

Puget Sound

Spawning escapement surveys are complete on most systems, but numerical estimates will not be available until December or January. Most escapements appear to be average, with the exception of the spring chinook spawners in the south fork of the Nooksack River and the summer chinook spawners in the Stillaguamish River. These two stocks continue to be chronically depressed.

Washington Coast

The northern Washington coastal chinook stocks from the Quillayute (except summer run), Hoh and Queets Rivers are managed on the basis of escapement floors and terminal exploitation

rates. These stocks are all returning at levels above their floors, and therefore, do not present any immediate conservation concerns. Grays Harbor spring chinook continue to show improvement, but are still below their goal.

Columbia River

Columbia River stocks continued to show a mixed response to rebuilding efforts. Escapement needs for lower river spring chinook stocks (Willamette and Cowlitz) were met. The Bonneville Dam count of 90,500 upriver spring chinook adults declined from the 98,600 count in 1987. The 120,000 adult goal at Bonneville Dam is a combined goal for hatchery and wild stocks of which approximately 70% were wild at the time of goal development. Data are currently being analyzed to segregate wild from hatchery stocks for the 1988 run. Although a 1988 estimate of the wild upriver spring chinook run is not yet available, it is clear that the wild component remains depressed.

The 1988 return of 31,300 adult summer chinook decreased from the 1987 return of 33,000. However, whether this Bonneville Dam count is an accurate portrayal of the true status of summer chinook is in question in recent years. Overlapping run timing with increasing returns of the bright fall chinook stock may be inflating the estimates of summer chinook passing Bonneville Dam. This stock still remains seriously depressed compared to its 85,000 escapement goal.

The upriver bright fall chinook adult count at McNary Dam is expected to reach 115,000 fish compared to last year's count of 154,000 and the escapement goal of 40,000 adults. Sport fisheries and a limited tribal commercial gillnet fishery in the area above McNary Dam are expected to harvest a little of the surplus with catches being 9,000 and 2,200 respectively. The upriver bright fall chinook stock has demonstrated dramatic rebuilding in the last few years compared to the record low return in 1981.

The 1988 return to Spring Creek hatchery, including tule fall chinook trapped at Bonneville Dam as supplemental brood stock, totalled 3,638 adults showing an increase compared to 1,950 in 1987. However, 1988 returns are short of the escapement goal of 8,200 adults.

The decision was made to supplement Spring Creek hatchery brood stock needs by bringing in Bonneville hatchery females to mate with Spring Creek males. The Bonneville stock was judged to be the most similar to the Spring Creek stock from a genetic standpoint, and this stock has received a large influx of Spring Creek stock for its own brood stock in the recent past. The Bonneville-Spring Creek cross will be coded wire tagged along with the original Spring Creek stock to compare survival between the two groups. Total egg take, including those from Bonneville hatchery, was approximately 20.0 million compared to the 13.4 million taken in 1987.

Lower river hatchery tule chinook egg take needs were met for Oregon and Washington hatchery facilities.

Oregon Coast

Escapement of indicator stocks which contribute to PSC fisheries appear to be comparable to 1987 levels.

**Coho Fisheries**

Introduction

A summary review of 1988 U.S. coho catches by troll, net and sport fisheries is presented in this report. Catch data are incomplete and preliminary.

Alaska

No coho management regimes for Southeast Alaska fisheries have been specified by the PSC. These fisheries are managed by the Alaska Department of Fish and Game to achieve coho conservation objectives, and for gear allocation objectives established by the Alaska Board of Fisheries.

In 1988, Southeast Alaska fisheries harvested an estimated 1,056,000 coho salmon, the lowest since 1976 and approximately half the 1980-87 average of 2,010,000. The troll fishery is the primary coho directed fishery in Southeast Alaska and usually accounts for about 60 to 65 percent of the region's coho salmon harvest, (in 1988, however, the troll percentage was only 47 percent). Catches by gear type were: troll — 498,000 (47%); net — 525,000 (50%); recreational (projected) — 33,000 (3%).

Southeast Alaska coho fisheries are managed inseason. Time/area regulations and recreational bag limits based on run strength assessment are the primary management measures; catch ceilings are not utilized.

The opening date for the 1988 general summer troll season was delayed until July 1 for chinook management purposes. This opening date was 11 days later than the June 20 opening date in 1986 and 1987.

A number of conservation measures were implemented for the troll fishery during 1988 in response to weak coho returns. Two 10-day troll closures were implemented (July 26 — August 4, and August 15-24) to reduce troll harvest rates on coho throughout the region. Continued weakness in coho returns to central and southern areas of the region resulted in those areas being closed for an additional 21 days from September 1 until the end of the summer troll season on September 20. Stronger coho returns to the northern areas of the region permitted additional troll openings in Districts 12, 14, 15, 16, and the Yakutat area during September 3-20. The 1988 troll coho harvest of 498,000 was the lowest since 1975.

Most of the Southeast Alaska drift gillnet coho harvest occurs during late August and September when some fisheries target primarily on coho and others harvest significant numbers of coho while targeting primarily on fall chum runs. Substantial time/area closures were also implemented in drift gillnet fisheries during 1988 for coho conservation.

The most extensive coho conservation measures were taken in central and southern portions of the region with the District 8 (Stikine) gillnet fishery being closed entirely during the traditional fall coho season, and the District 6 fishery (Sumner Strait/Upper Clarence Strait) being closed during September when most of the coho harvest normally occurs in that district. Nighttime closures and shortened fishing weeks were implemented in the District 1 (Tree Point) gillnet fishery beginning in late August. Additional time/area closures were implemented in drift gillnet fisheries based on coho abundance, and relative abundance of other targeted species. The drift gillnet coho catch of 162,000 was the third lowest since 1980.

Significant numbers of coho salmon are also harvested incidentally in the purse seine fishery. Southeast Alaska seine fisheries are managed primarily for the targeted species of pink, sockeye and chum salmon. Purse seine fishing effort was restricted during 1988 in response to weak pink salmon returns. This, combined with weak coho returns, resulted in an incidental purse seine coho catch of 154,000, the second lowest since 1980.

Recreational bag limits were reduced from six to two coho salmon from September 1 until the end of the season in the central and southern portions of the region in response to weak coho returns to these areas. The projected 1988 recreational coho harvest of 32,800 was the second lowest since 1980.

Washington/Oregon

Catch statistics represent preliminary information extracted from the WDF soft data system on November 23,1988. Net fisheries have not yet been concluded for the season.

Ocean Fisheries

No specific management regimes were established by the Pacific Salmon Commission for coho fisheries off the coasts of Washington, Oregon and California. Ocean troll and sport fisheries in this area operated under coho ceilings developed through domestic regulatory processes of the Pacific Fishery Management Council (PFMC) in response to conservation concerns for naturally spawning coho stocks originating in Puget Sound and Washington Coastal river systems.

No non-Treaty troll fishery for coho was permitted north of Cape Falcon, Oregon in 1988. The recreational fishery north of Cape Falcon was constrained by a ceiling of 100,000 coho.

The Treaty troll fishery operated under a coho quota of 68,000. Fisheries north of Cape Falcon were closed upon attainment of coho ceilings.

A total of 71,900 coho were harvested by 1988 troll fisheries north of Cape Falcon, Oregon, compared to 137,400 taken in 1987. The 1988 total includes approximately 2,300 coho confiscated from Canadian troll vessels fishing illegally in U.S. waters. A total of 98,400 coho were harvested by recreational fisheries north of Cape Falcon, Oregon, compared to 148,400 in 1987.

Puget Sound

Area 7/7A Net Fishery

A total of 83,700 coho salmon were harvested by net fisheries in the San Juan Island (Areas 7 and 7A). The harvest, including coho caught during test fisheries, was taken incidentally during fisheries under the control of the Fraser Panel (31,900), fisheries directed at chum salmon (28,800), and fisheries directed at coho salmon (23,100).

Strait of Juan de Fuca Net Fishery

The Treaty Indian troll fishery in the Strait of Juan de Fuca (Areas 4B, 5, and 6C) harvested 600 coho salmon (excluding 4,600 coho harvested in Area 4B during the PFMC management period). The net fishery in this area harvested 19,900 coho. All the all-citizen catch was taken during fisheries under control of the Fraser Panel. The Treaty Indian net catch was taken incidentally during fisheries under control of the Fraser Panel and during fisheries directed at chinook and chum salmon.

Net Fisheries Other than in Juan de Fuca Strait and San Juan Islands Areas

Net fisheries harvested 1,131,000 coho salmon in other areas of Puget Sound. The majority of this harvest occurred in terminal areas in which the coho run exceeded escapement requirements.

Sport Fishery

Catch estimates are not available at this time for the 1988 Puget Sound sport fishery.

Washington Coast

A total of 93,500 coho have been taken in Washington coastal net fisheries (20,900 north coast; 23,600 Grays Harbor; 49,000 Willapa Bay).

Columbia River

Through November 20th, the Columbia River coho net fisheries have harvested 316,800 coho; the lower river sport fishery has taken approximately 141,700 coho.

Preliminary Stock Status Assessment

Southeast Alaska

Coho returns to the southern and central portions of Southeast Alaska in 1988 were especially weak. Stronger returns occurred in some northern inside areas, while near record returns occurred in the Yakukut area.

Complete information on coho escapements to index systems in 1988 is not yet available. However, preliminary information suggests that, in some portions of the region, coho escapements to small stream systems are generally poor compared to lake and larger rivers. This appears to substantiate concerns that severe freezing and scouring observed in the fall of 1985 would increase mortalities of rearing coho fry, particularly in smaller stream systems.

Low survival rates for most hatchery reared coho indicates that poor marine survival also occurred, perhaps compounding the effects of poor freshwater survival for some stocks. The relative impacts of reduced natural survival and potential high seas fishing mortalities on marine survival of 1988 returning coho are not known.

Preliminary analysis indicates Alaskan hatcheries contributed about 55,000 coho salmon to common property fisheries in 1988, compared to 129,000 in 1987 and 400,000 in 1986.

Washington/Oregon

Spawning escapement data are not available at this time. Preliminary indications are that survival of wild coho was highly variable from stock to stock (returns to some Washington coastal river systems appear to be particularly depressed).

Preliminary Indications of Potential Coho Conservation Concerns For the Management of 1989 Fisheries

Washington

Preseason forecasts are scheduled to become available in February 1989. Preliminary indications are that record low flow conditions during the summer of 1987 will result in reduced production of natural stocks from Puget Sound.

**Chum Fisheries**

This summary report provides a preliminary review of the 1988 chum fishing season and is subject to correction and revision as additional information becomes available. Some terminal area Washington chum fisheries are still underway, and catch information provided is preliminary data reported through mid-November. This report addresses in detail only those fisheries of most concern under the Pacific Salmon Treaty. The mixed-stock fisheries in United States (U.S.) waters that are 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 stocks of local origin.

Mixed Stock Fisheries

Areas 4B,5,6C

Consistent with the provisions of the chum annex, the fishery in Areas 4B,5,6C was restricted to Treaty Indian gillnet gear fishing a 5 day per week schedule. Due to weak coho returns to some Puget Sound rivers, the Strait of Juan de Fuca chum fishery was delayed beyond the beginning of the chum management period (October 2), and did not open until October 9th.

Catches in the Strait fishery were as expected throughout the chum management period, except during the third week of the fishery (10/24 — 10/28). Catch per landing statistics for this period were higher than observed in any previous year. Catches and effort dropped off to very low levels after the first week of November. Incidental chum catches prior to the chum management period were only 348. The total chum catch reported through November 23, is 95,609.

Areas 7 and 7A

Chum harvest in Areas 7 and 7A occurred in both directed coho and directed chum fisheries. Treaty Indian coho directed fisheries occurred on October 3 and 4, and again on October 7 and 8. These fisheries incidentally harvested 9,099 chum salmon. Additionally, a non-Treaty reef net fishery for coho was open from September 19 through October 10, and incidentally harvested 1,966 chum salmon. The chum catch prior to coho management was only 188 fish.

Throughout the chum season, U.S. and Canadian Technical staffs kept in close contact on the status of the chum run size entering Johnstone Strait. Initial indications were that the run was smaller than expected and may not allow a directed fishery. However, after the first week of October, test fishing catches in Johnstone Strait improved and DFO notified Washington managers on October 12 that they were forecasting a run size larger than 3.2 million and were opening a fishery that would raise the total Johnstone Strait catch above 225,000. This would allow a U.S. fishery in Areas 7 and 7A to proceed to a quota of 120,000 chum.

Based on the 120,000 quota, a Treaty Indian fishery was scheduled from October 14 to October 16, which harvested 40,043 chum. This was followed by a non-Treaty fishery on October 18, which harvested 44,385 chum. This brought the total Areas 7/7A harvest to approximately 95,000.

DFO notified Washington managers on October 18 that they had very good catches in Johnstone Strait the previous week and had updated the run size to over 4 million. Based on this information, and the total catch in Johnstone Strait, the quota in Areas 7/7A became 140,000. However, the target quota for this fishery was 134,000 to adjust for the U.S. overage of 6,000 fish in 1987. Additional non-Treaty fisheries were conducted throughout the month of November to harvest the remaining quota. Catches were poor during this time period and the quota level has not been fully harvested. The total catch in Areas 7/7A reported through November 23 is 128,118 chum.

Puget Sound Terminal Area Fisheries and Run Strength

Preseason forecasts for chum returns to Puget Sound were for a large run of about 1.8 million.

Most Puget Sound chum runs have been updated in-season to less that predicted preseason, with the exception of the South Puget Sound region which shows a substantial increase. Overall, the in-season estimates of abundance indicate a total Puget Sound chum return of about 1.65 million. Many Puget Sound chum fisheries are still underway or just beginning. It is far too early to assess spawning escapement.

(Source Document) — *Preliminary 1988 Post-Season Report for United States Salmon Fisheries of Relevance to the Pacific Salmon Treaty.* Compiled by the United States National Section.

# Reports of the Joint Technical Committees

# PART V
# REPORT OF THE JOINT TECHNICAL COMMITTEES

Executive summaries of reports submitted to the Commission by the joint technical committees during the period April 1, 1988 to March 31, 1989 are presented in this section. Copies of the complete reports are available on request from the library of the Pacific Salmon Commission.

## A. JOINT CHINOOK TECHNICAL COMMITTEE

**Joint Chinook Technical Committee Report. Summary of a Seminar on Genetic Stock Identification (GSI) of Chinook Salmon: Status, Needs and Future. TCCHINOOK (88)-1. August 1988**

In October 1986 several agencies sponsored a seminar on genetic stock identification (GSI) of chinook salmon. The questions they sought to answer included:

- What is GSI and why do we need it?
- What estimation methodologies are used and how good are they?
- What harvest management applications have occurred?
- What is the status of chinook GSI on the Pacific coast?
- What are the future opportunities and needs?

The individual presentations at the seminar, summarized in this report, were designed to provide information pertinent to these questions. Each presentation leads to an important conclusion, the sum of which Mr. Rich Lincoln attempts to highlight in this executive summary, thereby providing his professional perspective of how GSI should fit into contemporary chinook salmon management on the Pacific coast.

The seminar contributors are leaders in development and application from the entire coast. Their written summaries reflect a blend between abstract and brief technical report.

Much material is in press or planned for future publication, and readers are encouraged to contact authors for additional information.

**Joint Chinook Technical Committee 1987 Annual Report. TCCHINOOK (88)-2. October 31, 1988**

1987 Chinook Salmon Catches in Fisheries with Ceilings

Estimates of 1987 catch for each fishery managed under a harvest ceiling established by the Treaty are presented below. These data are preliminary, but major changes are not expected.

(Compiled with information available as of Oct. 10, 1988)
(numbers x 1,000)

| Area and Fishery | Ceiling | Catch | Difference #'s | Difference % |
|---|---|---|---|---|
| SE Alaska (T,N,S) a/b/ | 279 | 282 | 3.0 | + 1.1 |
| North/Central B.C. (T,N,S) | 263 | 283 | 20.0 | + 7.6 |
| West Coast Vancouver I. (T) | 360 | 378.9 | 18.9 | + 5.3 |
| Georgia Strait (T,S) | 275 | 159.7 | -115.3 | 41.9 |

a/ T = Troll; N = Net; S = Sport
b/ 263,000 base plus 16,000 hatchery add-on.

Catches in fisheries of interest to the Pacific Salmon Commission are documented in Table 1. The catch in northern B.C. is at the limit of the 7.5% management range about the catch ceiling established by the Commission.

Chinook Technical Committee Conclusions

The following conclusions are based on the Committee's analyses of spawning escapements through 1987 and exploitation rates in fisheries and indicator stocks. Escapement assessments are based on 43 stocks or stock groupings used to represent trends in the spawning escapement of naturally spawning chinook stocks. These escapement indicators are distributed across geographic areas and run timings of spawning migrations:

| Area | Spring | Spring/ Summer | Summer | Summer/ Fall | Fall | Total |
|---|---|---|---|---|---|---|
| S.E. Alaska | 5 | | | | | 5 |
| Transboundary | 6 | | | | | 6 |
| Northern B.C. | | 4 | 3 | | | 7 |
| Southern B.C. | | 3 | | 1 | 3 | 7 |
| WA/Or | 3 | 2 | 2 | 3 | 8 | 18 |
| Total | 14 | 9 | 5 | 4 | 11 | 43 |

These escapement indicator stocks usually differ from the exploitation rate indicator stocks. The latter stocks must have a time series of coded-wire tag data extending prior to the Treaty. Exploitation rate indicators are usually hatchery stocks and may not be directly associated with an escapement indicator stock. An important consideration when comparing results of the escapement and exploitation rate assessments is that the exploitation indicator stocks are predominately fall run-timing stocks; whereas the escapement indicators are more balanced across run timing but the majority have spring or early summer run-timing. Results of the exploitation rate assessments are therefore indicative of trends in fall chinook stocks but are not likely to be representative of trends in all chinook stocks.

Escapement Assessments

1. Average Treaty period escapements increased over pre-Treaty periods for 34 (79%) indicator stocks, and decreased for 9 (21%) stocks. The decline in spawning escapements has not been stopped for two groups of stocks: the lower Georgia Strait fall chinook and West Coast Vancouver Island fall chinook.

2. For the 37 indicator stocks with escapement goals, the stocks were assessed to be of the following rebuilding status:

| Category | Number of Stocks | % of Indicators |
|---|---|---|
| Rebuilding | 15 | 41% |
| Probably Rebuilding | 9 | 24 |
| Indeterminate | 6 | 16 |
| Probably Not Rebuilding | 5 | 14 |
| Not Rebuilding | 2 | 5 |
| sub-total | 37 | 100% |
| Indicators without goals | 6 | |
| Total | 43 | |

Lower Georgia Strait and the west coast of Vancouver Island fall chinook stocks are considered to be definitely not rebuilding.

3. Stocks with spring and early summer run timing (spawning migrations) have significantly greater increases in average escapements (between Treaty and pre-Treaty periods) than later timing stocks. However, progress towards rebuilding did not differ significantly between run timings.

| Rebuilding Status | Run timing | | | | |
|---|---|---|---|---|---|
| | Springs | Spring/ Summer | Summers | Summer/ Falls | Falls |
| Rebuilding | 6 | 4 | 2 | 1 | 2 |
| Probably rebuilding | 3 | 3 | 0 | 1 | 2 |
| Indeterminate | 2 | 0 | 1 | 2 | 1 |
| Probably not rebuilding | 3 | 0 | 2 | 0 | 0 |
| Not rebuilding | 0 | 0 | 0 | 0 | 2 |
| | 14 | 7 | 5 | 9 | 7 |

Exploitation Rate Assessments

This analysis is based on 10 exploitation rate indicator stocks, all of which are hatchery stocks and 9 of which are fall run-type chinook.

4. Fishery Indices: Changes in fishery indices from 1986 to 1987 show either no change or an increase for all fisheries except the North/ Central B.C. troll.

This may indicate that for fall type stocks represented in this analysis, initial reductions in harvest rates obtained when ceilings were imposed in 1985 have been partially lost due to fishery restructuring, increased incidental mortalities, or abundance changes. Estimates of incidental mortalities have been incorporated in the analyses. The average 1985-87 fishery index does not show any reduction in the Southeast Alaska or west coast of Vancouver Island troll fisheries. The average fishery index decreased for the combined Georgia Strait troll and sport fishery, but remain above target levels. The declining catches in the Strait of Georgia are primarily the result of declining stock abundance, not harvest rate reductions.

Overall results of the exploitation rate analysis appear consistent with the escapement analysis which indicates a greater escapement response in early run timing stocks than for fall stocks.

5. Stock Indices: Ocean exploitation rates have declined in four of the exploitation rate indicator stocks but not in the six others. These "Stock Indices" declined for the Willamette springs, Spring Cree, Cowlitz, and Quinsam fall chinook stocks. Five indicator stocks (Big Qualicum, Robertson Creek, Columbia River Brights, Bonneville, and Stayton Pond) exhibited small but variable reductions in ocean exploitation rates of age 3 fish, but increased exploitation of age 4 fish.

   The tenth indicator stock, Capilano, also shows an increased exploitation rate but uncertainty about recent escapements to this stock confounds our interpretation of ocean exploitation.

6. Brood Year Exploitation Rates: This year (1987) is the first year that a complete brood has returned which was fished entirely under PSC management regimes. Of the ten indicator stocks, 5 show declines in brood exploitation rates, and 5 show no change or increases relative to the previous brood year.

Exploitation Rate Indicator Stocks
Change in Brood Year Index

| Increase | Decrease |
|---|---|
| Big Qualicum | Quinsam |
| Robertson Creek | Spring Creek |
| Columbia River upriver Bright | Cowlitz |
| Willamette Spring | Stayton Pond Tule |
| (Capilano *) | Bonneville Tule |

* see note in no. 5 above.

7. Survival and Contribution Indices: Substantial abundance changes have occurred for some chinook stocks due to changes in survival rates or enhancement levels.

   Abundance has increased for some stocks and decreased for others, but lack of information on all stocks precludes estimation of combined abundance changes. For example, Columbia River bright stocks have increased and are currently supporting large portions of the catches in some ocean fisheries. However, contributions from Robertson Creek and Spring Creek hatchery stocks have decreased substantially in recent years, and survival of some other hatchery stocks are know to be depressed.

Other Conclusions

8. Incidental mortalities of chinook salmon continue to be a problem and are increasing. The 1987 size limit increase in the outside Canadian troll fisheries has increased incidental mortalities of sub-legal sized chinook and resulted in increased exploitation rates on age 4 and older chinook in the west coast of Vancouver Island troll fishery. Increased exploitation rates on older chinook were not detected in the North and Central B.C. troll fisheries because the contribution of age 3 chinook to these fisheries was limited even before the size limit change. Impacts of chinook non-retention fisheries have increased since Treaty implementation. The fishery exploitation index based on total mortalities (including non-retention mortalities) in the S.E. Alaska troll fishery has increased relative to the base period. The same index based on reported catch only showed a small decrease relative to the base period.

   It is not possible to quantify impacts of incidental mortalities for each escapement indicator stock, but analyses of the exploitation rate indicators imply that incidental mortalities have slowed the rebuilding rate for stocks represented by these indicators.

9. The Committee deferred a full examination of pass-through pending clarification from the Commission. However, from this report, some information is available on pass-through. The current exploitation rate analyses indicate that Washington/Oregon ocean exploitation rates on fall indicator stocks have been below the base period level during the Treaty period.

Chinook Technical Committee Recommendations

1. Exploitation rates on lower Georgia Strait and West Coast Vancouver Island fall chinook stocks should be reduced to begin rebuilding. Some changes in management regimes and/or rehabilitative enhancement are required to begin rebuilding these stocks.

2. The potential for restructuring mixed stock fisheries to more evenly distribute harvest across the various run-types of stocks should be explored.

   Analysis of options should consider both benefits and possible adverse side effects such as increased incidental mortalities which might result from such restructuring.

3. Management measures should be implemented to reduce or compensate for incidental chinook salmon mortalities on a coastwide basis.

4. A complete assessment of cumulative pass-through impacts on rebuilding progress is needed to complete the Commission's rebuilding assessment. Policy questions and information needs for interpretation of the pass-through provision should be resolved.

5. The Committee recommends attention to the following information concerns and needs:
   a) An increased commitment to conduct consistent escapement surveys to obtain better escapement enumeration, including sex ratio and age composition data needed for evaluation of rebuilding. Simply estimating the number of chinook is not adequate to evaluate effects of management actions or to determine chinook productivity.
   b) Indicator stock programs should be reviewed to determine if representation of production regions and stock type is adequate. The Committee is especially concerned with representation of spring and spring/summer run-timings.
   c) Changes in spatial and temporal fishery patterns have affected fishing effort and perhaps chinook encounter rates. Troll fisheries and CNR periods should be resampled in order to assess these impacts, check previous data, and verify parameters in the induced mortality assessments.
   d) Consistent and standardized recovery programs for coded-wire tagged fish at hatcheries and on spawning grounds are required. In addition, consistent methods need to be used regarding time of release from hatchery programs.

6. Policy questions of what constitutes rebuilding must be resolved before the Committee can complete its assessment of rebuilding.

## B. JOINT CHUM TECHNICAL COMMITTEE

**Joint Chum Technical Committee Report. Final 1987 Post Season Summary Report. TCCHUM (88)-4. November 1988**

This Joint Chum Salmon Technical Committee report presents the appropriate information for 1987 chum salmon in southern British Columbia and Washington, as required in Chapter 6 of Annex IV of the Pacific Salmon Treaty (PST). Detailed information may be found in the Canadian and United States agency reports appended to this report.

The PST called for Canada to manage its 1987 chum salmon fisheries in accordance with past management plans, i.e. the clockwork strategy, while the U.S. was to manage its chum salmon fisheries in U.S. Areas 7 and 7A to a negotiated ceiling, the magnitude of which was dependent on the catch level in Johnstone Strait. The PST did not contain any requirements for special action in Canadian west coast of Vancouver Island fisheries or in fisheries in U.S. Areas 4B, 5, and 6C. The report summarizes the final submissions of the two countries on the 1987 chum salmon returns.

**Joint Chum Technical Committee Report. 1989 Progress Report on Genetic Stock Identification of Chum Salmon in Southern British Columbia and Washington. TCCHUM (89)-1. FEBRUARY 1989.**

In November of 1986, the Pacific Salmon Commission requested that the Joint Chum Technical Committee (CTC) provide estimates of stock composition in intercepting fisheries in southern British Columbia and Washington. The Commission identified the following components of the task:

1) Attempt to develop agreed-upon criteria and methods for the application of currently available genetic stock identification (GSI) data to catch data;

2) Evaluate and develop recommendations for standardization of GSI sampling, processing, and analysis methods;

3) Apply the above methodology to catch data for the fisheries for which adequate GSI data are available.

This report provides a synopsis of the current progress on these tasks. Earlier progress on these tasks has been reported by the CTC in TCCHUM (87)-2 and TCCHUM (88)-2. Current work has focused on the development of a baseline which provides accurate estimates of stock composition for each fishery. A subcommittee of the CTC has conducted analyses which compare several 7-loci baselines and their accuracy and precision. Based on this work, the CTC makes recommendations for the use of GSI for chum salmon stock composition estimates.

## C. JOINT TECHNICAL COMMITTEE ON COHO

**Joint Coho Technical Committee Report. Snapshot of 1988 Coho Fisheries. TCCOHO (88)-1. November 1988.**

A summary of coastwide coho catches by troll, net and sport fisheries for the period 1983-88 is presented. Data for 1988 is incomplete and preliminary,

A catch ceiling of 1.8 million coho was established for the WCVI troll fishery. Coho management regimes for other fisheries in 1988 were not specified in the Coho salmon chapter.

## D. JOINT NORTHERN BOUNDARY TECHNICAL COMMITTEE

**Northern Boundary Technical Committee Report. U.S./Canada Northern Boundary Area, 1988 Salmon Fisheries Management Report and 1989 Preliminary Expectations. TCNB (89)-1. January 1989.**

This report reviews the 1988 Boundary Area pink, chum and sockeye salmon fisheries of Southeast Alaska and Northern British Columbia and outlines preliminary 1989 expectations and fishing plans. The document is submitted to the Pacific Salmon Commission as required in Article IV of the Pacific Salmon Treaty. The report describes for Southeast Alaska and then for Northern British Columbia a review of the 1988 season, followed by a review of management performance in relation to Treaty requirements and then the 1989 sockeye, pink and chum expectations. A description of the boundary area fisheries, their historic development, and a review of changes in gear efficiency is included in Section 3.0 of previous Northern Boundary Area Annual Reports, the most recent of which is referenced as TCNB (88)-1.

## E. JOINT TRANSBOUNDARY TECHNICAL COMMITTEE

**Transboundary Technical Committee Report. Salmon Management Plan for the Transboundary Rivers 1988. TCTR (88)-2. May 1988.**

Management of the transboundary Stikine, Taku and Alsek Rivers to achieve conservation and allocation objectives stipulated by the Pacific Salmon Treaty requires close cooperation between Canada and the United States.

To assure each party has a clear understanding of objectives and procedures used in managing relevant fisheries this plan has been developed.

Organization of this report is by river and species. Within each section the pre-season forecast, spawning escapement goal and management procedures are presented. For sockeye salmon stocks of the Stikine River details of the stock assessment program is also presented.

A management model for Stikine River sockeye salmon has been developed to provide a single estimate of total allowable catch (TAC) of these stocks for the U.S. District 106 and 108 fisheries and the Canadian inriver fisheries. Allocation of TAC between the U.S. and Canadian fisheries is based on Annex IV of the Pacific Salmon Treaty, as revised in February 1988.

The model is designed to incorporate the basic method of fishery managers of using catch per unit effort (CPUE) to predict run strength and then to use past performances of the fisheries to determine the amount of fishing to allow each week both to achieve the TAC and to spread the catches over the entire period of the sockeye run.

The model has two parts. The first part determines the linear regression parameters needed to predict run strength from cumulative CPUE. The second part predicts the run strength and determines harvest sharing by the U.S. and Canadian fisheries on an in-season weekly basis.

**Transboundary Technical Committee Report. Salmon Catches and Escapements to the Transboundary Rivers in 1987. TCTR (88)-3. November 1988.**

Final estimates of the catch and escapement for Pacific salmon returning to the transboundary Stikine, Taku, and Alsek rivers are presented and compared with historic patterns. Conduct of U.S. and Canadian fisheries with respect to opening dates, days, and number of units of gear is also presented.

The abundance of the various species of Pacific salmon to the Stikine River in 1987 differed from those of recent years. The Stikine River sockeye salmon run was estimated to be only 43,000 of which 15,000 were harvested and 28,000 escaped to spawn. The U.S. catch was estimated to be

3,800 and the Canadian catch was 9,600. The spawning escapement of 7,000 to Tahltan Lake was less than desired despite reduced fishing effort. The estimated non-Tahltan escapement of 21,000 was within the desired range. Spring fishery restrictions remained in effect this year for chinook salmon and spawning escapement appeared greater than that observed in recent years. For Stikine coho salmon, estimates of U.S. marine catch are not available. The Canadian commercial catch of coho salmon was 5,700 which is greater than the last two years but slightly less than the 1980 to 1986 average. The Stikine River runs of pink and chum salmon are typically very small. In 1987, Canadian catches of these two species were below the 1980 to 1986 average.

The 1987 total return of Taku River sockeye salmon was 141,000 including a catch of 68,000 and an estimated escapement of 73,000. While the run of Taku River sockeye salmon was less than expected, catches were close to the 1980 to 1986 averages. The total spawning escapement of Taku River sockeye salmon was within the desired goal range; however, there was a poor return of the Tatsamenie stock. Spring fishery restrictions remained in effect to protect Taku chinook salmon. The Canadian harvest of 127 large chinook salmon was less than the 1980 to 1986 average of 314. Counts of large adult spawners in two index areas were approximately equal to the 1980 to 1986 average. Concern for high harvest rates of Taku coho and chum salmon in the marine gill net fishery prompted restrictions to both fishing time and area. The catch of 35,200 coho salmon in the District 111 gill net fishery was slightly above average, as was the Canadian coho harvest of 5,600. An estimate of coho spawning escapement made using mark-recapture techniques for the first time was 35,000 to 40,000. Although the estimate is imprecise, sufficient numbers of coho salmon appeared to escape the fishery to assure conservation. No estimates of Taku coho salmon harvested outside the near-terminal area are available. The Canadian catch of 2,300 Taku chum salmon was approximately one-half the 1980 to 1986 average. The magnitude of the escapement of chum salmon is unknown. The return of Taku pink salmon appeared to be large, as were returns to other systems in the area and to the hatchery in Juneau. The District 111 catches of 356,000 was almost twice that of the 1980 to 1986 average, while the Canadian catch of 6,300 was slightly below the 1980 to 1986 average. The estimated escapement of Taku pink salmon, based on mark-recapture analysis, was 740,000 to 870,000.

In the Alsek River, the predicted strong return of sockeye salmon materialized in the early run, but not in the late run. Regulations protecting the early-run sockeye salmon were again implemented in Canada. The U.S. commercial catch of 11,300 sockeye was less than one-half the 1980 to 1986 average with the majority of fish taken during the first few weeks of the fishery. Sockeye escapements have been monitored at a weir on the Klukshu River since 1976 and the count for 1987 was approximately one-half the 1976 to 1986 average. Spring fishery restrictions continued on the Alsek River to protect chinook salmon. The escapement of 2,600 chinook salmon to the Klukshu River weir was slightly above the 1980 to 1986 average. The U.S. inriver coho salmon catch of 2,500 was only about one-third that of the 1980 to 1986 average; however, fishing effort was also very low. The coho escapement of 200 to the Klukshu River weir was approximately one-half the 1980 to 1986 average. However, this is only a partial count of the escapement as the weir is removed prior to completion of the run.

## F. JOINT TECHNICAL COMMITTEE ON DATA SHARING

**Report of the Data Sharing Committee to the Standing Committee on Research and Statistics. TCDS (88)-1. February 12, 1988.**

This report summarizes the Committee's recent activities and presents five recommendations for consideration. The report includes an overview of work performed by the Working Group on Mark Recovery Databases and Working Group on Mark Recovery Statistics.

The Data Sharing Committee recommends:

1. The Standing Committee on Research and Statistics should accept the attached "Synopsis of Pacific Salmon Commission Data Standards for Salmonid Mark, Production, and Recovery" and recommend acceptance and distribution by the Commission.

2. If the Standing Committee on Research and Statistics believes that progress has been too

slow, additional personnel resources should be assigned by the Parties to the Working Group on Mark Recovery Statistics. Those new resources could consist of either larger allotments of existing members' time or additional members.

3. The Standing Committee on Research and Statistics should direct the Data Sharing Committee to initiate, as its next major function, a report on the sharing of coastwide escapement data, identifying any problems and possible solutions.

4. The Standing Committee on Research and Statistics should priorize the assignments contained within the Data Sharing Committee's Terms of Reference.

5. The Standing Committee on Research and Statistics should agree to creation of a subcommittee to the Data Sharing Committee, charged with responsibility for ensuring continued standardization of codes and formats. The proposed subcommittee would begin operation upon termination of the Working Group on Mark Recovery Databases.

**Report of the Data Sharing Committee to the Standing Committee on Research and Statistics Concerning the Technical Feasibility of Establishing Coastwide Salmon Catch and Escapement Databases. TCDS (88)-2. 1988.**

During its February 1988 meeting, the Standing Committee on Research and Statistics directed the Data Sharing Committee to investigate and report on the feasibility of establishing coastwide databases for salmon catch and escapement information. The following materials are reports prepared by the Data Sharing Committee. They identify the various places where catch and escapement information is kept and describe the types of information now available and highlight some obstacles to establishment of coastwide catch and escapement databases. To summarize:

Coastwide Catch Data Base

— Coastwide catch information for the years 1975-1988, in the form of the catch sample file, is an integral part of the PSC Mark-Recovery data set and will be available to interested persons as readily as the mark-recovery information itself. However, the level of geographic resolution at which that catch information is provided may not be as specific as would be required for determining in- and post-season annex compliance.

— It appears to be technically feasible to establish a more detailed coastwide catch data system. Commercial and recreational catch information is maintained by all management entities. Subsistence/personal use catch information is not consistently available.

— The organization and reliability of data collection systems for the U.S. and Canada are readily comparable within categories between nations. However, catch categories show sharp differences. Commercial catch reporting is the best developed, with allocation of catches to areas and times of harvest being one of its most serious shortcomings. Sports catch reporting uses the same methods, with minor exceptions, in both countries, but is considerably less rigorous than the commercial catch reporting. Subsistence/personal use catch reporting procedures are the least reliable in both countries, relying, in many cases, on the most casual of observations.

— If the decision is made to establish a coastwide catch data system, a selection will also have to be made of the years of catch information to be included. The key advantage of a longer time-frame is the insight it could provide into questions of productivity. The key disadvantage is that older data may have been collected in different manners than contemporary data and will usually be less reliable and less comprehensive.

Coastwide Escapement Data System

— Because of data problems, it does not appear feasible to establish a coastwide escapement data system. Escapement information is collected and analyzed in a large number of different, sometimes incompatible ways. As a result, escapement information generally is

not comparable between regions or countries.

— The technical community has expressed a great deal of interest in standardizing escapement methodologies. Development of common standards is an important, badly needed undertaking.

— It would appear to be advisable to establish a common data set of reliable escapement information.

General Comment

— The Data Sharing Committee is prepared to begin work in either area (catch or escapement). However, due to personnel and other resource limitations, the committee will be able to undertake work in only one area at a time. The easiest system to start on would be the catch data system.

# 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, 1155 Robson Street, Vancouver, B.C., V6E-1B5

## A. ANNUAL REPORTS

1. ***Pacific Salmon Commission 1985/86 First Annual Report***
This report provides a summary account of the Commission's first year of operation and contains a summary account of the first meetings of the Commission, and incorporates the full text of the Pacific Salmon Treaty including Annexes and Memoranda of Understanding.
2. ***Pacific Salmon Commission 1986/87 Second Annual Report***
This report provides a summary account of the Commission's second year of operation and contains amendments to Annex IV which apply to the 1987 fishery regime.
3. ***Pacific Salmon Commission 1987/88 Third Annual Report***
This report contains a summary account of the Commission's third year of operation and contains amendments to Annex IV which apply to the 1988 fishery regime.

## B. REPORTS OF JOINT TECHNICAL COMMITTEES

### i. Joint Chinook Technical Committee

1. TCCHINOOK (86)
*Draft report of the Chinook Technical Committee to the Pacific Salmon Commission's Southern and Northern Panels.* January 21, 1986.
2. TCCHINOOK (86)
*Summary Report of the Chinook Technical Committee (1985)-Prepared for the March 1986 meetings of the Pacific Salmon Commission and Northern and Southern Panels.* February 24, 1986.
3. TCCHINOOK (86)-1
*Final 1985 Report of the Chinook Technical Committee.* September 3, 1986.
4. TCCHINOOK (86)-2
*Chinook Technical Committee Report — Preliminary Review of 1986 Fisheries.* November 3, 1986.
5. TCCHINOOK (87)-1
*Chinook Technical Committee Report — Preliminary Review of 1986 Fisheries.* February 2, 1987. (An update of Report TCCHINOOK (86)-2 submitted November 1986).
6. TCCHINOOK (87)-2
*Assessing Progress towards Rebuilding of Depressed Chinook Stocks.* February 12, 1987.
7. TCCHINOOK (87)-3
*Data Report of the Chinook Technical Committee on Unaccounted for Sources of Fishing Associated Mortalities of Chinook Salmon in Westcoast Salmon Fisheries.* February 1, 1987.
8. TCCHINOOK (87)-4
*Chinook Technical Committee Report — 1986 Summary Report.* February 26, 1987. (Revised 2/28/87).
9. TCCHINOOK (87)-5
*Chinook Technical Committee Report to the November 1987 Meeting of the Pacific Salmon Commission.* October 23, 1987.

10. TCCHINOOK (88)-1
    *Chinook Technical Committee Report — Summary of a Seminar on Genetic Stock Identification (GSI) of Chinook Salmon: Status Needs and Future.* August 1988.
11. TCCHINOOK (88)-2
    *Chinook Technical Committee Report — 1987 Annual Report.* October 31, 1988.

**ii. Joint Chum Technical Committee**

1. TCCHUM (87)-1
   *Chum Technical Committee Report — Summary Report of Southern British Columbia and Washington Chum Salmon Data for the years prior to 1985.* February 1987.
2. TCCHUM (87)-2
   *Chum Technical Committee Report — Working Paper on Genetic Stock Identification Methods for Southern Chum Salmon.* February 1987.
3. TCCHUM (87)-3
   *Chum Technical Committee Report — Research Needs on Southern British Columbia and Washington State Chum.* February 1987.
4. TCCHUM (87)-4
   *Final 1985 Post Season Summary Report.* August 1987.
5. TCCHUM (87)-5
   *Final 1986 Post Season Summary Report.* November 1987.
6. TCCHUM (88)-1
   *Historical Canadian and United States Chum Salmon Data Report for the Years Prior to 1985.* January 1988.
7. TCCHUM (88)-2
   *Progress Report on Genetic Stock Identification of Chum Salmon in Southern British Columbia and Washington.* February 14, 1988.
8. TCCHUM (88)-3
   *Summary Report on the Current and Future Management and Enhancement Intentions of the United States and Canada for Southern Chum Salmon.* February 1988.
9. TCCHUM (88)-4
   *Final 1987 Post Season Summary Report.* November 1988
10. TCCHUM (89)-1
    *1988 Progress Report on Genetic Stock Identification of Chum Salmon in Southern British Columbia and Washington.* February 1989.

**iii. Joint Coho Technical Committee**

1. TCCOHO (86)-1
   *Coho Technical Committee Report on 1985 Fisheries. Responses to Questions posed by the Southern Panel March 2, 1986.* June 20, 1986.
2. TCCOHO (87)-1
   *Report of the Joint Coho Technical Committee — Response to Southern Panel Questions.* February 7, 1987.
3. TCCOHO (87)-2
   *Coho Technical Committee Report — Response to a Request from the Northern Panel for Information on Stock Composition of Coho Harvested in Northern British Columbia and Southeast Alaska.* February 1987.
4. TCCOHO (87)-3
   *Coho Technical Committee Report — Impacts of Swiftsure Bank Closure and incidental coho catch estimates for 1987 — Canadian Area 20 and U.S. Areas 7/7A.* June 1, 1987.
5. TCCOHO (87)-4
   *Report of the Coho Technical Committee to the Southern Panel.* November 1987.
6. TCCOHO (88)-1
   *Snapshot of 1988 Coho Fisheries.* November 1988.

**iv. Joint Northern Boundary Technical Committee**

1. TCNB (86)
   *Report of the Canada/United States Northern Boundary Technical Committee.* January 8, 1986.
2. TCNB (86)-1
   *Northern Boundary Technical Committee Report — Joint United States/Canada Salmon Research, Northern Boundary Area Adult Tagging Report, 1982 to 1985.* November 1986.
3. TCNB (86)-2
   *Northern Boundary Technical Committee Report — Steelhead Report.* November 1986.
4. TCNB (86)-3
   *Northern Boundary Technical Committee Report — Assessment of an Apparent Weakness in the Early Portion of the Nass River Sockeye Salmon Run.* November 1986.
5. TCNB (87)-1
   *Northern Boundary Technical Committee Report — U.S./Canada Northern Boundary Area 1986 Salmon Fisheries Management Report and 1987 Preliminary Expectations.* January 1987.
6. TCNB (87)-2
   *Northern Boundary Technical Committee Report — Status of Chum Stocks in the Northern Boundary Areas.* February 1987.
7. TCNB (87)-3
   *Northern Boundary Technical Committee Report — U.S./Canada Northern Boundary Area 1987 Salmon Fisheries Management Report and 1988 Preliminary Expectations.* November 1987.
8. TCNB (89)-1
   *U.S./Canada Northern Boundary Area 1988 Salmon Fisheries Management Report and 1989 Preliminary Expectations.* January 1989.

**v. Joint Transboundary Technical Committee**

1. TCTR (86)
   *Report of the Canada/United States Transboundary Technical Committee. Final Report.* February 5, 1986.
2. TCTR (87)-1
   *Report of the Transboundary Technical Committee.* February 8, 1987. *Appendix 1. Spawning stock size of Stikine River sockeye salmon 1986.* May 1987.
3. TCTR (87)-2
   *Report of the Transboundary Technical Committee. Stikine River Sockeye Salmon Management Plan 1987.* April 1987.
4. TCTR (87)-3
   *Report of the Transboundary Technical Committee. Enhancement Opportunities for the Transboundary Rivers.* April 28-30, 1987.
5. TCTR (87)-4
   *Report of the Transboundary Technical Committee. Taku River Sockeye Salmon Management Plan 1987.* April 27 —May 1, 1987.
6. TCTR (87)-5
   *Preliminary 1987 Salmon Catches and Escapements to the Transboundary Rivers.* November 13, 1987.
7. TCTR (88)-1
   *Sockeye Salmon Enhancement Feasibility Studies in the Transboundary Rivers.* February 1988.
8. TCTR (88)-2
   *Salmon Management Plan for the Transboundary Rivers 1988.* May 1988.
9. TCTR (88)-3
   *Salmon Catches and Escapements to the Transboundary Rivers in 1987.* November 1988.

**vi. Joint Transboundary and Northern Boundary Technical Committees**

1. TCNB/TR (87)-1

*Report of the Northern Boundary and Transboundary Technical Committees — Stock Identification of Sockeye Salmon Using Biological Markers.* February 1987.

### vii. Joint Technical Committee on Data Sharing

1. TCDS (88)-1
   *Report of the Data Sharing Committee to the Standing Committee on Research and Statistics.* February 12, 1988.
2. TCDS (88)-2
   *Report of the Data Sharing Committee to the Standing Committee on Research and Statistics concerning the Technical Feasibility of Establishing Coastwide Salmon Catch and Escapement Databases.* June 1988.

## C. DOCUMENTS SUBMITTED BY DOMESTIC AGENCIES AND THE PARTIES

### i. To the Joint Chinook Technical Committee

1. *Preliminary Report on 1985 Southeast Alaska Chinook Salmon Catch and Escapement.* Prepared by Southeast Region, Fisheries Divisions Staff, Alaska Department of Fish and Game. January 31, 1986.
   (Appendix 1 to TCCHINOOK (86)-1).
2. *Observations on Chinook Salmon Non-Retention in the 1985 Southeast Alaska Purse Seine Fishery.* Prepared by B.Van Alen and M. Seibel, Alaska Department of Fish and Game. June 1986.
   (Appendix 2 to TCCHINOOK (86)-1).
3. *Observations on Chinook Salmon Hook and Release in the 1985 Southeast Alaska Troll Fishery.* Prepared by A. Davis, J. Kelley and M. Seibel, Alaska Department of Fish and Game. June 1986.
   (Appendix 3 to TCCHINOOK (86)-1).
4. *Data Report on Unaccounted for Sources of Fishing Associated Mortalities of Chinook Salmon in B.C. Fisheries (1977-1986). Prepared by the Canadian members of the Chinook Technical Committee.* January 1987.
5. *State of Washington Department of Fisheries — Progress Report No. 251. 1976 to 1985 Puget Sound Chinook (Oncorhynchus tshawytscha) Net Catch with Regard to Pacific Salmon Treaty Obligations.* Prepared by Steven L. Shepard, Fish Biologist, Planning, Research and Harvest Management Program. January 1987.
6. *Preliminary Review of 1986 Chinook Salmon Hatchery Addon for Southeast Alaska Fisheries and Projected Addon for 1987.* Prepared by Southeast Region Staff, Fisheries Divisions, Alaska Department of Fish and Game. January 12, 1987. Revised May 18, 1987.
7. *Summary of Chinook Escapement and Harvest Rate Indicator Stocks for the Oregon Coast (Excluding Columbia River).* Prepared by R. Kaiser and S. Jacobs, Oregon Department of Fish and Wildlife. January 13, 1987.
8. *Observation on Chinook Salmon Non-Retention in the 1986 Southeast Alaska Purse Seine Fishery.* Prepared By B. Van Alen and M. Seibel, Alaska Department of Fish and Game. February 1987.
9. *Associated Fishing Induced Mortalities of Chinook Salmon in Southeast Alaska.* Prepared by Alaska Department of Fish and Game and National Marine Fisheries Service, Auke Bay Laboratory. February 1987.
10. *Georgia Strait Chinook Stock Composition: A GSI Simulation Analysis.* Prepared By National Marine Fisheries Service, Genetics Unit, Manchester,Washington and Washington Department of Fisheries, Resource Assessment and Development Unit, Olympia, Washington. February 1987.
11. *Mortality Rates of Sublegal and Legal Sized Chinook Salmon Associated with Incidental Catch during Chinook-Only Troll Closures.* Prepared by Alex Wertheimer, National Marine Fisheries Service, Auke Bay, Alaska. February 4, 1987.
12. *Southeast Alaska Regional Summary — Identification of Indicator Stocks and Assessment of Rebuilding of Natural Chinook Salmon Stocks (Appendix to TCCHINOOK (87)-2).* Prepared by Alaska Department of Fish and Game. February 5, 1987. Updated May 22, 1987.

13. *Regional Summary for Columbia River Chinook Indicator Stocks (Appendix to TCCHINOOK (87)-2).* Prepared by Columbia River Inter-Tribal Fish Commission. February 6, 1987.
14. *Washington Chinook Fishery Stock Composition Estimates — Results from Genetic Stock Identification Studies in Selected Washington State Fisheries.* Prepared by the U.S. Section of the Chinook Technical Committee. February 8, 1987.
15. *History of Chinook and Coho Salmon Catch in Washington State Fisheries Operating in Puget Sound and Juan de Fuca Strait.* Prepared by the Washington State Department of Fisheries. February 8, 1987.
16. *Summary of Chinook Escapement and Harvest Rate Indicator Stock For Puget Sound and the Washing Coast.* Prepared by the Northwest Indian Fisheries Commission and the Washington Department of Fisheries with assistance from Dr. Gary Morishima and Dr. Kenneth Henry. February 9, 1987.
(Appendix to TCCHINOOK (87)-2).
17. *Evaluation of Chinook Pass-Through and Evaluation of Associated harvests in Washington-Oregon Fisheries without PSC harvest ceilings.* Prepared by the Washington Department of Fisheries. The Columbia River Inter-Tribal Fish Commission, The U.S. Fish and Wildlife Service, The National Marine Fisheries Service and The Northwest Indian Fisheries Commission. February 11, 1987.
18. *Review of Natural Chinook Salmon Escapement Trends in Transboundary Rivers of Northern British Columbia and Southeast Alaska.* Prepared by Canada Department of Fisheries and Oceans and Alaska Department of Fish and Game. February 12, 1987.
19. *Historical Catch of Chinook Salmon in Juan de Fuca Strait and the Strait of Georgia (1953-1986) and Associated Information on Stock Composition of the Catch.* Prepared by B. Riddell. February 18, 1987.
20. *Supplement to the Canadian Report on Unaccounted for Sources of Fishing Associated Mortalities: Pass-Through Related Information.* Prepared by the Canadian members of the Chinook Technical Committee. February 19, 1987.
21. *Observations on Chinook Salmon Hook and Release in the 1986 Southeast Alaska Troll Fishery:* Prepared by A. Davis, J. Kelly and M. Seibel, Southeast Region, Division of Commercial Fisheries, Alaska Department of Fish and Game, Douglas, A.K (February 19, 1987). Updated and retitled version June 1987.
22. *Preliminary Review of 1987 Alaska Hatchery Addon of Chinook Salmon for Southeast Alaska Fisheries and Projected 1988 Hatchery Addon.* Prepared by Regional Staff, Southeast Fisheries Division, Alaska Department of Fish and Game, Juneau, Alaska. December 18, 1987.
23. *Preliminary Review of 1988 Alaska Hatchery Addon of Chinook Salmon for Southeast Alaska Fisheries and Projected 1989 Hatchery Addon.* Prepared by Alaska Department of Fish and Game, Douglas, Alaska. November 22, 1988.

**ii. To the Joint Chum Technical Committee**

1. *Washington/Oregon Chum Salmon Management and Stock Assessment for years prior to 1985.* Prepared by the United States section of the Joint Chum Salmon Technical Committee. February 1987.
2. *Preliminary Review of 1987 Washington Chum Fisheries in the Strait of Juan de Fuca, San Juan Islands and Southern Georgia Strait (Point Roberts).* November 1987.

**iii. To the Joint Coho Technical Committee**

1. *Information on Coho Salmon Stocks and Fisheries of Southeast Alaska.* Prepared by Southeast Region, Fisheries Division Staff, Alaska Department of Fish and Game. Juneau, AK. January 1986.
(Appendix 2 to TCCOHO (86)-1).
2. *History of Chinook and Coho Salmon Catch in Washington State Fisheries Operating in Puget Sound and Juan de Fuca Strait.* Prepared by the Washington State Department of Fisheries. February 8, 1987.
3. *Canadian Agency Report on Coho Salmon.* Prepared by Canadian Section of the Coho Technical Committee. (Appendix 1 to TCCOHO (86)-1). June 16, 1987.
4. *Post-Season Report for 1985 U.S. Coho Fisheries from Cape Falcon, Oregon to the Washington/Canadian Border and Coho Stock Status Expectations.* June 20, 1986.

**iv. To the Joint Northern Boundary Technical Committee**

1. *In-season Management Rationale — Tree Point Gillnet Fishery 1986.* February 1987.
2. Summary of the 1986 Salmon Net Fishery in Area 3, British Columbia. February 1987.
3. Contribution of Alaskan, Canadian, and Transboundary Sockeye Stocks to Catches from Southeast Alaska Districts 101-108, 1986, based on Analysis of Scale Patterns. Prepared by Glen T. Oliver, Kathleen A. Jensen, Iris S. Frank and Norma Jean Sands. Division of Commercial Fisheries, Alaska Department of Fish and Game, Douglas, Alaska. September 1987.

**v. To the Joint Transboundary Technical Committee**

1. *Management Strategies of the Canadian Commercial Fishery on the Stikine River in 1986.* Prepared by S. Johnston, Department of Fisheries and Oceans, Whitehorse, Y.T. February 8, 1987.
2. *1986 In-season Management Rationale and Post-Season Summary of the Alaskan Drift Gillnet Sockeye Fishery in District 6 and District 8.* Prepared by Alaska Department of Fish and Game. February 11, 1987.
3. *Contribution of Principal Sockeye Salmon Stock Groups to Catches from Southeast Alaska's Districts 106 and 108 and Canada's Stikine River Fisheries, 1986.* Prepared by Kathleen A. Jensen, Glen T. Oliver and Iris Frank. Alaska Department of Fish and Game. August 1987.
4. *Separation of Principal Taku River and Port Snettisham Sockeye Salmon (Oncorhynchus nerka) Stocks in Southeastern Alaska and Canadian Fisheries of 1986 based on Scale Pattern Analysis.* Prepared by Andrew J. McGregor and Susan L. Walls. Alaska Department of Fish and Game. Technical Data Report No. 213. August 1987.
5. *Migratory Timing and Escapement of Taku River Salmon Stocks in 1986.* Prepared by Andrew J. McGregor and J.E. Clark. Alaska Department of Fish and Game. September 1987.

**vi. To the Joint Transboundary and Northern Boundary Technical Committees**

1. *Preliminary Report of Fishery Performance in the Northern Boundary and Transboundary Areas 1987.* Prepared by Commercial Fisheries Division, Alaska Department of Fish and Game. November 1987.

**vii. To the Commission by Canada**

1. *A summary of the Salmonid Enhancement Program in British Columbia and the Yukon Territory.* Prepared by Canada Department of Fisheries and Oceans. November 14, 1986.
2. *Canadian catches in 1986 and Pre-Season Expectations for 1987.*
   a) *Fraser River, Northern B.C. and Yukon Division Summary Review of 1986 Salmon Fisheries and Returns.*
   b) *Preliminary Review of 1986 Fisheries and Prospects for 1987.* South Coast Division.
   c) *Canadian Report of the 1986 Salmon Fisheries of Northern British Columbia Including Preliminary Expectations and Fishing Plans for 1987.* Prepared by Canada Department of Fisheries and Oceans. November 1986.
3. *Canadian Report of the 1987 Salmon Fisheries of Northern British Columbia.* Prepared by Canada Department of Fisheries and Oceans. November 1987.
4. *1988 Post-Season Report for Canadian Treaty Limit Fisheries. Canada Department of Fisheries and Oceans.* November 1988.

**viii. To the Commission by the United States**

1. *1986 Post-Season and 1987 Pre-Season Fishery Report.* Prepared by U.S. Section, Pacific Salmon Commission Coho, Chinook, Chum, Northern Boundary and Transboundary Technical Committees in Cooperation with State, Federal, and Tribal Fishery Management Agencies. November 1986.
2. *Enhancement Report of the United States Section, Pacific Salmon Commission.* Prepared by U.S. Section, Pacific Salmon Commission Coho, Chinook, Chum,

Northern Boundary and Transboundary Technical Committees in cooperation with State, Federal, and Tribal Fishery Management Agencies.

3. *Preliminary 1988 Post-Season Report for the United States Salmon Fisheries of relevance to the Pacific Salmon Treaty.* Prepared by U.S. Section. November 1988.
4. *Review of 1988 Ocean Salmon Fisheries.* Prepared by Pacific Fishery Management Council. Portland, Oregon. February, 1989.
5. *Preseason Report I. Stock Abundance Analysis for 1989 Ocean Salmon Fisheries.* Prepared by the Salmon Technical Team. Pacific Fishery Management Council. Portland, Oregon. February 1989.
6. *Preseason Report II. Analysis of Proposed Regulatory Options for 1989 Ocean Salmon Fisheries.* Prepared by The Salmon Technical Team. Pacific Fishery Management Council, Portland, Oregon. March 1989.

## D. TECHNICAL REPORT SERIES OF THE PACIFIC SALMON COMMISSION

1. *Technical Information Requirements for Effective Implementation of the Canada-United States Treaty concerning Pacific Salmon.* Prepared for the Pacific Salmon Commission: Natural Resources Consultants, Seattle, Washington, October 1986.

## E. REPORTS OF THE FRASER RIVER PANEL

1. *Report of the Fraser River Panel to the Pacific Salmon Commission on the 1986 Fraser River Sockeye Salmon fishing season. P.S.C. Staff.* November 1986.
2. *Report of the Fraser River Panel to the Pacific Salmon Commission on the 1987 Fraser River Sockeye and Pink Salmon Fishing Season.* P.S.C. Staff. February 1988.
3. *Report of the Fraser River Panel to the Pacific Salmon Commission on the 1988 Fraser River Sockeye Salmon Fishing Season.* P.S.C. Staff. May 1989.

## F. REPORTS OF THE INTERNATIONAL PACIFIC SALMON FISHERIES COMMISSION

Responsibility for maintenance of the library of the former International Pacific Salmon Fisheries Commission has been transferred to the Pacific Salmon Commission. Copies of all annual reports to and including 1985, progress reports, bulletins of the IPSFC, and a library catalogue are available on request from the Pacific Salmon Commission Secretariat, 1155 Robson Street, Vancouver, B.C., V6E-1B5

## G. PUBLICATIONS BY PACIFIC SALMON COMMISSION SECRETARIAT STAFF

1. Cook, R.C., and I. Guthrie. 1987. *In-season stock identification using scale pattern recognition. In:* H.D. Smith, L. Margolis, and C.C. Wood (ed). Sockeye Salmon (Oncorhynchus nerka) Population Biology and Future Management. Can. Spec. Publ. Fish. Aquat. Sci. 96.
2. Woodey, J.C. 1987. *In-season management of Fraser River sockeye salmon (Oncorhynchus nerka): meeting multiple objectives. In: H.D. Smith, L. Margolis, and C.C. Wood (ed). Sockeye Salmon (Oncorhynchus nerka) Population Biology and Future Management. Can. Spec. Publ. Fish. Aquat. Sci. 96, pp 367-374.*
3. *Guthrie, I.C.*, and R.M. Peterman. *1988. Economic evaluation of lake enrichment strategies for British Columbia sockeye salmon.* North American Journal Fish Management. V8,4. Fall 1988.
4. Todd, I. and T.C. Jensen. *1988. Assessment of the Pacific Salmon Commissions's first three years: disappointment and frustration — but optimism for the future.* Anadromous Fish Law Memo. Lewis and Clark Law School. December 1988.
5. Jensen, T.C. *1988. New International Policy for North* Pacific Salmon. Pacific Northwest Admiralty Law Inst. Proc. Ch. IV 1988.

# Report of the Auditors for 1988/89

# PART VII
# AUDITORS' REPORT AND FINANCIAL STATEMENTS FOR THE PERIOD APRIL 1, 1988 TO MARCH 31, 1989

## AUDITORS' REPORT TO THE COMMISSION

We have examined the balance sheet of the Pacific Salmon Commission as at March 31, 1989 and the statements of revenue and expenditure, fund balances and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of the Commission as at March 31, 1989 and the results of its operations, and the changes in its financial position for the year then ended in accordance with the financial regulations adopted by the Commission applied on a basis consistent with that of the preceding year.

Peat Marwick

Chartered Accountants

Coquitlam, Canada
May 12, 1989

**PACIFIC SALMON COMMISSION**
**Balance Sheet**
**March 31, 1989**
**(With comparative figures for 1988)**

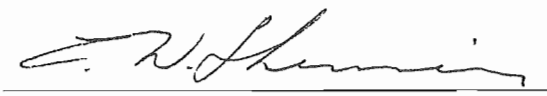
| | 1989 | 1988 |
|---|---|---|
| **ASSETS** | | |
| General Fund: | | |
| Current assets: | | |
| Cash and term deposits | $701,791 | 901,985 |
| Accounts receivable: | | |
| Travel advances | 300 | — |
| Other | 22,331 | 4,139 |
| Interest receivable | 8,957 | 10,900 |
| | 31,588 | 15,039 |
| Prepaid expenses | 38,621 | 48,145 |
| Prepaid pension contributions | 30,947 | 72,948 |
| | 101,156 | 136,132 |
| | $802,947 | 1,038,117 |
| Working Fund: | | |
| Term deposit | $100,000 | 100,000 |
| Fixed Asset Fund: | | |
| Fixed assets (note 3) | $556,488 | 665,520 |
| International Pacific Salmon Fisheries Commission Fund: | | |
| Cash and term deposits | $194,947 | 228,082 |

See accompanying notes to financial statements

**PACIFIC SALMON COMMISSION**
**Balance Sheet**
**March 31, 1989**
**(With comparative figures for 1988)**

| | 1989 | 1988 |
|---|---|---|
| LIABILITIES AND FUND BALANCES | | |
| General Fund: | | |
| Current liabilities: | | |
| Accounts payable and accrued liabilities | $ 54,717 | 100,435 |
| Deferred revenue (note 4) | 77,601 | 357,500 |
| Fund balance (note 5): | | |
| Unappropriated fund balance | — | 155,202 |
| Reserves | 670,629 | 424,980 |
| | $ 802,947 | 1,038,117 |
| Working Fund: | | |
| Fund balance | $ 100,000 | 100,000 |
| Fixed Asset Fund: | | |
| Fund balance | $556,488 | 665,520 |
| International Pacific Salmon Fisheries Commission Fund: | | |
| Fund balance | $ 194,947 | 228,082 |

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**
**For the year ended March 31, 1989**
**(With comparative figures for 1988)**

| | 1989 | 1988 |
|---|---|---|
| Revenue: | | |
| Contributions from contracting parties | $ 1,430,000 | 1,430,000 |
| Return of unappropriated funds(Note 5) | 155,202 | — |
| | 1,274,798 | 1,430,000 |
| Gain on sale of fixed assets | 7,709 | 1,382 |
| Interest | 122,657 | 86,223 |
| Test fishing | 1,320,635 | 935,542 |
| | $ 2,725,799 | 2,453,147 |
| Expenditures: | | |
| Materials and supplies | 40,498 | 69,441 |
| Overhead | 249,903 | 231,397 |
| Professional services | 110,269 | 263,752 |
| Rentals | 56,981 | 38,748 |
| Repairs and maintenance | 31,417 | 71,534 |
| Salaries and employee benefits | 1,069,950 | 946,908 |
| Test fishing | 918,644 | 699,552 |
| Total expenditures | 2,477,662 | 2,321,332 |
| Excess of revenue over expenditures | 248,137 | 131,815 |
| | $ 2,725,799 | 2,453,147 |

See accompanying notes to financial statements

**PACIFIC SALMON COMMISSION**
**International Pacific Salmon Fisheries Commission Fund**
**Statement of Revenue and Expenditures**
**For the year ended March 31, 1989**
**(With comparative figures for 1988)**

| | 1989 | 1988 |
|---|---|---|
| Expenditures: | | |
| Audit fee | $ — | 2,500 |
| Publications | 33,135 | 39,601 |
| | 33,135 | 42,101 |
| Excess of expenditures over revenues | $33,135 | 42,101 |

See accompanying notes to financial statements.

**PACIFIC SALMON COMMISSION**
**Working Capital Fund**
**Statement of Revenue and Expenditures**
**For the year ended March 31, 1989**
**(With comparative figures for 1988)**

| | 1989 | 1988 |
|---|---|---|
| Revenue: | | |
| Interest | $8,052 | 7,081 |
| Expenditures: | | |
| Meeting expenses | 908 | — |
| | 7,144 | 7,081 |
| Excess of revenues over expenditures | $ 7,144 | $ 7,081 |

See accompanying notes to financial statements

**PACIFIC SALMON COMMISSION**
**Statement of Fund Balances**
**For the year ended March 31, 1989**
**(With comparative figures for 1988)**

| | 1989 | 1988 |
|---|---|---|
| General Fund: | | |
| Fund balance, beginning of year | $ 580,182 | 833,158 |
| Transfer (to) from funds: | | |
| Fixed Asset Fund | (164,834) | (391,872) |
| Working Capital Fund | 7,144 | 7,081 |
| Excess of revenue over expenditures | 248,137 | 131,815 |
| Fund balance, end of year | $ 670,629 | 580,182 |
| Working Capital Fund: | | |
| Fund balance, beginning of year | $ 100,000 | 100,000 |
| Interest earned on fund, net of costs | 7,144 | 7,081 |
| Transfer to General Fund | (7,144) | (7,081) |
| Fund balance, end of year | $ 100,000 | 100,000 |
| Fixed Asset Fund: | | |
| Fund balance, beginning of year | 665,520 | 520,467 |
| Transfer from General Fund | 164,834 | 391,872 |
| Depreciation | (273,866) | (246,819) |
| Fund balance, end of year | $ 556,488 | 665,520 |
| International Pacific Salmon Fisheries Commission Fund | | |
| Fund balance, beginning of year | $ 228,082 | 270,183 |
| Excess of expenditures over revenues | 33,135 | 42,101 |
| Fund balance, end of year | $ 194,947 | 228,082 |

See accompanying notes to financial statements.

**PACIFIC SALMON COMMISSION**
**Statements of Changes in Financial Position**
**For the year ended March 31, 1989**
**(With comparative figures for 1988)**

| | 1989 | 1988 |
|---|---|---|
| General Fund: | | |
| Operating activities: | $ 248,137 | 131,815 |
| Excess of revenue over expenditures | | |
| Add (deduct): | | |
| Net changes in non-cash working capital balances relating to operations | (290,641) | 390,813 |
| Cash (used) provided by operations | (42,504) | 522,628 |
| Financing activities: | | |
| Transfer from Working Capital Fund | 7,144 | 7,081 |
| Transfer to Fixed Asset Fund | (164,834) | (391,872) |
| Cash used in financing activities | (157,690) | (384,791) |
| Increase (decrease) in cash during the year | (200,194) | 137,837 |
| Cash and term deposits, beginning of year | 901,985 | 764,148 |
| Cash and term deposits, end of year | $ 701,791 | 901,985 |
| Working Capital Fund: | | |
| Financing activity: | | |
| Interest earned on funds | $ 7,144 | 7,081 |
| Transfer to General Fund | (7,144) | (7,081) |
| Cash provided by financing activities | — | — |
| Cash and term deposits, beginning of year | 100,000 | 100,000 |
| Cash and term deposits, end of year | $ 100,000 | 100,000 |
| Fixed Asset Fund: | | |
| Operating activity: | | |
| Item not affecting working capital: | | |
| Gain on sale of fixed asset | $ (7,709) | (1,382) |
| Cash used for operations | (7,709) | (1,382) |
| Investing activities: | | |
| Additions to fixed assets | (176,073) | (397,922) |
| Proceeds on sale of fixed assets | 18,948 | 7,432 |
| Cash used for investing activities | (157,125) | (390,490) |
| Financing activity: | | |
| Transfer from General Fund | 164,834 | 391,872 |
| Increase in cash during year | — | — |
| Cash, beginning of year | — | — |
| Cash, end of year | — | — |

See accompanying notes to financial statements

**PACIFIC SALMON COMMISSION**
**Statements of Changes in Financial Position, continued**
**For the year ended March 31, 1989**
**(With comparative figures for 1988)**

| | 1989 | 1988 |
|---|---|---|
| International Pacific Salmon Fisheries Commission Fund, Operating Activities: | | |
| Excess of expenditures over revenues: | $ (33,135) | (42,101) |
| Decrease in cash during the year | 33,135 | 42,101 |
| Cash and term deposits, beginning of year | 228,082 | 270,183 |
| Cash and term deposits, end of year | $ 194,947 | 228,082 |

See accompanying notes to financial statements.

**PACIFIC SALMON COMMISSION**
**Notes to Financial Statements**
**March 31, 1989**

1. 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.

Effective January 1, 1987 and pursuant to a decision of the International Pacific Salmon Fisheries Commission, balances of funds belonging to that Commission and commitments against those funds were transferred to the Pacific Salmon Commission for administration purposes.

2. Significant accounting policies:

(a) Fund accounting:

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

The Fixed Assets Fund represents the cumulative results of fixed asset transactions. Depreciation is charged to the Fixed Assets 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 the fixed limit in the account at the end of the fiscal year is transferred to the General Fund and is treated as income.

(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.

(c) Fixed assets:

Fixed 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. Depreciation is provided using the straight-line method at rates sufficient to amortize the costs over the estimated useful lives of the assets. The rates of depreciation used are:

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

(d) Income tax:

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

(e) Foreign exchange:

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.

3. Fixed assets:

| | 1989 | | | 1988 |
|---|---|---|---|---|
| | Cost | Accumulated Depreciation | Net Book Value | Net Book Value |
| Automobiles | $ 70,419 | 33,151 | 37,268 | 45,340 |
| Boats | 70,894 | 41,013 | 29,881 | 39,903 |
| Computer equipment | 488,056 | 390,521 | 97,535 | 154,927 |
| Equipment | 350,830 | 180,842 | 169,988 | 182,810 |
| Films | 1,800 | 1,800 | — | — |
| Furniture | 220,641 | 44,295 | 176,346 | 196,262 |
| Computer software | 60,205 | 30,361 | 29,844 | 28,699 |
| Leasehold improvements | 19,532 | 3,906 | 15,626 | 17,579 |
| | $1,282,377 | 725,889 | 556,488 | 665,520 |

4. Deferred revenue:

Deferred revenue represents cash contributions received from a contracting party in the current year that represent revenue for the year ended March 31, 1990.

5. Reserves:

(a) Reserves for contractual commitments:

Contractual commitments are recognized in the accounts only to the extent that the service or goods have been delivered. Until the service or goods are delivered the obligation is recorded as a reserve against the General Fund balance.

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

| | 1989 | 1988 (Restated) |
|---|---|---|
| Continuing operations | $601,061 | — |
| Fixed assets | — | 171,027 |
| Professional services | — | 132,860 |
| | 601,061 | 303,887 |
| (b) Reserve for prepaid expenses | 38,621 | 48,145 |
| (c) Reserve for prepaid pension contributions | 30,947 | 72,948 |
| | $670,629 | 424,980 |

Subsequent to the release of the 1988 financial statements, the Finance and Administration Committee approved an increase in the reserve for Contractual commitments from the unappropriated fund balance in the amount of $15,000. As a result the general fund balances for the 1988 fiscal year have been adjusted by increasing the reserve amount and decreasing the unappropriated balance by the $15,000. The revised unappropriated fund balance of $155,202 as at March 31, 1988 was credited to the contracting parties in the 1989 fiscal year.

6. Pension plan:

Pacific Salmon Commission maintains a contributory defined benefit multi-employer pension plan that covers all of their salaried employees. The plan provides for pensions based upon length of service and the highest consecutive three years of service earnings.

7. Comparative figures:

Certain of the 1988 figures shown for comparative purposes have been reclassified to conform with the presentation adopted in 1989.

# Appendices

# Appendix A
## Recommendations of the Commission to the Parties or Amendments to Annex IV and other understandings to give effect to the agreed fishery regime for 1989

**PACIFIC SALMON COMMISSION** February 17, 1989

The Right Honourable Joe Clark, P.C.,M.P.
Secretary of State for External Affairs
Ottawa, Ontario
K1A 0G2

The Honorable James A. Baker, III
Secretary of State
U.S. Department of State
2201 C Street N.W.
Washington, D.C. 20520

The Honourable Tom Siddon, P.C.,M.P
Minister of Fisheries and Ocean
Ottawa, Ontario
K1A 0E6

The Honorable Robert A. Mosbacher
Secretary of Commerce
U.S. Department of Commerce
14th Street N.W.
Washington, D.C. 20230

Dear Sir:

I have the honour to report to you on understandings that have been reached by the Pacific Salmon Commission and to recommend changes in Annex IV of the Pacific Salmon Treaty.

In accordance with Article XIII, Paragraph 2 of the Treaty, the Commission recommends that Chapters 2, 3, 5 and 6 of Annex IV be amended. The entire text of Annex IV as proposed by the Commission for 1989 is attached (Attachment 1). Pursuant to Article XIII, Paragraph 3 of the Treaty, amendments to the Annex may be implemented through an exchange of notes between the Governments. The Commission expects that the relevant management agencies will manage fisheries under their responsibility in the recommended manner during the 1989 fishing season. The Commission recommends that an exchange of notes occur implementing these proposals as soon as possible.

The Commission has also reached the following understandings as to the implementation of the Pacific Salmon Treaty:

1) With respect to Annex IV, Chapter 1, the Commission has agreed to an "Understanding between the United States and the Canadian Sections of the Pacific Salmon Commission concerning Joint Enhancement of Transboundary Salmon Stocks" adopted in Portland February 1989 (Attachment 2).

The Commission notes that the cost-sharing responsibilities set out in the Understanding will be reviewed annually by its Finance and Administration Committee.

2) With respect to Annex IV, Chapter 2, the Commission agrees that the Joint Northern Boundary Technical Committee shall undertake assessments and identify possible measures to restore and enhance Portland Canal chum stocks and in consideration of the depressed stocks of chum salmon in areas adjacent to Portland Canal, the Technical Committee shall:

(a) During 1989, design and recommend a coordinated research program that will define the distribution, timing and harvest rates on the chum salmon stocks originating from streams in the Portland Canal area.

(b) Review past, current and proposed chum salmon Coded Wire Tag (CWT) recovery programs in the Northern Boundary Area.

(c) Review current chum enhancement projects in the Northern Boundary Area (Nakat remote release site and Portland Canal spawning channels) and enhancement strategies that may restore depressed chums in Portland Canal and adjacent areas on southern Southeast Alaska and northern British Columbia.

(d) Review current and potential management options for the protection of depressed Portland Canal area natural chum salmon stocks.

In addition, the Commission agrees that the northern section of the Joint Coho Technical Committee shall undertake an assessment of information on stocks and harvest; an exchange of information on current management and research; a review of fisheries and an identification of data and analyses needs (Attachment 3).

3) With respect to Annex IV, Chapter 3, the Commission agrees that:

(a) the Chinook Working Group will continue to meet on a regular basis and will report to the panels in November 1989 on recommendations to clarify policy issues, such as those included in paragraph 1(b), and to develop a common understanding of the definition of rebuilding and its relationship to the development of Commission management regimes and the sharing of costs and benefits. The Working Group will make a progress report to the Commissioners and Panel Chairs and Vice-Chairs at the October 1989 Commission consultative session;

(b) In 1989 the Southeast Alaska all-gear catch of chinook salmon shall consist of the base catch specified above, plus a catch of new Alaska hatchery add-on to be calculated in-season using the procedures approved by the Commission for the 1988 add-on and as described in Alaska's November 22, 1988 hatchery add-on report to the Commission. The pre-season expectation for the 1989 hatchery add-on is 42,200 chinook salmon.

(c) With respect to the overage in the chinook fishery on the West Coast of Vancouver Island, it is Canada's intention to take appropriate management action by reducing its 1989 catch 27,000 fish to return to a level within the established management range.

4) With respect to Annex IV, Chapter 4, the Commission approved the Joint Report of the Fraser River Panel on the Sockeye Escapement Add-on Computation for 1989 (Attachment 4).

5) With respect to implementation of Article XV, paragraph 3 of the Treaty, the Commission recommends that paragraph C of the diplomatic note exchanged between the Parties August 13, 1985 be amended to read as follows:

"C. Every four years from this date the Commission shall review the division of responsibilities set out above."

6) With respect to Annex IV, Chapter 6, the Commission recognizes that the U.S. fishery harvested in 1988 approximately 4,000 chum salmon less than the harvest permitted under Annex IV, Chapter 6, paragraph 3(c)(ii). The U.S. intends to increase its harvest in a future year by this amount.

7) With respect to Annex IV, Chapter 7, the Commission has agreed to:

(a) An "Understanding between the Canadian and United States Section of the Pacific Salmon Commission Concerning Joint Interceptions Committee" (Attachment 5);

(b) An "Understanding between the Canadian and United States Section of the Pacific Salmon Commission Concerning an Overview of the Parties' Long Term Management Plans" (Attachment 6).

The Commission hopes that these recommendations will meet with your approval.

Sincerely,

PACIFIC SALMON COMMISSION

C. Wayne Shinners
Chair

# Appendix B
## Revised Annex IV
## to the Pacific Salmon Treaty in effect for 1989

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 fishermen 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 coordinated or cooperative 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 Management 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 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 gill net 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 gill net 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 inriver allowable catch of sockeye salmon will be based on a 10 percent harvest rate of Stikine River sockeye salmon in the District 106 drift gill net 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 gill net 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 0 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 gill net 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 inriver allowable catch of sockeye salmon will be based on a 10 percent harvest rate of Stikine River sockeye salmon in the District 106 drift gill net 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 Understanding concerning Joint Enhancement of Transboundary River Salmon Stocks, 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 cooperative enhancement possibilities and to undertake as soon as possible 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 fishermen 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 1989 to jointly reduce interception 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 stocks.

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

   (a) during 1989, limit its purse seine fishery in District 4 in a manner that will result in a maximum total catch of 120,000 sockeye salmon prior to United States statistical week 31. Any overage or underage will be considered in the negotiation of the next District 4 chapter; and

   (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) for 1989, 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 catch in that area reaches 300,000 pinks or, the pink salmon fishery has lasted 22 days starting with the beginning of the troll season in Area 1, whichever comes first;

   (c) in addition, when the total 1989 Area 1 pink salmon troll catch reaches 1.7 million, close management units 101-1, 101-2, 101-3, 101-5, 101-9 and 1-1 to pink salmon trolling; and

   (d) for the purposes of this agreement, in 1989, allow the following management units to remain open to pink salmon trolling: 101-6, 101-7, 101-10, 1-2, 1-3, 1-5 and 1-7.

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 panels;

   (c) jointly initiate and develop a coordinated 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 1989, the annual all-gear catch in southeast Alaska shall not exceed 263,000 chinook salmon;

(ii) in 1989, the annual all-gear catch in northern and central British Columbia shall not exceed 263,000 chinook salmon;

(iii) in 1989, the annual troll catch off the west coast of Vancouver Island shall not exceed 360,000 chinook;

(iv) in 1989, the total annual catch by the sport and troll fisheries in the Strait of Georgia shall not exceed 275,000 chinook; Canada will undertake management measures to minimize further reductions in spawning escapements in 1989;

(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 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; and,

(viii) in 1987 and thereafter, the United States will continue to monitor fisheries in Juan De Fuca Strait (Areas 4B, 5, 6A, 6C) and the outer portions of Puget Sound (6B, 7, 7A, 9) so as to assess the levels and trends in the interceptions of Canadian chinook salmon;

(f) maintain the following program, recognizing that associated fishing mortalities can affect the rebuilding schedule. The Parties shall

(i) minimize the effects of such mortalities;

(ii) monitor, assess, and report associated fishing mortalities;

(iii) provide the information required by the Chinook Technical Committee to estimate the magnitude and assess the impacts of associated mortalities on an on-going basis;

(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 1989 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 1988, and the likelihood of achievement of these goals by 1995; and,

(c) cooperatively developed management options to be identified by December 1989 and initiated in 1990 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:

| | Sockeye | Pink |
|---|---|---|
| 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:

| | Sockeye | Pink |
|---|---|---|
| 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 coordinate 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 3 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 1989, the west coast of Vancouver Island (Canadian Management Areas 21, 23, 24, 25, 26, 27, 121, 123, 124, 125, 126, 127, and 130-1) troll harvest shall not exceed 1.8 million Coho;

(b) for 1989, 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 1989, 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 1989, 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 1989 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 1988 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.

## Chapter 6

## 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 1989, 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 1989,

(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 1989, 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 1989 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 1989, 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.

Attachment 1

# UNDERSTANDING BETWEEN THE UNITED STATES AND THE CANADIAN SECTIONS OF THE PACIFIC SALMON COMMISSION CONCERNING JOINT ENHANCEMENT OF TRANSBOUNDARY RIVER SALMON STOCKS

Recognizing the desire of the United States and Canada to embark upon a joint salmon enhancement program for the Transboundary Rivers that is carefully planned and coordinated:

I. The Parties agree:

A. That for the period 1988 through 1992 the goal for enhancement activities on the Transboundary Rivers is to embark on a program designed to produce annually 100,000 returning sockeye salmon to the Taku River and to the Stikine River, for a total of 200,000 sockeye salmon per year;

B. To develop strategies for management of the enhanced stocks prior to the return of adult fish;

C. To determine harvest sharing arrangements for enhanced stocks prior to the time eggs are taken to initiate production level enhancement;

D. That the target year to initiate the first production level egg-takes of 5 million eggs per system for sockeye salmon on the Taku and Stikine Rivers is 1989;

E. To develop an agreed process for conducting periodic review of implemented projects to identify and recommend action regarding, inter alia:

1. Success or failure of a project in a given year or series of years,

2. A distribution of benefits that is substantially different than expected,

3. Costs which are substantially greater than expected;

F. To recommend a plan for funding of projects including:

1. Cost sharing arrangements between the Parties,

2. Long term funding obligations,

3. In carrying out joint enhancement projects, capital construction and on-site operating costs shall be borne by the country on whose soil project components are located.

II. The Parties agree to establish an Enhancement Subcommittee of the Transboundary Rivers Technical Committee whose Terms of Reference shall be, inter alia, to:

A. Develop a preliminary summary of various projects which meet the enhancement goals established by the Northern Panel;

B. Develop detailed feasibility studies for projects selected by the Northern Panel, including:

1. Estimation of costs and benefits,

2. Likelihood of success,

3. Schedules for implementation,

4. Procedures for evaluation,

5. A fisheries management plan for the enhanced stocks;

C. Monitor implementation of projects and report progress to the Northern Panel.

III. In recognition of the Parties desire to embark upon a sockeye salmon enhancement program for the Stikine and Taku Rivers, the Parties agree to conduct the following activities in 1988:

A. The Enhancement Subcommittee shall:

1. Determine the feasibility of obtaining sockeye salmon brood stock from Tatsamenie Lake, Little Trapper Lake and Tahltan Lake,

2. Prepare a management cost analysis for enhancement activity that will be undertaken for Taku and Stikine River sockeye salmon.

B. The United States shall:

1. Conduct pathological screening of Tatsamenie Lake, Little Trapper Lake and Tahltan Lake sockeye salmon,

2. Develop fish culture profiles for Tatsamenie Lake, Little Trapper Lake and Tahltan Lake sockeye salmon.

C. Canada Shall:

1. Conduct a detailed limnological survey of Tuya Lake,

2. Deliver about 20,000 eggs each from the Tahltan Lake, Little Trapper Lake and Tatsamenie Lake stocks of sockeye salmon to the central incubation facility at Port Snettisham in Alaska so that fish culture profiles can be developed,

3. Provide samples required to conduct pathological screening,

4. Assess the quantity and quality of sockeye salmon spawning habitat in the tributaries of Tatsamenie Lake, Upper Trapper Lake and Tuya Lake.

# Appendix C
## Understanding between the United States and the Canadian Sections of the Pacific Salmon Commission concerning Joint Enhancement of Transboundary River Salmon Stocks

In order to implement the understanding on joint enhancement dated February 19, 1988, the parties agree:

I. Project Selection

A. General Guidelines

1. If broodstock is not available to provide the agreed upon number of eggs, up to 30 percent of the available adults will be taken, provided that a minimum of 600,000 eggs are available; if this minimum number is not available, no eggs will be taken.

2. A reasonable expectation that a stock identification technique will be available to estimate the contribution of enhanced sockeye in mixed stock fisheries is required in order for these projects to proceed. At present, thermal mass marking is being evaluated. The appropriate stock identification technique for each fishery will be determined by the Technical Committee.

B. Stikine River

The Tahltan Lake sockeye salmon stock will be used as the source for eggs. In 1989, up to 3 million eggs will be taken. In 1990, up to 6 million eggs will be taken. Eggs will be incubated at the Port Snettisham central incubation facility (CIF). Fry will be planted into Tahltan and Tuya lakes in the following manner, subject to review by the Transboundary Technical Committee:

1. When the sockeye escapement through the Tahltan Lake weir is less than 15,000 fish, all fry will be returned to Tahltan Lake;

2. When the sockeye escapement through the Tahltan Lake weir is greater than 15,000, the fry will be distributed to Tahltan and Tuya lakes in a manner which maximizes harvestable production and provides information on the potential production capacity of Tuya Lake.

C. Taku River

The Parties agree to establish an Ad Hoc Transboundary Enhancement Work Group to examine issues surrounding harvest and cost sharing on the Taku River. The Work Group will report its recommendations to the Northern Panel no later than December 1989.

Both Upper Trapper and Tatsamenie Lakes present good sockeye enhancement opportunities. Up to 6.0 million eggs will be taken in 1990 from Little Trapper Lake and/or Little Tatsamenie Lake. The selection of the appropriate stock will be determined by the Technical Committee.

II Harvest and Cost Sharing

The Parties desire to maximize the harvest of Tahltan/Tuya sockeye salmon in their existing fisheries while considering the conservation needs of wild salmon runs. The Parties agree to manage the returns of Stikine River sockeye to ensure that each country obtains equal catches in their existing fisheries beginning in 1993. In 1993, 1994, and 1995, Canada may also utilize any fish surplus to escapement and broodstock requirements. In 1996, the Parties shall review this sharing arrangement.

The costs of producing these enhanced fish shall be shared as follows:

**To be paid by Canada:**

1. Egg take;

2. Egg transport;

3. Smolt sampling;

4. Sampling and analysis necessary to determine the contribution of enhanced transboundary river sockeye salmon to Canadian fisheries;

5. Limnology sampling and hydroaccoustics.

**To be paid by the United States:**

1. Construction and operation of that portion of the Port Snettisham central incubation facility that is dedicated to enhancement projects on the transboundary rivers;

2. Transport of fry to the enhancement site;

3. Sampling and analysis necessary to determine the contribution of enhanced transboundary river sockeye salmon to United States fisheries.

**Projects to be conducted jointly:**

1. Disease sampling and analysis.

III. If additional space becomes available at Port Snettisham CIF in 1989

A. Up to 3 million more eggs will be taken from Tahltan Lake.

B. If considered practical by the Parties, up to 2.4 million eggs will be taken from the Taku River system. Cost sharing for 1989 will be as agreed for the Stikine. For 1990 and beyond, harvest and cost sharing for enhanced Taku River sockeye will be negotiated by March 1990.

# Appendix D
## Understanding Between the United States and the Canadian Sections of the Pacific Salmon Commission concerning Northern British Columbia and Southeastern Alaska Coho Stocks

The United States and Canada are both concerned with the management and conservation of coho stocks in northern British Columbia and Southeastern Alaska. Both countries recognize that the data base supporting management actions is quite variable and for many stocks actual escapement, escapement goals, production and harvest by area and fishery are poorly understood.

Resource conservation in the boundary area would benefit from an immediate assessment of available information on stocks and harvest, an exchange of information on current management and research procedures and programs, a review of fisheries and an identification of data and analyses needs. The Northern Panel requests the appropriate agencies in Canada and the United States to provide the following information to the Coho Technical Committee by November 1989.

1. Coho catch by fishery area, by gear, by week for the period 1973 to present.

2. Effort levels and distribution of effort by time and area for the above breakdown for the period 1973 to present.

3. Maps of areas referenced in the above tables.

4. Stock composition data available for fisheries of concern.

5. Escapement and harvest rate information available for stocks contributing to Southeast Alaskan and northern British Columbia fisheries.

6. A description of current coho enhancement projects, future plans and present and planned evaluation programs.

7. A report on research-management programs for coho in southern Southeast Alaska and northern British Columbia.

8. A summary of available knowledge on possible high seas foreign interceptions of northern British Columbia and Southeastern Alaska coho stocks.

The Northern section of the Coho Technical Committee in consultation with the respective agencies will prepare a report to the Northern Panel including:

1. A summary of fisheries trends by appropriate geographic area.

2. An assessment of stock status by appropriate geographic areas highlighting any specific conservation concerns.

3. A summary of knowledge of stock migration and fishery interactions.

4. Recommendations for research programs needed to improve the coho data base.

5. An assessment of present and planned programs with respect to the parties conservation and management objectives.

The Northern Panel requests that this technical committee report be completed by October of 1990 with the objective of panel review by December 1990.

# Appendix E
## Fraser River Panel Joint Report to the Pacific Salmon Commission Agreement on Sockeye Escapement Add-On Computation for 1989

1030 hrs. February 15, 1989

1. The Parties agree that, in order to implement the arrangements contained in Commission document PSC-ES (87)-14, the following arrangements shall apply in 1989:

   A. For the purpose of calculating the Canadian production benefit from escapement add-ons created in the 1985 mid-summer management group and returning in 1989:

      (i) Canada's preliminary forecast of the total run size of the mid-summer management group is 10,955,000 fish.

      (ii) Based on this preliminary forecast, the escapement add-on production benefit shall be 249,000 fish.

      (iii) Canada's escapement add-on production benefit referred to in paragraph 1.A (ii) shall be adjusted in proportion to any in-season and post-season adjustments in the run size set out in paragraph 1.A (i).

      (iv) The Parties agree that Canada's escapement add-on production benefit as determined in 1.A (i) — (iii) above shall not be included in the calculations of the Total Allowable Catch from which the U.S. allocations are determined.

   B. At appropriate times throughout 1989, Canada will provide gross, net and add-on spawning escapement requirements by race and management group. Specifically, Canada will provide, on a pre-season basis, escapement requirements, and will provide notification of any in-season adjustments to specific escapement goals.

2. The Parties agree on the following:

   A. In recognition of escapements re-allocated from the Canadian share of the Total Allowable Catch in 1989, the United States agrees that production resulting from these contributions shall accrue solely to Canada. The Parties agree to develop a means of identifying productions from these added escapements that will not be prejudiced by the terms of paragraph 1.

   B. Notwithstanding paragraph 2.A, the Parties recognize that harvest of increased Fraser sockeye production could have impacts requiring adjustments in harvest patterns in both countries to be consistent with Article III, Paragraph 3. Canada agrees to take into account such potential impacts in planning and executing its production increases, and to consult with the U.S. on ways to minimize such impacts and to plan adjustments in harvest management, as necessary.

# Appendix F
## Understanding between the Canadian and the United States Sections of the Pacific Salmon Commission Concerning the Joint Interceptions Committee

Recognizing the desire of Canada and the United States to develop estimates of interceptions to address the principles of providing for each Party to receive benefits equivalent to the production of salmon originating in its waters, provide for optimum production and prevent overfishing, the Parties agree:

A. to assign an ad hoc Joint Interceptions Committee (JIC) reporting to a Commissioner representative from each Party. The JIC will be composed of no more than three members appointed by each Party.

B. that the JIC will document the data, data sources, methods and assumptions used to develop the 1980 to 1987 estimates of interception exchanged between the Parties on January 20, 1989. In addition, the Parties will provide data, data sources, methods and assumptions used to develop 1988 estimates. Data and methods will be stratified by time, area, gear, and species for the categories specified in item C.

C. to the use of the following interception categories:

   a) Alaska of British Columbia salmon,

   b) Transboundary salmon,

      1) Alaska catch

      2) British Columbia catch

   c) British Columbia of Alaska salmon,

   d) British Columbia of Washington, Oregon, Idaho and California salmon,

   e) Washington and Oregon of British Columbia salmon.

D. that the Parties will provide the JIC the data, data sources and methods referred to in B. by May 1989, following the format of the example identified in Appendix "A"[1].

E. that the JIC will involve specialists from the Parties to aid in comparisons of the estimates.

F. that the JIC will quantify the differences between each Party's interception estimates and rank these differences in numerical order.

G. that the JIC involve the Joint Technical Committees to attempt to resolve technical differences in the interception estimates by October 1989.

H. that the JIC will summarize and report the differences and technical reasons for the differences between the Party's interception estimates to the Research and Statistics Committee by December 1989.

I. that the Research and Statistics Committee, using the JIC's report, will make recommendations on how to resolve the differences in interception estimates to the Commission by February 1990, for its further consideration and action.

1 For brevity Appendix A is not included here. Copies are available through the office of the Pacific Salmon Commission.

# Appendix G
## Understanding between the Canadian and the United States Sections of the Pacific Salmon Commission Concerning an Overview of the Parties Long Term Management Plans

Recognizing the desire of the United States and Canada to embark on new enhancement and management of salmon stocks to provide for optimum production, prevent overfishing, and to provide for each Party to receive benefits equivalent to the production of salmon originating in its waters, the Parties agree:

A. to assign an ad hoc Joint Objectives and Goals Committee (JOGC), reporting to a Commissioner representative from each Party, composed of no more than three members designated by each Party, to develop an agreed approach by May 1989 for documenting both short and long term perspectives on the Parties management and enhancement programs.

B. to report on management plans and activities currently underway in the near term (1-5 years) and over the longer term (5 years and beyond).

C. that long term management plans will be less precise than those submitted for the near term. However, the necessity to have even preliminary plans which scope out management intent and direction for the future will aid each Party in determining their own future objectives for the Parties' fisheries.

D. that these documents are not intended to spell out precise production or management plans; however, the documents must clearly identify the production and management objectives for fisheries of concern to the Parties. These documents must also clearly define questions of concern to both Parties which affect the conduct of fisheries. Areas where international cooperation will be required should be identified. Incompatible objectives and plans need to be identified.

E. that these documents will be prepared to coincide with the completion of the December 1989 Report of the Joint Interceptions Committee and delivered to the designated Commissioner representatives from each Party for presentation to the Commission.

# Appendix H
## Pacific Salmon Commission
## Approved Budget for Fiscal Year 1989/90
## and Comparison with Fiscal Year 1988/89

| | | FY 1989/90 | FY 1988/89 |
|---|---|---|---|
| 1. Income | | | |
| A. Contribution from Canada | | $ 715,000 | $ 715,000 |
| B. Contribution from United States | | 715,000 | 715,000 |
| | Sub-Total | 1,430,000 | 1,430,000 |
| C. Carry-over from FY 1988/89 | | 454,335 | 303,887 |
| D. Interest | | 25,000 | 43,000 |
| E. Total Income | | $1,909,335 | $1,776,887 |
| 2. Expenditures | | | |
| A. Salaries and Benefits | | $1,230,871 | $1,061,239 |
| B. Travel | | 105,927 | 58,430 |
| C. Transportation | | 20,330 | 17,300 |
| D. Rents, Communication, Utilities | | 100,115 | 94,515 |
| E. Printing and Reproduction | | 25,000 | 45,000 |
| F. Contractual Services | | 351,665 | 253,368 |
| G. Supplies and Materials | | 64,615 | 45,608 |
| H. Equipment | | 17,000 | 201,427 |
| I. Total Expenditures | | $1,915,523 | 1,776,887 |
| 3. Balance | | $ (6,188) | 0 |
| 4. Test Fishing Program | | | |
| A. Forecast Revenues | | $1,056,211 | $ 396,802 |
| B. Forecast Costs | | 805,155 | 335,957 |
| C. Forecast Balance | | $ 251,056 | $ 60,845 |
| 5. Projected Operating Balance (deficit) | | 244,868 | 60,845 |

# Appendix I
## Pacific Salmon Commission
## Secretariat Staff as of March 31, 1989

## EXECUTIVE OFFICE

Ian Todd
Executive Secretary

(Vacant)
Deputy Executive Secretary

Greta Grant
Secretary

Glenna Westwood
Librarian/Records Administrator

Vicki Beck
Secretary, Meeting Planner

Elizabeth Green
Receptionist

## FINANCE & ADMINISTRATION

Kenneth N. Medlock
Finance and Administration

Linda Ford
Accountant

## FISHERY MANAGEMENT

James C. Woodey
Chief Biologist

Jim Gable
Head, Racial Identification Group

Jim Cave
Head, Stock Monitoring Group

Steve Cox-Rogers
Project Biologist, Sockeye

Peter Cheng
Project Biologist, Acoustics

Bruce White
Project Biologist, Pinks

Ian Guthrie
Head, Biometrics/Computer Services

Betty Tasaka
Scale Analyst

Kathy Mulholland
Computer Programmer/Analyst/Operator

Holly Derham
Assistant Scale Analyst

Doug Stelter
Statistician

# Appendix J
## Membership Lists for Standing Committees, Panels, Joint Technical Committees and other Appointments as of March 31, 1989

| U.S.A. | CANADA |
|---|---|
| **1. STANDING COMMITTEE ON FINANCE AND ADMINISTRATION** | |
| S.T. Wapato (Vice-Chair) | C.W. Shinners (Chair) |
| S. Stanley | C.C. Graham |
| C.K. Walters | H. Fletcher |
| J. Curtis | S.J. Brownlee |
| **Editorial Board** | |
| S.L. Marshall | C.C. Graham |
| J.R. Donaldson | |
| W. Johnson | |
| **2. STANDING COMMITTEE ON RESEARCH AND STATISTICS** | |
| J.R. Donaldson (Chair) | S. Hewlett (Vice-Chair) |
| G.R. McMinds | L.P. Greene |
| D. Bevan | B. Riddell |
| S.L. Marshall | L. Lapi |
| J.C. Olsen | D. Peacock |
| G.S. Morishima | R. Harrison |
| G.R. Graves | R. Kadowaki |
| M. Grayum | D. Anderson |
| D.C. Cantillon | W. Saito |
| **Research and Statistics Working Group** | |
| N.J. Sands | A.W. Argue |
| L. Rutter | S. Steele |
| P. Mundy | |
| T. Cooney | |
| R. Lincoln | |
| C.K. Walters | |
| J. Van Meter | |
| P. Lawson | |
| **Ad Hoc Joint Interceptions Committee** | |
| J.R. Donaldson (Commissioner) | S. Hewlett (Commissioner) |
| M. Fraidenburg | A.W. Argue |
| G. Morishima | R. Kadowaki |
| N.J. Sands | B. Snyder |
| **Ad Hoc Joint Objectives and Goals Committee** | |
| J.R. Donaldson (Commissioner) | S. Hewlett (Commissioner) |
| T. Cooney | C.C. Graham |
| N. Cohen | C. MacKinnon |
| P. Mundy | D.C. Schutz |
| **3. FRASER RIVER PANEL** | |
| R.A. Turner (Chair) | F.J. Fraser (Vice-Chair) |
| L. Loomis | M. Forrest |
| R.A. Schmitten | M. Hunter |
| R.P. Zuanich | R. Kendall |

R. Allen
L. Phinney
T.E. Kruse
R. Suggs

J. Sam
L. Wick
E. Birch
M. Griswold
H. Matsuzaki
J. Hill
A. Roberts
M. Williams

**4. SOUTHERN PANEL**

R. Whitener (Chair)
C.E. Morganroth
S. Boley
J. Martin
A.D. Austin
T.E. Kruse
T.D. Cooney
K. Brigham
M. Cedergreen
B. Bohn
T.R. Williams
J. Van Meter

P. Sprout (Vice-Chair)
R. Clifton
J. Lenic
F. Penland
T. Davis
E. Larson
S. Steele
R. Duncan
G. Tribe
R. Fowler
W. Peterson
E. Safarik, Jr.

**5. NORTHERN PANEL**

S. Pennoyer (Vice-Chair)
D. Bedford
G. Bruce
B. Wallace
N. Cohen
J. Green
D.C. Cantillon
E. Krygier
L. Dalton
D. Jones
J. Brooks
J. Winther

N. Lemmen (Chair)
B. Lefeaux-Valentine
M. Forand
J. Malcolm
A. Ronneseth
F. Tanaka
L. Iverson
H. Clifton
R. Kendel
R. Holkestad
D. Maxwell
C. Dragseth

**6. JOINT CHINOOK TECHNICAL COMMITTEE**

W.A. Schaller (Co-Chair)
D. Bevan
P. Patillo
G.R. Freitag
D. Pitman
K.A. Henry
S.E. Ignell
R.D. Mecum
R.H. Williams
S.L. Marshall
G.S. Morishima
T.W. Roth
M.C. Seibel
T.E. Wright
S. Moore

B. Riddell (Co-Chair)
P. Starr
K. Pitre
D. Peacock
T. Shardlow
S. Heizer
N. Schubert

**Joint Chinook Working Group**

S. Pennoyer
R. Whitener
H. Schaller
T. Cooney

A.W. Argue
B. Riddell
R. Fowler
T. Davis

E. Krygier
M. C. Seibel
D. Bedford
J. Martin
B. Lefeaux-Valentine
J. Malcolm

### 7. JOINT COHO TECHNICAL COMMITTEE

G.S. Morishima (Co-Chair)
J. Ramonda-Powell
J.B. Scott
R.A. Hayman
K.A. Henry
B. Williams
R.H. Williams
R. Wunderlich
R. Kadowaki (Co-Chair)
K. Pitre
N. Schubert
T. Shardlow
T. Pendray
L. Lapi
K. Wilson
S. Heizer

**Northern Coho**

M.C. Seibel
A.M. Anderson
H.R. Carlson
S.H. Hoffman
L.D. Shaul

### 8. JOINT CHUM TECHNICAL COMMITTEE

G.R. Graves (Co-Chair)
R. Hatch
K.A. Henry
N. Lampsakis
R. Boomer
B. Tweit
D. Anderson (Co-Chair)
A. Gould
T. Beacham
S. Heizer
R. Harrison
M. Farwell
W. Luedke

### 9. JOINT NORTHERN BOUNDARY TECHNICAL COMMITTEE

D.C. Cantillon (Co-Chair)
N.J. Sands
J.H. Helle
P.S. Doherty
G.T. Oliver
B. Van Alen
J.J. Pella
D.B. Romey
D. Peacock (Co-Chair)
L. Jantz
M. Henderson
B. Snyder

### 10. JOINT TRANSBOUNDARY TECHNICAL COMMITTEE

S.L. Marshall (Co-Chair)
J.H. Eiler
W.R. Bergmann
A.J. McGregor
K.A. Jensen
J.C. Olsen
R. Harrison (Co-Chair)
S. Johnston
C. Wood
P. Milligan
P. Etherton

**Enhancement Sub-Committee**

R. Burkett
K. Leon
J. Koenings
B. Sele

## 11. JOINT TECHNICAL COMMITTEE ON DATA SHARING

D. Bevan (Co-Chair)
K.A. Henry
R. Marasco
G.S. Morishima
P. Mundy
N.J. Sands
J. Pavel
L. Lapi (Co-Chair)
J.H. Bjerring
D. Schutz
M. Hamer

### Working Group on Mark-Recovery Statistics

J.E. Clark
K. Newman
K. Henry
F. de Libero
S. Mathews
J. Schnute
V. Palermo
T. Hoyt
L. Lapi
T. Mulligan

### Working Group on Mark-Recovery Databases

K. Johnson
B. Johnson
F. de Libero
C. Corrarino
D. O'Connor
L. Lapi
P. Starr
M. Hamer

## 12. FRASER RIVER PANEL TECHNICAL COMMITTEE

M. Grayum (Co-Chair)
R. Thompson
W. Tweit
W. Saito (Co-Chair)
A. Gould
R. Harrison

## 13. NATIONAL CORRESPONDENTS

C.K. Walters
J. Curtis
L.A. Jones
C.C.Graham
H. Fletcher
D. Kowal