

Pacific Salmon Commission



1993/94
Ninth 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**

Ninth Annual Report 1993/94

**Vancouver, B.C.
Canada**



PACIFIC SALMON COMMISSION

ESTABLISHED BY TREATY BETWEEN CANADA
AND THE UNITED STATES OF AMERICA
MARCH 18, 1985

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Our File:

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Letter of Transmittal

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

This report summarizes the activities of the Commission for the fiscal year April 1, 1993 to March 31, 1994.

Negotiations for the 1993/94 cycle, both within the Commission and on a government-to-government basis, were unsuccessful in producing agreement on either fishery regimes or the equity issue. The 1994 fishing season was conducted in the absence of agreed regimes.

Reports on the results of the 1993 fishing season, meetings of the Standing Committees on Finance and Administration, and Research and Statistics and the activities of the Northern, Southern and Fraser River Panels are presented in summary. Executive summaries of documents prepared by the Joint Technical Committees during the period covered by this report are also presented.

The Auditors' report on financial activities of the Commission during the fiscal year April 1, 1993 to March 31, 1994, as approved by the Commission, is also included in this report.

Yours truly,

D.A. Colson
Chair

PACIFIC SALMON COMMISSION

OFFICERS for 1993/94

Chair	Mr. P.S. Chamut (to December 1, 1993) Mr. D.A. Colson (from December 1, 1993)
Vice-Chair	Mr. D.A. Colson (to December 1, 1993) Mr. Y. Fortier (from December 1, 1993)

COMMISSIONERS

United States

Mr. D.A. Colson
Mr. B. Wallace (to February 9, 1994)
Mr. J. Shelton (from February 9, 1994)
Mr. H.R. Beasley
Mr. G.I. James
Mr. C. Meacham, Jr.
Mr. R. Rousseau
Ms. K. Brigham
Mr. R.A. Turner

Canada

Mr. Y. Fortier
Mr. R. Wright
Mr. B. Buchanan
Mr. J. Nichol
Mr. N. Keitlah
Ms. W. Grant
Mr. W. Lefaux-Valentine
Mr. P.S. Chamut

SECRETARIAT STAFF

Executive Secretary
Administrative Officer
Chief Biologist

Mr. I. Todd
Mr. K. Medlock
Dr. J.C. Woodey

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INTRODUCTION

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

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

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

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

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

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

The Commission 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, 1993 to March 31, 1994, the Commission planned to meet on four occasions:

1. Commission Executive Session
October 20-21, 1993 - Olympia, Washington
2. Post-1993 fishing season meeting of the Commission
November 29-December 3, 1993 - Vancouver, B.C.
3. Panels' negotiating session
January 23-28, 1994 - Portland, Oregon
4. Ninth Annual Meeting of the Commission
February 7-11, 1994 - Vancouver, B.C.

The Commission, as it entered its 1993/94 series of negotiating sessions, was faced with a difficult task. Disruption of sockeye salmon fisheries in Fraser River Panel Area Waters occurred in 1992 as a result of the Parties' inability pre-season to come to agreement on interpretation of the catch-sharing provisions in place for the final year of the Fraser River Chapter in Annex IV; in addition to the expiration of the Fraser River Chapter, agreed provisions coastwide for chinook and coho, for southern chum and for northern boundary chum also expired following the 1992 fishing season. Further, progress on resolving the outstanding issues concerning equity, developing long term management approaches for chinook, and developing management approaches for both northern and southern coho stock complexes, was not achieved during the 1992/93 meeting cycle.

In recognition of the complexity of the equity issue, the Parties agreed to conduct a series of government-to-government meetings during the summer, fall, and winter of 1993. Canada linked substantive progress on this issue to progress on development of long term fishery regimes for the expired provisions of Annex IV, and for development of abundance-driven management approaches for chinook and coho.

By early January 1994, progress on equity was not sufficient, in Canada's view, to provide the atmosphere necessary to proceed with detailed negotiations on other issues. As a result, the Canadian delegation cancelled participation in the planned January 23-28, 1994 negotiating session. A further meeting on equity resulted in the Canadian delegation's agreement to participate in the Ninth Annual Meeting of the Commission, but little progress was recorded and no agreed fishery regimes were put in place for 1994. For the purposes of continuity and ease of reference, the letter of transmittal describing arrangements for 1993 has been included in this report as Appendix A. The last full negotiated Annex IV from 1991 has been included as Appendix B.

The challenges facing the Commission in 1994 and beyond remain difficult. Prodigious efforts will have to be advanced by all concerned to ensure that the cornerstone principles of the Treaty are developed and implemented to their full potential to provide security for the future of the combined fisheries resources of the two countries, as well as improved opportunities for the many diverse groups who rely on Pacific salmon for sustenance, pleasure, and profit.

This, the Ninth Annual Report of the Pacific Salmon Commission, provides a synopsis of the activities of the Commission and its subsidiary bodies during its ninth fiscal year of operation, April 1, 1993 to March 31, 1994.

Activities of the Commission

PART I

ACTIVITIES OF THE COMMISSION

A. EXECUTIVE SESSION OF THE PACIFIC SALMON COMMISSION

October 19-21, 1993 -- Olympia, Washington

The Commission met in Executive Session to receive a report from the Standing Committee on Research and Statistics (R&S), to review progress on agreed tasks, and to develop preliminary instructions to Panels and Joint Technical Committees for the 1993/94 negotiating cycle.

1. Report of the Standing Committee on Research and Statistics

The Commission reviewed and discussed actions taken by R&S at its July 1993 meeting:

(a) Mass Marking/Selective Fisheries;

The Commission received and endorsed a proposal that the Chinook and Coho Joint Technical Committees lead an assessment of the potential impact of mass marking hatchery stocks on the coded wire tag program, which is of fundamental importance to the Commission's assessment of chinook and coho stocks. This assessment is expected to be completed by the fall of 1994; the Commission, however, agreed that an interim report by the work groups is to be submitted by July 1, 1994;

(b) Hatchery Methodology Workshop;

The Commission endorsed a proposal to hold a workshop in January 1995 designed to develop standardized hatchery marking and data collection guidelines to improve the utility of the coded wire tag program;

(c) Report of the Joint Committee on Interceptions (JIC);

The Commission formally accepted the JIC Report, endorsed R&S recommendations concerning coho and northern boundary area pink salmon interception estimates, and requested that a report on 1992 interceptions be made available to the Commission in January 1994;

(d) Research Needs Report;

R&S noted that considerable effort has been expended in producing this report, but the Commission has not responded with instruction to R&S on implementation;

(e) Importance of Coded Wire Tag Program to the PSC;

The Commission received a document titled "Comments on the Importance of the Coded-Wire Program to Coastwide Chinook and Coho Assessment and Management." It was agreed that the document be circulated to Commission participants, and that it be expanded to form part of the

introduction to the interim report expected July 1, 1994, from the work groups on the selective fisheries/mass marking issue;

(f) Presentation of Technical Committees' Reports;

The Commission reached consensus that the technical committees need to continue producing comprehensive reports and agreed that executive summaries should be presented orally to the Commission at the post-season meeting, bearing in mind time constraints faced by the Commission in dealing with other substantive issues.

2. Progress on Agreed Tasks

The Commission reviewed the status of progress on agreed tasks:

(a) Northern Boundary Technical Committee stock status review - this report is expected to be available for the November 29-December 3, 1993 meeting of the Commission;

(b) Area 7/7A compensation - an item of work to be picked up in the next round of negotiations by the Southern Panel;

(c) Northern Panel planning - this task will become part of the re-negotiation process;

(d) Chinook Working Group (CWG) - the Commission discussed the status of the Montreal agreement in the context of the CWG task. A work plan has been agreed to. The first step will be to reach agreement on important definitions. Once the definitions are agreed upon, the Chinook Technical Committee (CTC) can evaluate the status of re-building in the light of those definitions. The Commission discussed the possibility of meeting the January 15, 1994 reporting deadline agreed to in Montreal. The Canadian view was expressed that a target of completion during the January meeting of the Commission would not constitute a significant departure from that target. The U.S. section expressed concern that the timetable may not satisfy the requirement of the Montreal agreement;

(e) Alaska hatchery add-ons - the CTC has reported to the Commission, rejecting the proposed risk adjustment factor. The Commission has not acted on that report. It was agreed that this task will be added to the CWG assignment;

(f) Georgia Strait management - a report has been approved by PSARC and is available. A further report is to be completed for presentation to and consultation with domestic Canadian industry groups this fall;

(g) Canadian terminal exclusions - a report on 1991 terminal exclusions has been completed. A report on 1992 results will be tabled in November, 1993.

3. Development of a Work Plan for the 1993/94 Negotiating Cycle

The Commission reviewed the agreed dates for the 1993/94 meeting cycle and discussed the role of the panels in the forthcoming round of negotiations. A work group was established to draft a set of panel instructions for the Commission to review early in the post-season meeting.

B. POST-1993 FISHING SEASON MEETING OF THE COMMISSION

November 29-December 3, 1993 -- Vancouver, B.C.

1. First Plenary Session

The Commission met in plenary session on November 30, 1993 at 9:00 a.m. to receive bilateral post-season fishery reports and reports from the joint technical committees on the status of stocks of concern.

Mr. Fortier, on behalf of Canada, made the following opening statement:

"Good morning ladies and gentlemen. I welcome you all to Vancouver, B.C., Canada; I am particularly pleased to share the head table with my colleague, Chuck Meacham, whom I wish to congratulate on having been selected as head of the U.S. Section of the Commission. I'm sure you'll have a very rewarding and successful mandate, Chuck, and I welcome the other U.S. Commissioners at this, our first plenary session.

My name is Yves Fortier, and I am meeting many of you for the first time. I look forward as the occasion presents itself, to meeting with you individually and getting to hear about your concerns and about your focus of interest, and about your objectives. I know that we all, Canadians and Americans, share the same objective which, nine years ago, saw the successful conclusion of the Pacific Salmon Treaty negotiations with the attending Annexes. That objective is to keep the Treaty alive and to renew the lapsed fishing regimes in a way which is fair and which is equitable to all stake holders in both our countries.

I think you will all agree that the 1993 negotiation was a lengthy and very frustrating exercise. It involved in excess of 30 days of meetings, where very few meaningful bilateral discussions, negotiations, took place. That was not the intent of the framers of the Treaty. That was not the process which was envisaged and which culminated in the execution of the Treaty by our two sovereign countries in 1985. There was a lot of time spent. There was a lot of wheel spinning which went on and at the end of the day, as you know, it was only as a result of government-to-government negotiations that we were able to strike an interim arrangement for the 1993 season.

In retrospect, when we conducted a post-mortem in Canada, and as I have learned, when a post-mortem was conducted in the United States, the stark realization and decision was that this could not, should not, happen again because it was not a very efficient or constructive use of anyone's time. Many of you would rather have been fishing than spending these interminable days in hotel rooms and many of you would rather have gone about your respective businesses, or if you continued your involvement in the PSC process you all wanted to be part of a process which was meaningful and which showed some progress. But we did make an arrangement in June of 1993 which avoided a fish war and which allowed for managed fishing in those areas which were the subject of our discussions.

One of the principal reasons why Canada agreed to the June arrangements was the commitment by the United States to deal with and make progress on the equity issue; and, as a result, as you all know, Canada and the United States have now embarked on a twin-tracked process. There are some significant government-to-government negotiations going

on to address the interpretation and the implementation of one of the fundamental principles of the Treaty, the equity principle. In 1985, it was recognized in an accompanying Memorandum of Understanding that the equity arrangements would be left open for further discussions, negotiations and implementation. It was agreed in 1985, in that MOU that specifically addressed the implementation of equity, that there would be both a short-term and a long-term solution. Those words are found specifically in the MOU. Short-term involved the collection, the gathering of data and the long-term involved a national obligation assumed by both Washington and Ottawa, the United States and Canada, to redress any imbalance which may be found to exist.

Nine years after the execution of the agreement, it is Canada's firm resolve that the time has come to deal with the equity issue. We cannot continue to put it off and put it off and, indeed, envisage implementation in the 21st century. This would be unreasonable and unacceptable. Therefore, we have started these equity discussions. They are being held at the government-to-government level. Everyone knows that David Colson, my esteemed American friend and colleague is representing the government of the United States, and I have the privilege of representing the government of Canada.

As you know, we have had three meetings and from Canada's perspective, they have been constructive meetings. We have another meeting which is scheduled for Monday, the 20th of December, I have made it very clear to David, as I'm sure that he has reported to members of the U.S. section, that we in Canada are intent in making significant progress on these negotiations, negotiations of implementation of equity, failing which there would be no progress on the negotiations of the renewal of the lapsed fishing regimes. Both Canada and the United States have a difficult assignment. But then, all of you are used to dealing from year to year with difficult mandates. The equity issue is not an easy one to deal with. What is needed is political will and a little imagination. I have seen evidence by David Colson, to this point, of a manifestation of this political will and I have also received, and made myself, some imaginative suggestions. I'm a firm believer in the principle that the first step to a negotiated settlement to any issue is discussion, conversation, dialogue; and this is what is happening.

Now insofar as the new fishing regimes are concerned, for incorporation in the Annex IV of the Treaty, this is why we are here. I said at the beginning of my remarks, neither David Colson nor I thought that any one of you wanted to be subjected in 1994 to the kind of useless and frustrating process which you were all subjected to last year. David and I agreed that you should all contribute early on in the process, within the panels and within the working groups. You represent the interested constituencies, you represent the stake holders, you have a vision which is broader and larger than just your limited panel area. You are either Canadian or American, and you all have an interest in insuring that the lapsed annexes should be renewed in a fair and equitable manner in order to benefit Canadians, and in order to benefit Americans. That is not an easy task, as I said, but it is a doable task if we all approach the table, prepared to recognize certain fundamental principles of negotiation. The first principle being to have someone across the table that you can talk to, and the second one is that you are never going to walk away from the table with absolutely everything that you bring to the table. You must be prepared to compromise, to put a little water in your wine. I could continue the analogies, but they're too easy. I'll leave you to come up with either the sockeye or the coho equivalents.

So, it does require will power, it does require political will, it does require initiative, it does require imagination. But, first of all, it requires someone across the table. David and I agreed that the process should start now, at this session. It should start by the

drafting of instructions to the Panels and to the Working Groups, and, as we all know, that process has begun. That process has evolved and some headway has been made and I'm confident that at the end of the day the Panels and Working Groups will have their instructions. And then it will be up to the members of these Panels and these Working Groups, the men and women in this room, to start their journey. This is not going to be a 1993 type of journey where you could sail indefinitely on the water knowing that if, at the conclusion of one meeting, there was no meeting of the minds, there was no agreement, then there would always be another tomorrow, there would always be another meeting. You, all of you now, have an upset date. You have a time frame, and that time frame means that you have to produce some results, that you have to come up with some agreements, by the end of our session in February. More specifically (and that date will be mentioned often in days and weeks to come) by February the 11th. And if, by February 11th you haven't been able to, notwithstanding all of the effort and the energy and the enthusiasm that you've put into the process, if you haven't been able to come up with a compromise, acceptable solution, then you will report back to the Commission and we will attempt to deal with the outstanding issues at the Commission level. And in the worst case scenario, and it is not one which my colleagues and I from Canada envisage or, certainly, wish for, but if we cannot at the Commission level reach the agreement that is necessary in order to bring us into a managed fishery in 1994, then, and immediately then, the matter will be referred to our respective governments and it will be dealt with at the government-to-government level.

The task of the Panel and the Working Group members is awesome. But it is invigorating, it is meaningful. It gives a purpose to the work that you charged with; it gives you all a mission. It puts the responsibility where it should be, in the hands of the natives and the hands of the commercial industry, in the hands of the sports fishermen. This is where it starts, and as far as Canada is concerned, and, as far as David and I are concerned, this is where it should end. And I am confident that with all of these traits that I have referred to, all of these qualities that I have mentioned, that you're going to be able to do the job.

Canada knows that you, our American friends, have problems. Some significant problems with chinook and coho stocks in Washington and Oregon. We do not believe that these problems have been caused by Canadian harvest regimes but we indicated last year that we were prepared to help you in the United States deal with these problems. We have reduced our Canadian interceptions of these stocks significantly over the levels which were experienced when the Treaty was signed in 1985. It may be that additional efforts are necessary to address these real U.S. problems.

But I say to my American friends if you have problems it would not be equitable to look to Canada, and Canada only, to solve those problems. You also have to look to other American fisheries in order to participate in the solution. The essence of the Treaty is not that the problems encountered by one nation should be solved exclusively by the other nation. The essence of the Treaty is that we're all in this together and if there are problems on one side then both sides have to look for solutions. It's not that one country pays and the other one receives. So, I repeat that Canadians are ready, willing and disposed to assist the Americans with the solution of their important coho and chinook conservation problems in the south. But the solution will, because it must, include participation in it by American fisheries.

There are also Canadian problems as you know. We have some management problems in Canada. They include providing salmon to meet domestic obligations to Canada's First

Nations with which, at this very moment, the government of Canada and the government of British Columbia is negotiating some very important Treaty claims. We also have conservation concerns for chinook, for coho, and for steelhead stocks. So, our problems are also on the table. They're also crying out for solutions and I have no doubt that in seeking these solutions, we will not be looking only to American input. We will also continue to look to Canadian input. Mutual problem solving should be one of the overriding principles which will guide your negotiations within the different Panels and the different Working Groups.

I was reminded this morning by one of the Canadian Commissioners, that this is not a monorail, this is a twin-track process. And if on the other track the equity negotiations are successful, as I said to David Colson at our last meeting a couple of weeks ago, I have no doubt that many, if not all, of the other problems which both Americans and Canadians have identified in the negotiation of the renewal of Annexes to the Treaty will be easily resolved. We will find solutions more easily than if we leave the equity principle dangling up there in the air, or on a back burner, for resolution and for solution in the 21st century. The time has come to implement definitively the equity principle which is one of the corner stones of the Treaty, and if and when we do that our work and your work, is going to be made easier within the Panels and the Working Groups.

So we have adopted a more structured approach to the negotiations this year. I think all of you have more meaningful roles to play and I have no doubt that both Canadians and Americans will be sitting down at the various tables that are going to start their work later this week, and that you will be searching for the real solutions to the real problems which we face. And remember that the Treaty is an agreement between two sovereign nations. The problems which exist are national problems and the solutions which must be found are national solutions.

So I wish you well. I am conscious, as my Canadian colleagues are conscious, that the task which you have this year in particular, is awesome. I am conscious that the issues which you are called upon to deal with are extremely difficult issues. But Canada and the United States, as you know, have over many decades a history of dealing with difficult issues between our two nations and we have been friends for many years. We will continue to be friends for many years, many decades, and that is because whenever these irritants have surfaced we have realized that very often there are such things as continental solutions. Solutions which go beyond our immediate and narrow areas -let's call them Panel Areas, and which transcend our narrow and selfish interest. For the sake of preserving this relationship between our two countries, which has no equal in the world it is necessary to come to the table and to say "My objective is to find a solution, to find a national solution," and "The role which I have to play may (if I look at myself) be infinitesimal in the context of the Canada/U.S. relationship; but progress is incremental and solution of these problems associated with the Pacific Salmon Treaty is a harbinger of solutions to other problems which will continue to exist but to which we have always, historically, been able to find solutions between Canada and the United States".

So I say to you again, Chuck, and to your colleagues and to the members of your section, "bonne chance", good luck, I wish you well. You and I will have a privileged line of communication in weeks and months to come and I look forward to working closely and constructively with you, and I give you my pledge that all members of the Canadian section are full of vim, vigour and good will. So, welcome."

Mr. Meacham responded on behalf of the United States as follows:

"Thank you Mr. Chairman. I appreciate your opening comments. I would like to take just a moment and also express great pleasure from the U.S. side on being in Vancouver. It is one of the more enjoyable cities within our circuit and we look forward to working here. I hope we are successful in our meeting so we actually have a little time to get out and enjoy your fine city.

Dave Colson is tied up in Washington, D.C. and unable to participate at this particular meeting. I think we will see him back at the table next session. In his stead we have Greg Burton, who is sitting in on Dave's behalf.

While the United States appreciates the government-to-government meetings that helped narrow the differences last year at the normal end of this cycle, on the U.S. side it was the Commissioners at this table who finally made the arrangements for the 1993 fishing season.

This cycle I look to the Panels, those of you out there, and the Commissioners at this table to do their very best to put together arrangements for 1994 and hopefully, beyond. I think we will need to address mutual problems. I would like to think that we will be able to come up with some win-win solutions and not win-lose solutions.

You are quite correct when you mention we have some serious conservation problems. We truly do. In that respect I think it is really incumbent that we work very diligently this week, we be creative in our Panel process, we be realistic, and that we indeed work hard to accomplish the many tasks that we have before us. Thank you."

2. Commission Executive Sessions

The Commission first met in Executive Session on November 30 where a work plan for the balance of the meeting was adopted. The report of the Work Group on Instructions was adopted and distributed (Appendix C) and 1993 post-season fishery reports were exchanged (see Section IV, B and C for a summary of those reports).

The Commission met again in Executive Session on December 1, 1993, where consolidated lists of officers for 1993/94 were exchanged (Appendix D). The office of Chair of the Commission was transferred to Mr. Colson of the United States, with Mr. Meacham acting in his absence.

The Commission entered into initial discussion of concepts to be addressed during the balance of the negotiating cycle. In particular, the duration of future fishery regimes received extensive consideration. The roles of the panels in the negotiations also came under further review during the sitting.

The third Executive Session was held on Thursday, December 2, to review Research and Statistics topics arising from the October, 1993 meeting of the Commission. A detailed discussion took place on the status of Joint Interception Committee work on developing agreed estimates of interception for northern boundary pink salmon stocks, and for both northern and southern coho.

The Commission met in fourth and final Executive Session Thursday afternoon, December 2, 1993, where Canada presented its views on Alaska's Noyes Island fishery.

3. Second Plenary Session

The Commission met in second plenary session Friday, December 3, 1993, to receive progress reports from the Panels and the Chinook Working Group, and to provide further instructions by the Commission to those bodies:

(a) Progress Reports by the Panels and the Chinook Working Group;

(i) **Northern Panel**

Mr. Duffy reported on behalf of the Northern Panel that the post-season report had been reviewed, followed by discussion on negotiating instructions issued by the Commission. The Panel established two negotiating groups; one for Transboundary Rivers issues, and the second for expired provisions of Chapter II (Northern Boundary issues). The Transboundary Rivers group met on Thursday and began review of the joint draft which had been completed in February 1993. The group responsible for Chapter II issues exchanged perspectives on District 104, Area 1 troll, and Portland Canal. Further discussion and negotiation will take place in January;

Mr. Duffy noted that the Panel has scheduled its next bilateral meeting for Sunday, January 23, 1994, in Portland.

(ii) **Southern Panel**

Mr. Cooney reported that the Panel had conducted its post-season review and undertook preliminary discussion on a work plan and time frame for developing an abundance-driven approach for coho management. The Panel began review of expired provisions of the Annex, and plan to continue these during the January session. Ms. Steele added that time had not permitted a review of instructions concerning chum salmon and steelhead, but these would be picked up in January.

(iii) **Fraser River Panel**

Mr. Lill reported that the Panel had made excellent progress on fulfilling its instructions. The Panel completed its post-season review of preliminary catch and escapement data, and completed a special technical workshop on management issues, the results of which will be presented to the panel in January, 1994. A review of the existing provisions of Annex IV and operational agreements reached by the panel during the past nine years was also conducted. Discussion on the 1989/92 catch-sharing provisions as well as the marginal percentage approach applied in 1993 were initiated.

The Panel also reviewed the non-catch sharing provisions of Canada's February 1993 paper, and the United States section presented a revised framework. The Panel plans to meet next on January 12 and 13, 1994 to receive the report of the technical workshop, and to review the United States draft of non-catch sharing provisions, with the view of completing negotiations on these aspects. The two sides may also exchange positions on quantities at that session. The Panel hopes to be able to spend the week of the January 24-28 meeting negotiating harvest sharing arrangements.

Mr. Austin added that the U.S. paper was developed to capture arrangements reached over the past nine years for incorporation into Annex language. He noted that in the context of a complete package the U. S. had identified a series of concessions in this paper, and these will ebb and flow depending on the numbers included in the catch sharing provisions. The U.S. hopes to

be in a position to provide its views on numbers during the January 12/13, 1994 meeting of the Panel.

(iv) Chinook Working Group

Mr. Graham reported that the CWG met Wednesday to review the 1993 season and to begin review of the 1992 Annual Report of the Chinook Technical Committee. Canada presented a draft paper on definitions, following up on the initial draft which had been presented earlier by the U.S. section. The CWG plans to meet in mid-January, 1994 to prepare a report on the status of re-building, and will meet during the week of January 24-28, 1994 to negotiate draft Annex language for chinook. He noted that this is the first time in the history of the Commission that bilateral meetings of the CWG have taken place during the post-season meeting.

(b) Instructions to the Panels and the CWG.

Mr. Meacham instructed the panels and the CWG to meet as required in the interim to ensure that their work could be concluded by the end of the January, 1994 session. He stated that the Commission instructs the Coho and Northern Boundary Technical Committees, through the Joint Interceptions Committee, to try to provide interim estimates of coho and pink interceptions for the Northern Panel Area and interim estimates of coho interceptions for the Southern Panel Area by the January, 1994 meeting of the Pacific Salmon Commission. This effort, he added, is not intended to hamper the other activities of these committees necessary for negotiation.

Mr. Chamut commended the panel members and the CWG for the good progress made in implementing the Commission's instructions. Mr. Meacham echoed Mr. Chamut's commendation, offered year-end best wishes to all, and declared the meeting adjourned at 10:40 a.m., Friday, December 3, 1993.

**C. PANELS' NEGOTIATING SESSION AND MEETING OF
THE COMMISSION
January 23-28, 1994 -- Portland, Oregon**

The planned Panels' negotiating session and meeting of the Commission was cancelled by the Canadian Section, which expressed the view that insufficient progress had occurred at the government-to-government meetings on the "equity" issue.

**D. NINTH ANNUAL MEETING OF THE COMMISSION
February 7-11, 1994 -- Vancouver, B.C.**

The first executive sitting of the Commission was called to order at 2:15 p.m., Wednesday, February 9, 1994. A work plan for the balance of the meeting was agreed upon and the United States presented its enhancement report (see Section IV. D for a summary). Canada's report was exchanged at a later date (see Section IV. D for a summary). The Commission received and adopted the report of the Standing Committee on Finance and Administration (see Section II. A for details).

The second Executive Session was held beginning at 2:15 p.m., Thursday, February 10, 1994. The Standing Committee on Research and Statistics presented a draft work plan for the scheduled January 1995 Workshop on hatchery marking practices.

The Joint Technical Committee on Coho presented a report on interception estimates, which incorporates revised estimates for southern stocks for the years 1984 through 1991, and for northern area stocks for the years 1987 through 1991.

The Northern Boundary Technical Committee reported that work has progressed on developing revised estimates of interception from northern boundary pinks, but final estimates will not be available for a few months.

The final Executive Session of the Ninth Annual Meeting was called to order at 9:45 a.m., Friday, February 11, 1994. The Commission received progress reports from the Panels and the Chinook Working Group. Little progress in resolving the issues was reported.

Canada presented a proposal regarding coho which received considerable discussion but which was rejected by the United States section.

The sitting, and the meeting, was adjourned at 11:05 a.m., Friday, February 11, 1994, without resolution of the substantive issues.

No further meetings of the Commission were scheduled prior to the onset of the 1994 fishing season.

Activities of the Standing Committees

PART II

ACTIVITIES OF THE STANDING COMMITTEES

A. MEETINGS OF THE STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

1. Committee Activities

The Committee met on January 14, 1994 to consider a range of financial and administrative issues. The Committee's deliberations were focused primarily on a review of the Commission's current financial status in the light of expected budgetary reductions which may have to be faced over the next two years.

The financial review prepared by staff for the current fiscal year indicates that expenditures by the end of March will be somewhat lower than budgeted. In addition, reserves established in the 1993/94 budgeting process, further recovery of funds from 1990 test fishing operations, and partial recovery of expenditures made on behalf of an injured ex-employee, are expected to result in an unexpended operating balance of approximately \$440,000. The Committee **recommended** that these funds be carried over into FY 1994/95 for application against program costs.

The Committee, in its discussion on budget proposals, was informed that the Government of Canada is facing substantially reduced funds for all operations in the foreseeable future. In order to prepare for reduction in funds available to the Commission, the Committee intends to meet in the latter part of April, 1994, to undertake an in-depth review of Commission program requirements, including staffing levels. Secretariat staff has been instructed to prepare scenarios reflecting, at best, funding at the current level of \$800,000 from each Party and at a level of \$700,000 from each Party. The Committee wishes the Commission to note that contributions from the Parties for the first four fiscal years of full operation of the Secretariat were held at \$715,000 from each Party.

Application of the forecast operating balance from FY 1993/94 against program costs for FY 1994/95, coupled with the Parties' agreement to provide contributions of \$800,000 each, and elimination of funding for the Deputy Executive Secretary's position, will result in a balanced budget for FY 1994/95. The Committee, therefore, **recommended** adoption of the budget for FY 1994/95.

The Committee also reviewed details on the unfunded liability identified by the Pension Society at its 1993 annual meeting, a high proportion of which is attributable to retired employees of the International Pacific Salmon Fisheries Commission (IPSFC). The Committee reviewed Commission policy regarding assumption of liabilities from the IPSFC, and has obtained commitments from the financial representatives of the Parties that the IPSFC share of the unfunded liability will be borne from sources other than the PSC budget. The PSC budget will, of course, have to bear the cost of that portion of the liability which is attributable to its retired employees.

On other administrative items discussed, the Committee **recommended** adoption of the following items:

- an amendment to the Commission's Financial Regulations to enable a Special Joint Research Fund, which would allow the Secretariat to manage funds on behalf of both Parties for agreed joint research projects;
- an amended meeting schedule for Commission activities through to the end of the 1995/96 meeting cycle (Appendix E).

The Commission accepted and adopted the report of the Committee. The budget adopted for FY 1994/95 is presented in Appendix F.

2. Secretariat Staffing Activities

The staff of the Secretariat remained unchanged over the fiscal year April 1, 1993 to March 31, 1994. The staff organizational structure and list of employees as of March 31, 1994 is presented in Appendix G.

3. Commission Committees and Panels Membership List

An updated membership list for standing committees, panels, joint technical committees, sub-committees, and ad hoc working groups as of March 31, 1994 is presented in Appendix H.

B. MEETINGS OF THE STANDING COMMITTEE ON RESEARCH AND STATISTICS

The Standing Committee on Research and Statistics met in Vancouver, B.C., on July 28-29, 1993.

The Standing Committee on Research and Statistics discussed the following items and provided action as noted:

- 1) an assessment of the impact of mass marking for selective fisheries on the coded wire tag program of the Commission; the Committee informed the Pacific States Marine Fisheries Commission that the PSC chinook and coho technical chairs have been asked to develop a study plan to be submitted at the October, 1993 PSC meeting;
- 2) an endorsement of the proposed Hatchery Methodology Workshop; the Committee recommended by letter that the Commission support and contribute to a Hatchery Methodology Workshop focusing on marking in January of 1995;
- 3) a review and acceptance of the report of the Joint Interceptions Committee; the Committee, by letter, recommended that the Joint Interceptions Committee continue working on developing common methods for pink and coho interceptions;
- 4) a review of the "Research Needs" report; the Committee, by letter, requested consideration by the Commission;
- 5) a discussion of the importance of the coded wire tag program to the Commission; the Committee agreed to present an executive summary to the Commission at its October, 1994 meeting.

The Committee, while it did not meet formally again during this reporting period, continued its work on the above issues during the 1993/94 meeting cycle of the Commission.

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 throughout the 1993 fishing season.

The Panel met during the post-season meeting of the Commission and again during the 1993/94 negotiating sessions. Views on positions taken by the National Sections were exchanged for clarification, and some progress toward resolution of some differences was achieved. Resolution of differences in positions regarding future international catch allocation was not achieved.

The Commission Secretariat's fishery management staff prepared, on behalf of the Panel, an annual report on 1993 Fraser River sockeye and pink salmon fisheries. The Executive Summary is contained within Part IV, Section A of this report.

B. NORTHERN PANEL

The Northern Panel met in conjunction with the Commission during the 1993/94 meeting cycle. During the November 29-December 3, 1993 post-season meeting, the Panel reviewed and discussed the operation of the 1993 northern and transboundary area commercial and recreational fisheries as well as joint enhancement activities. The Panel initiated discussion on the expired provisions of Annex IV, Chapters 1 and 2.

The Panel continued to meet during the February 7-11, 1994 negotiating session. Little progress in reconciling differences in national positions was achieved.

C. SOUTHERN PANEL

The Southern Panel met in conjunction with the Commission during the 1993/94 meeting cycle. During the November 29-December 3, 1993 post-season meeting, the Panel reviewed and discussed the operation of 1993 fisheries of concern. The Panel initiated discussions on the expired provisions of Chapter 5, Annex IV, relating to coho, and on the expired provisions of Chapter 6, Annex IV, relating to southern chum fisheries.

The Panel continued to meet during the February 7-11, 1994 negotiating session. Little progress in reconciling differences in national positions was achieved.

Review of 1993 Fisheries and Treaty-related Performance

PART IV

REVIEW OF 1993 FISHERIES AND TREATY-RELATED PERFORMANCE

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

A. FRASER RIVER SOCKEYE AND PINKS

The Fraser River Panel managed fisheries in 1993 under the terms of a June 24, 1993 agreement between Canada and the United States. The agreement limited United States catches of Fraser River sockeye and pink salmon to shares of the Total Allowable Catches (TACs) following defined formulas. United States fisheries would not target on Early Stuart fish, while United States catches of early summer-run, summer-run and late-run sockeye were to be in proportion to the TAC of these stocks. Alaskan catches of Fraser sockeye were excluded from the allocation.

Pre-season forecasts were for a run size of 17,360,000 Fraser River sockeye salmon and a TAC of 12,062,000 sockeye. Forecasts of run size and TAC of Fraser River pink salmon were 31,000,000 and 21,450,000 fish, respectively.

Canada set pre-season net escapement goals of 3,745,000 adult Fraser sockeye and 9,500,000 pink salmon. Gross escapement goals, provided on July 9 during the in-season period, were 545,000 Early Stuart, 204,000 early summer-run, 3,735,000 summer-run and 226,000 late-run sockeye, for a total of 4,710,000 adult sockeye. The gross escapement goal for Fraser pinks was the same as the net escapement goal since small Indian fishery catches were anticipated.

Expected United States shares, based on forecast run sizes and TACs, were 2,412,000 Fraser sockeye and 3,600,000 Fraser pinks. A tiered plan allocated Washington fishers 20% of the sockeye TAC below 12,062,000, 10% of the TAC between 12,062,000-15,000,000, and 5% of the TAC between 15,000,000-17,000,000, to a maximum of 2,806,000 Fraser sockeye. The allocation of Fraser pinks was 25.7% of the TAC, to a maximum of 3,600,000 fish.

Domestic allocation goals for Fraser sockeye among Washington fisheries were: Treaty Indian - 100,000 in Areas 4B, 5 and 6C and 1,106,000 in Areas 6, 7 and 7A for a total of 1,206,000 fish (50% of the catch); and Non-Indian - 54% to purse seines, 41% to gillnets and 5% to reefnets for a total of 1,206,000 fish. The pink salmon harvest was to be divided equally between Treaty Indians and Non-Indians. No gear allocation goals were set for the pink salmon net fishery. However, Non-Indian trollers in Areas 3 and 4 had a harvest quota of 120,000 Fraser pink salmon.

The Canadian share of the forecast run was 10,601,000 Fraser sockeye, which included a Canadian Escapement Add-on Benefit of 951,000 fish from 1989. The estimated Canadian share of Fraser River pink salmon was 17,850,000 fish.

Canadian domestic allocation goals for Fraser River sockeye salmon were to be calculated using a tiered scheme, with each gear allocated a percentage of the first 8,300,000 sockeye caught and a different percentage of catches exceeding this amount. In addition, there was a payback from purse seines to the other gear types to compensate for catch shortfalls in previous years. The allocation of southerly migrating pink salmon was: purse seines - 58%; outside trollers - 29%; gillnets - 9%; and inside trollers - 4%.

The Fraser River Panel established regulations and a management plan based on forecast run sizes and migration timing; a Johnstone Strait diversion rate of 52% was used for planning purposes; the goals for catch and escapement; and conservation concerns for other species and stocks of salmon identified by the Parties. The peak Juan de Fuca Strait (Area 20) migration of the major sockeye stocks, Quesnel and Late Stuart, was expected to be on August 18. Fraser River pink salmon were expected to peak on August 25. Forecast migration percentages through Johnstone Strait were 73% for Fraser sockeye and 30% for Fraser pinks.

To ensure that the various goals were achieved, the Panel met frequently (28 times) throughout the fishing season to enact regulations. Numerous meetings were necessary because of the complex allocation goals and because in-season estimates of catches and run parameters deviated widely from pre-season forecasts and, in some cases, varied considerably from week to week.

The total return of Fraser River sockeye salmon was 24,336,000 fish, 6,976,000 fish more than forecast and the largest return on any cycle since 1913. For Fraser River pink salmon, the run of 17,431,000 fish was slightly larger than the average since 1979, but only 56% of the forecast 31,000,000 fish.

Catches of Fraser sockeye totalled 17,964,000 fish, 16,817,000 in commercial fisheries, 1,033,000 in Canadian Indian fisheries and 114,000 in other fisheries. Canadian commercial fishers caught 13,932,000 sockeye while United States fishers caught 2,692,000 in Washington and 191,000 in Alaska fisheries. Fraser pink catches were 5,760,000 fish in commercial and 171,000 in non-commercial fisheries, for a total of 5,931,000 fish. Commercial catches in Canada and the United States were 4,017,000 and 1,743,000 pinks, respectively. Included in the non-commercial catch were recreational catches of 107,000 pinks in Canada and 17,000 in Washington, Fraser River Indian catches of 16,000 fish, and test fishing catches of 30,000 pinks.

The Stock Monitoring program provided in-season estimates of abundance, run timing and migration route proportions of Fraser River sockeye and pink stocks throughout the fishing season. Management difficulties were encountered because of many factors: effects of unusual run timing on estimating the abundance of Early Stuart sockeye; the late arrival, very high diversion rate and large run of summer-run stocks through Johnstone Strait; and the late arrival, very poor run strength and high diversion of Fraser River pink salmon through Johnstone Strait. The diversion rate of sockeye salmon (70%) through Johnstone Strait was close to the forecast (73%), but the rate for pink salmon (64%) was about double the forecast (30%). Both rates were much higher than the long-term averages (25% for sockeye and 30% for pink salmon).

Hydroacoustic and test fishing catch-per-unit-effort estimates of gross escapement past Mission totalled 5,717,000 sockeye and 3,849,000 pink salmon. The sockeye estimate is lower than Canada Department of Fisheries and Oceans' (DFO) estimate of 7,196,000 adults. The estimate for pink salmon escapement is much less than Canada's estimate of 11,500,000 fish based on spawning ground enumerations and Fraser River Indian catches. These estimates are subject to review and finalization.

The Racial Analysis program was successful in using scale and other characteristics to identify the major stock groups of Fraser River sockeye throughout the season, except for difficulties distinguishing Chilko sockeye from the dominant summer-run stocks (Quesnel and Late Stuart). Genetic Stock Identification methods were used to identify Fraser River and other southerly migrating pink salmon stocks in mixed-stock fisheries.

Spawning escapement estimates by Canada Department of Fisheries and Oceans totalled 6,347,000 adult Fraser sockeye and 11,500,000 pink salmon. The sockeye spawning escapement was the largest since 1909.

Gross escapement goals for Fraser River sockeye and pink salmon were adjusted during the season to the final goals of 5,554,000 adult sockeye and 6,105,000 pink salmon. Using DFO's preliminary spawning escapement and Indian catch estimates, gross escapements were 456,000 more than the goal for Early Stuart sockeye, 59,000 under for early summer-run stocks, 1,484,000 over for summer-run stocks, and 239,000 under for late-run sockeye, for a total of 1,642,000 fish over the goal. DFO's estimate of pink salmon escapement (11,500,000 fish) was almost twice the goal and the in-season estimate.

The preliminary estimate of the TAC in 1993 is 16,181,000 Fraser River sockeye salmon, based on a run size of 24,336,000 fish, a Canadian Escapement Add-on Benefit of 1,293,000 and other deductions (including net escapements, the Fraser River Indian fishery exemption, and test fishing catches) totalling 6,862,000 fish. For Fraser River pink salmon, the run size, deductions and TAC are estimated to be 17,431,000, 11,530,000 and 5,901,000, respectively.

Catches of Fraser River sockeye salmon in Washington fisheries totalled 2,692,000 fish, 73,000 less than the goal of 2,765,000 Fraser sockeye. Including the Alaska catch of 191,000, the total United States catch was 2,883,000 Fraser sockeye. Washington catches of early summer-run, summer-run and late-run sockeye were 29,000 over, 74,000 under and 28,000 fish under the goals, respectively. United States catches of Fraser River pink salmon totalled 1,760,000 fish, 243,000 over the goal of 1,517,000 fish.

With respect to Washington domestic allocations of Fraser sockeye, Treaty Indians and Non-Indians were 30,000 fish over and 30,000 fish under the respective goals. Within the Treaty Indian group, the catch in Areas 4B, 5 and 6C was 53,000 fish less than the allocation while in Areas 6, 7 and 7A the catch was over by 53,000 fish. Non-Indian gillnets, purse seines and reefnets, respectively, caught 46,000 under, 16,000 over and 30,000 over their allocations. Treaty Indians were 4,000 under the catch goal for Fraser River pink salmon, while Non-Indians were over by 4,000 fish.

In Canada, gillnets exceeded the domestic allocations of Fraser River sockeye salmon by 903,000 fish. Outside trollers, purse seines and inside trollers were 653,000, 226,000 and 24,000 fish under. For allocations of southerly migrating pink salmon, purse seines were 67,000 over, inside trollers were 109,000 over, gillnets were 43,000 under and outside trollers were 133,000 under.

There were no major conflicts between the harvest of Fraser River sockeye salmon and the conservation of other species and stocks in 1993. Concerns identified by Canadian and United States agencies were taken into account during the design and implementation of the fishing plans. The planned closure of Canada's Area 29 after September 8 for the protection of Harrison River chinook stocks was relaxed to allow fisheries at times of low abundances of these stocks. Catches of non-target species was low or modest in all areas.

(Source document) *Report of the Fraser River Panel to the Pacific Salmon Commission on the 1993 Fraser River Sockeye Fishing Season.* Pacific Salmon Commission staff. May 1994 (Draft).

B. PRELIMINARY 1993 POST-SEASON REPORT FOR UNITED STATES FISHERIES OF RELEVANCE TO THE PACIFIC SALMON TREATY

Northern Boundary Area Fisheries

District 104 Purse Seine Fishery

The U.S./Canada Pacific Salmon Treaty calls for limiting the sockeye salmon harvest in the District 104 purse seine fishery during the period 1990 to 1993 to a maximum four year total catch of 480,000 fish prior to Statistical Week 31. Under the terms of the agreement, when the annual catch reaches 160,000 sockeye salmon, no further fishing periods will be allowed prior to Statistical Week 31. All underages not to exceed 20% of the Annex ceiling will add to and any overages will subtract from the subsequent four year period.

During the first three years of the Annex, 1990, 1991, and 1992, 348,169 sockeye were harvested prior to Statistical Week 31. This left a maximum harvest of 132,000 sockeye prior to Statistical Week 31 in 1993. There were three weeks of fishing prior to Statistical Week 31 in 1993.

The 1993 season began on July 4 (Statistical Week 28) for a 10-hour opening. This was the first time that the initial opening in District 104 has been reduced to 10 hours. During this opening 41,774 sockeye salmon were harvested by 88 purse seine boats (Table 1). In order to limit the sockeye harvest in Statistical Week 29, the district was again limited to a 10-hour opening on July 11. Eighty-nine seine boats participated in the fishery and harvested 27,401 sockeye salmon. This left approximately 69,200 sockeye to be harvested in Statistical Week 30. The district was opened on July 18 for 15 hours. During this opening 21,759 sockeye were harvested by 87 seine boats. This left approximately 41,100 sockeye salmon to be harvested under the 480,000 limit. On July 22 the district was re-opened for 10 hours. One-hundred-and-six seine boats harvested 72,255 sockeye salmon during this opening. Therefore, the total sockeye harvest prior to Statistical Week 31 in 1993 was 163,189 fish. This put the total sockeye harvest at the end of the four year Annex at 511,358, or 31,358 (6.5%) sockeye over the 480,000 Annex limit. During the first three fishing weeks over 565,000 pink salmon were caught in the District 104 purse seine fishery.

The average number of hours, days, and boats fished in years 1985 to 1993 is down 33-49% compared to the 1980-1984 period (Table 2). The sockeye harvest is also down 30% despite an increase in sockeye availability in recent years; the average sockeye catch-per-boat day has increased 72% since 1984.

Table 1. Management performance relative to Treaty requirements for District 104 purse seine fishery, 1990 to 1993.

Year	Stat. Week	Opening Date(s)	Day(s) Open	Hours Open	Open Areas	No. of Boats	Sockeye Harvest	Cum. Sockeye Harvest	Pink Harvest
1990	27	July 1	1	15	All	68	24,485	24,485	43,152
	28	July 8	1	15	All	143	41,117	65,602	98,018
	29	July 15	1	6	All	76	64,795	130,397	226,801
	30	July 22	1	6	N. Portion	87	39,546	169,943	91,672
Sub-totals for 1990:			4	42	-	374	169,943		459,643
1991	27	-closed-							
	28	July 7	1	15	All	101	23,008	192,951	163,846
	29	July 15	1	10	All	3	2,496	195,447	1,672
	29B	July 17	1	10	All	96	55,115	250,562	370,191
	30	July 22	1	6	S. Portion	35	17,964	268,526	171,208
Sub-totals for 1991:			4	41	-	235	98,583		706,917
1992	27	-closed-							
	28	July 6	1	15	All	91	30,233	298,759	25,433
	29	July 12	1	8	All	52	38,792	337,551	48,321
	30	July 19	1	6	S. Portion	58	10,618	348,169	28,526
Sub-totals for 1992:			3	29	-	201	79,643		102,280
1993	27	-closed-							
	28	July 4	1	10	All	88	41,774	389,943	107,935
	29	July 11	1	10	All	89	27,401	417,344	85,148
	30	July 18	1	15	All	87	21,759	439,103	84,513
	30B	July 22	1	10	All	106	72,255	511,358	287,757
Sub-totals for 1993:			4	45	-	370	163,189		565,353

Table 2. Fishing opportunity, effort, and sockeye harvest prior to week 31 in District 104 purse seine, 1980 to 1993.

Year	Hours Fished	Days Fished	Boats Fished	Boat- Hours Fished	Boat- Days Fished	Sockeye Harvest	Sockeye Catch/ Boat-Hour	Sockeye Catch/ Boat-Day
1980	207	10	601	124,407	6,010	266,198	2	44
1981	132	7	400	52,800	2,800	185,188	4	66
1982	117	6	554	64,818	3,324	212,851	3	64
1983	108	6	502	54,216	3,012	168,806	3	56
1984	108	6	369	39,852	2,214	103,319	3	47
1985	84	5	247	20,748	1,235	100,590	5	81
1986	108	6	337	36,396	2,022	91,320	3	45
1987	75	5	227	17,025	1,135	72,385	4	64
1988	108	6	430	46,440	2,580	248,759	5	96
1989	84	5	291	24,444	1,455	157,034	6	108
1990	42	4	374	15,708	1,496	169,943	11	114
1991	41	4	232	9,512	928	98,583	10	106
1992	29	3	201	5,829	603	79,643	14	132
1993	45	4	370	16,650	1,480	163,189	10	110
Ave. 80-84	134	7	485	67,219	3,472	187,272	3	55
Ave. 85-93	68	5	301	21,417	1,437	131,272	8	95
% Change	-49%	-33%	-38%	-68%	-59%	-30%	158%	72%

For the 1993 season, the district was opened for a total of 24 days, four within the Treaty period, and 20 days after Statistical Week 30. These 24 days constituted a total of 424 hours, 45 within the Treaty period, and 379 after Statistical Week 30. In Statistical Weeks 31 through 34 the number of purse seine boats fishing in the district was again slightly below the effort levels experienced since the inception of the Treaty.

The total season's harvest of 11.6 million pink salmon (Table 3) was slightly below the 1985 to 1992 average of 12.2 million fish. The harvest of 945,285 sockeye and 581,161 chum salmon were the second largest harvests on record. The harvest of 170,478 coho in 1993 is above the average of 160,000 coho since the Treaty period.

Table 3. Catch and effort in the Alaska District 104 commercial purse seine fishery by opening, 1993.

Week/ Opening	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Total	Boats	Hours
28	July 4	0	41,774	10,483	107,935	63,295	223,487	88	10
29	July 11	0	27,401	9,930	85,148	24,061	146,540	89	10
30	July 18	0	21,759	9,541	84,513	16,714	132,527	87	15
30B	July 22	0	72,255	12,984	288,507	55,165	428,911	106	10
31	July 25	0	110,614	13,974	516,067	63,527	704,182	115	15
31B	July 28	0	165,864	23,498	1,136,683	112,384	1,438,429	150	39
32	Aug. 1	0	162,005	16,883	1,261,961	103,116	1,543,965	123	39
32B	Aug. 5	194	26,690	3,230	277,463	9,458	317,035	45	39
33	Aug. 9	1,535	40,556	10,856	1,016,978	15,738	1,085,663	67	39
33B	Aug. 13	0	72,591	19,585	1,979,054	26,481	2,097,711	123	39
34	Aug. 17	1,407	69,847	12,317	1,566,259	16,943	1,666,773	87	39
34B	Aug. 21	780	64,496	10,629	1,298,119	19,700	1,393,724	84	39
35	Aug. 25	616	44,864	9,558	1,262,461	28,044	1,345,543	79	38
36	Aug. 29	129	22,152	5,988	615,998	21,732	665,999	79	38
36B	Sep. 2	13	2,417	1,022	123,163	4,803	131,418	13	15
Total		4,674	945,285	170,478	11,620,309	581,161	13,321,907	1,335	424

Tree Point Drift Gillnet Fishery

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

In 1993, the gillnet fishery at Tree Point was initially opened for a four-day fishing week on June 20 (Statistical Week 26). Catches of sockeye salmon in Statistical Weeks 26, 27, 31 and 32 were at record levels. During these four weeks approximately 269,000 sockeye were caught. Prior to the start of the District 101 Pink Salmon Management Plan in Statistical Week 30, Tree Point had four weeks of fishing which were comprised of two four-day fishing weeks (Statistical Weeks 26 and 27) and two three-day weeks (Statistical Weeks 28 and 29). Overall, effort levels at Tree Point were close to the levels experienced since the inception of the Treaty.

On July 18 (Statistical Week 30), the District 101 Pink Salmon Management Plan was initiated and continued through Statistical Week 36. A four-day week was allowed in Statistical Week 30 and five-day weeks were mandated under the Plan for the next six weeks.

During the final three weeks of the Tree Point season fall management was initiated and only two-day fishing weeks were allowed. Although chum catches were above average, coho harvests were below average through late August and into early September, so a conservative management approach was taken. The last week at Tree Point, the coho catch was above the previous eight year average, perhaps indicating an overall late return of fall coho to southern Southeast Alaska.

Portland Canal was closed to fishing north of Akeku Point throughout the season in order to conserve chum salmon stocks returning to the Canal.

The total harvest of sockeye salmon at Tree Point was 393,996 fish (Table 4). This is the largest sockeye harvest of the fishery. This brings the 1985 to 1993 average to 171,458 sockeye (Table 5). The chum harvest of 383,285 is the second largest harvest on record. Contributions of enhanced salmon returns have not been determined at this time. The harvest of 480,963 pink salmon and 32,488 coho salmon are below the last eight year average.

Tree Point was opened for 1,296 hours in 1993. This is above to the last eight year average of 1,096 hours.

Table 4. Weekly catch and effort in the Alaska District 101 commercial drift gillnet fishery, 1993.

Week/ Opening	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Total	Boats	Hours
26	June 20	395	74,841	883	1,073	8,134	85,326	96	96
27	June 27	389	66,936	1,640	14,482	17,054	100,501	126	96
28	July 4	165	15,987	575	34,409	20,425	71,561	114	72
29	July 11	81	11,474	297	48,082	25,649	85,583	89	72
30	July 18	66	31,874	687	56,548	36,765	125,940	88	96
31	July 25	64	65,394	2,252	54,279	44,607	166,596	97	120
32	Aug. 1	39	62,043	1,583	52,052	21,717	137,434	102	120
33	Aug. 8	26	39,486	1,873	80,337	28,917	150,639	105	120
34	Aug. 15	5	14,972	2,035	45,373	28,751	91,136	103	120
35	Aug. 22	5	7,190	2,314	48,704	48,829	107,042	80	120
36	Aug. 29	6	2,632	3,580	31,127	33,869	71,214	76	120
37	Sep. 5	6	482	2,752	7,980	16,371	27,591	50	48
38	Sep. 12	1	440	4,580	4,833	25,307	35,161	62	48
39	Sep. 19	1	245	7,437	1,684	26,890	36,257	55	48
Total		1,249	393,996	32,488	480,963	383,285	1,291,981	1,243	1,296

Table 5. Annual harvest, and average annual harvest, of sockeye salmon in the Alaska District 101 drift gillnet fishery, 1985 to 1993.

Year	Annual Harvest	Average Annual Harvest	Deviation From 130,000 Annex Average
1985	172,863	172,863	42,863
1986	145,657	159,260	29,260
1987	107,595	142,038	12,038
1988	116,240	135,589	5,589
1989	144,936	137,458	7,458
1990	85,690	128,830	(1,170)
1991	131,492	129,210	(790)
1992	244,649	143,640	13,640
1993	393,996	171,458	41,458

Programs to estimate sockeye salmon escapements are only in place for two systems in southern Southeast Alaska, Hugh Smith and McDonald Lakes. The Hugh Smith sockeye escapement was approximately 13,530 based on weir counts and the results of a secondary marking study. This escapement is about half of the informal escapement goal of 27,000. McDonald Lake's escapement is estimated to be 83,514 sockeye based on an expansion of foot survey counts. This escapement falls within the informal goal range of 70,000 to 85,000. Approximately 150,000 McDonald Lake sockeye were harvested in a near-terminal seine fishery in 1993.

A weir was operated on Fish Creek at the head of Portland Canal to enumerate chum salmon for the third consecutive year. The 1993 weir count totalled 60,447 chum salmon. In 1991, only 9,916 chum salmon were counted through the weir and 46,771 were counted through the weir in 1992. An estimated 36,303 chum salmon escaped to Marx Creek this season and 17,953 live and dead chum were counted in foot surveys of Salmon River. Thus, the total escapement of chum salmon in the Salmon River system exceeded 115,000 fish this year. The peak aerial survey counts of chum salmon in Tombstone River was 20,000 this year, the highest count since the mid-1980's.

Transboundary Area Fisheries

Stikine River Area Fisheries

The 1993 harvest in the District 106 commercial gillnet fishery included 992 chinook, 205,955 sockeye, 231,038 coho, 537,954 pink, and 134,601 chum salmon. District 106 catches of chinook salmon were below the 1983 to 1992 averages while sockeye, coho, pink, and chum catches were above average. Sockeye, coho, and chum catches were the second highest on record. An estimated 32% of the coho catch was of Alaskan hatchery origin.

In the District 108 fishery, 1,628 chinook, 76,874 sockeye, 14,307 coho, 39,661 pink, and 22,504 chum salmon were harvested. Catches of all species were above the 1983-1992 averages and sockeye and chum catches were the highest recorded. An estimated 5% of the coho catch was of Alaskan hatchery origin.

Harvest sharing of Stikine sockeye stocks is based on in-season abundance forecasts produced by the Stikine Management Model (SMM) (Table 6). Unlike previous years, in-season scale pattern analyses were not conducted for District 106 and 108 sockeye catches in 1993. Historically, in-season results had proven to be unreliable. For 1993, average stock proportions from the post-season SPA analysis in previous years were assumed for weekly catches; the average used each week depended upon whether the run was judged to be below average, average, or above average. Based on average stock compositions in years of large Stikine River sockeye runs the Sumner Strait fishery (Subdistricts 106-41 & 42) harvested 14,117 Stikine sockeye salmon, 10.9% of the total sockeye harvest in that subdistrict; the Clarence Strait fishery (Subdistrict 106-30) took 5,517 Stikine fish, 7.2% of the catch in that subdistrict; and the District 108 fishery, near the mouth of the Stikine River, harvested 53,453 Stikine fish, 69.5% of the District 108 catch. An estimated 73,087 Stikine sockeye salmon were harvested in commercial gillnet fisheries from both districts.

Table 6. Weekly forecasts of run size and total allowable catch for Stikine River sockeye salmon as determined in-season by the Stikine Management Model, 1993.

Week	Start Date	Forecasts		U.S. TAC	Canada TAC	Cumulative Catch	
		Run Size	TAC			U.S.	Canada
26	20-Jun	135,000	81,000	40,500	40,500	2,122	0
27	27-Jun	135,000	81,000	40,500	40,500	8,875	4,019
28	04-Jul	268,534	214,534	107,267	107,267	12,835	5,650
29	11-Jul	190,590	136,590	68,295	68,295	40,390	15,999
30	18-Jul	238,729	184,729	92,365	92,365	48,465	27,303
31	25-Jul	222,822	168,822	84,411	84,411	59,443	35,864
32	01-Aug	231,393	177,393	88,697	88,697	69,203	41,218
33	08-Aug	239,047	185,047	92,524	92,524	70,921	45,322

The estimated Stikine sockeye run was 259,010 fish (Table 7) and the escapement was 133,026 fish which was above the escapement goal.

Table 7. Run reconstruction for Stikine sockeye salmon, 1993.

	Tahltan	non-Tahltan	Total
Escapement	51,610	81,416	133,026
Canadian Harvest	28,724	20,225	48,949
% Harvest	54.6%	29.1%	40.1%
Test Fishery Catch	1,912	1,837	3,749
Inriver Run	82,246	103,478	185,724
U.S. Harvest			
106-41&42	7,211	6,906	14,117
106-30	1,518	3,999	5,517
108	15,114	38,339	53,453
Total	23,843	49,244	73,087
% Harvest	45.4%	70.9%	59.9%
Test Fishery Catch	93	107	199
Total Run	106,182	152,829	259,010
Total Allowable Catch			
Minimum	76,182	112,829	189,010
Maximum	88,182	132,829	221,010
Actual Catch	54,572	71,413	125,985

Taku River Area Fisheries

The 1993 District 111 commercial gillnet harvest included 6,715 chinook, 171,245 sockeye, 63,261 coho, 17,083 pink, and 165,800 chum salmon. Sockeye and summer chum catches were the largest in the history of the fishery but pink and fall chum catches were extremely poor. The chinook catch was the highest since the directed chinook fishery was shut down in 1973. The total coho catch of 63,261 is the fourth largest harvest in the history of the fishery but equal to the 1983 to 1992 average as a result of the extremely large coho catches during the previous three years. An estimated 8% of the coho catch was of Alaska hatchery origin. The District 111 pink salmon harvest was the smallest odd-year pink salmon harvest since 1967, and 91% below the 1983 to 1992 odd-year average of 199,141 fish. Alaska hatchery chum salmon contributed the majority of the summer chum catch. The fall chum salmon harvest, (i.e. chum salmon caught after August 15, Statistical Week 34), was 10,213 fish, and was 69% below the 1983 to 1992 average. Chum salmon that are taken in the fall in District 111 are exclusively wild chum stocks from the Taku River and Port Snettisham.

The U.S. personal use fishery in the Taku River harvested an estimated 22 chinook, 2,504 sockeye, 68 coho, 150 pink, and 8 chum salmon. Two other fisheries in the Juneau area also intercepted some Taku River stocks. The spring Juneau-area sport fishery harvested an estimated 6,828 chinook salmon, approximately three times the 1983 to 1992 average of 2,250 fish. The purse seine fishery in Chatham Strait was open in a limited area north of Hanus Reef for 12 hours on July 11 and harvested 352 chinook, 5,780 sockeye, 660 coho, 80,471 pink and 30,325 chum salmon.

The Pacific Salmon Treaty harvest sharing provisions for 1993 allowed the U.S. and Canada 82% and 18%, respectively of the TAC of the sockeye salmon originating in the Canadian portion of the Taku River. The total Taku sockeye run was estimated at 277,021 fish. Based on the escapement goal range of 71,000 to 80,000 fish, the TAC was 197,021 to 206,021 sockeye salmon. The U.S. harvested an estimated 140,085 Taku sockeye salmon, representing 68% to 71% of the TAC. The estimated escapement of 103,592 sockeye salmon in 1993 was above the escapement goal range.

In-season scale pattern analysis was not used in 1993 to determine the stock composition of District 111 sockeye catches and the post-season analysis is in progress. Taku River sockeye salmon comprised an average of 80% of the District 111 sockeye catch from 1983 to 1992. This average was used in the preliminary run reconstruction (Table 8).

Table 8. Taku sockeye salmon run reconstruction, 1993. Estimates do not include spawning escapements below the U.S./Canada border.

	Taku Stocks	Snettisham Stocks
Escapement	103,592	Not available
Canadian Harvest	33,247	
% Harvest	19.2%	
Test Fishery Catch	97	
Above Border Run	136,936	
U.S. Harvest		
District 111	137,581	33,664
Personal Use	2,504	
Total	140,085	
% Harvest	80.8%	
Test Fishery Catch		19
Total Run	277,021	
Taku Harvest Plan	Minimum	Maximum
Escapement Goal	71,000	80,000
TAC	206,021	197,021
Canadian Portion	0.161	0.169
U.S. Portion	0.680	0.711

Alsek River Area Fisheries

No harvest sharing guidelines for Alsek River salmon are specified in the Pacific Salmon Treaty. Pre-season expectations were for a below average overall sockeye run, composed of an above average early run component and a below average late run. As in recent years, the initial opening of the fishery was delayed from the traditional opening on the first Monday in June in order to conserve chinook and early run sockeye salmon. The fishery began this year on June 14, the second Monday in June.

The sockeye and chinook runs developed slightly better than expected. The U.S. Dry Bay commercial set gillnet fishery harvested 300 chinook, 20,043 sockeye, 1,215 coho, 0 pink, and 1 chum salmon. The harvest of sockeye salmon was 37% above the 1983-1992 average. The catch of chinook salmon was 42% above the 1982-1991 average, the coho, pink, and chum catches were below average.

Transboundary River Joint Enhancement Activities

In 1993, fry were outplanted to Trapper, Tahltan, Tuya, and Tatsamenie Lakes over the periods June 13-26, June 23-July 2, June 16-July 7, and July 9-14, respectively. Egg survivals and numbers of fry outplanted are summarized in Table 9.

Table 9. Green egg to outplanted fry survival rates for 1992 brood year transboundary river sockeye salmon enhancement projects.

Lake	Green Eggs	Eyed Eggs	Fry Planted	Survival
Tahltan	2,154,000	1,980,000	1,947,000	90.4%
Tuya	2,747,000	2,551,000	1,990,000	72.5%
Tatsamenie	1,486,000	1,275,000	909,000	61.2%
Trapper	2,521,000	2,055,000	1,113,000	44.2%

Green egg to fry survivals for all outplant groups except those bound for Tahltan Lake were negatively affected by outbreaks of IHNV. Estimated mortalities included 916,000 Trapper Lake alevins, 521,000 Tuya Lake alevins, and 246,000 Tatsamenie Lake alevines, respectively.

In 1993, sockeye eggs were collected at Tahltan Lake (Stikine River) for the fifth year and at Little Trapper and Tatsamenie/Little Tatsamenie Lakes (Taku River) for the fourth year. The eggs were collected by Canada and flown to the central incubation facility at Port Snettisham. Egg take goals for Tahltan and Little Trapper Lakes were achieved, with an estimated 5.9 and 1.2 million eggs taken at the sites, respectively. A total of 1.2 million eggs was taken from the Tatsamenie/Little Tatsamenie Lake system; the goal of 2. million eggs was not met due to low escapement and broodstock availability problems.

The old temporary central incubation facility at Snettisham was replaced in late summer by a completely remodelled Snettisham Hatchery, and was completed in time to receive all the transboundary river eggs taken in 1993.

The Alaska Department of Fish and Game otolith lab took several important steps toward the goal of using otolith marks as a tool for identifying the contribution of enhanced transboundary river sockeye salmon in mixed stock fisheries. The lab processed post-seasonally approximately 1,000 sockeye salmon otoliths taken from fish caught in the 1993 District 108 gillnet fishery; results of this analysis indicate that returns of 4-year-old enhanced Tahltan Lake fish contributed approximately 500 fish to the catch in this district. Numerous other juvenile and adult sockeye salmon samples were processed by the lab in 1993 in connection with assessment of outplant survivals in transboundary river recipient lakes and assessment of domestic projects.

Chinook Salmon Fisheries

Southeast Alaska Chinook Salmon Fishery

All Gear Harvest

The preliminary estimate of the 1993 chinook salmon catch by all Southeast Alaska fisheries was 303,940 (Table 10). The base catch (total catch minus add-on) was 271,321. The base catch was 8,300 above the quota of 263,000. This brought the cumulative deviation to -2,300 (below zero).

Table 10. Chinook all-gear catches in Southeast Alaska, 1987 to 1993, and deviation from the ceiling each year. Catches in thousands.

Year	Preliminary Catches		Base	Base Ceiling	Deviation from Base	
	Total	Add-on			Number	Percent
1987	281.9	16.7	265.2	263.0	+2.2	+0.8%
1988	278.9	23.7	255.2	263.0	-7.8	-3.0%
1989	291.1	26.7	264.4	263.0	+1.4	+0.5%
1990	366.8	53.7	313.2	302.0	+11.2	+5.5%
1991	357.0	61.3	295.6	273.0	+22.6	+9.6%
1992	260.8	38.1	222.8	263.0	-40.2	-15.3%
1993	303.9	32.6	271.3	263.0	+8.3	+3.2%
Cumulative	2,140.4	252.8	1,887.7	1,890	-2.3	-0.9%

Troll Fishery

The winter troll fishery harvested 62,700 chinook salmon from October 11, 1992 through April 14, 1993. A total of 3,850 were from Alaskan hatcheries.

In 1992, the National Marine Fisheries Service (NMFS) listed Snake River Fall chinook salmon as threatened under the federal Endangered Species Act (ESA). Any taking of ESA listed species is prohibited without an incidental take permit (ITP). The approved ITP for the Southeast Alaska troll fishery specified a five-day troll closure in early July, the cancellation of the June Hatchery Access Fishery and a total harvest of 263,000 chinook salmon.

Terminal and experimental fisheries were conducted prior to the July 1 general summer opening. The experimental fisheries are designed to increase the harvest of Alaskan hatchery produced chinook salmon by allowing trolling in small areas of the migratory path close to the hatchery. Terminal fisheries occurred directly in front of hatcheries or remote release sites. The terminal and experimental fisheries are managed in-season in order to maximize the number of Alaskan hatchery chinook salmon and to comply with a limit of 35,000 Treaty chinook salmon.

Twelve experimental areas were open this season. The number of days open in each area varied according to the proportion of Alaskan hatchery chinook salmon in the fishery. A total of 15,800 chinook salmon were harvested in experimental fisheries, of which 6,100 were Alaskan hatchery origin, and 2,850 chinook salmon were harvested in the terminal areas.

The summer fishery began on July 1 and continued through July 6. There was a second opening from August 21-25 and a third opening September 12-20. A total of 144,600 chinook were harvested during the summer. Following closure of the chinook fishery, areas of high chinook abundance were closed. The number of chinook non-retention days (49) was the lowest since 1990.

The total troll harvest was 226,200 chinook salmon.

Net Fisheries

Net fisheries have a guideline harvest of 20,000 chinook salmon plus Alaska hatchery add-on. Catches of chinook salmon in the net fisheries are incidental to the harvest of other species and constitute only a fraction (<1.0%) of the total net harvest. In 1993, the net fisheries harvested a total of 27,800 chinook salmon of which 13,700 were from Alaskan Hatcheries.

Recreational Fishery

The recreational fishery had a harvest target of 41,310 chinook salmon excluding Alaska hatchery add-on chinook. A daily bag limit of 1 fish greater than 28 inches was instituted on June 17 and continued through the rest of the year. The preliminary estimate of total harvest is 49,600 of which 7,650 were from Alaskan hatcheries. Final post-season estimates of recreational catches are based on a statewide mail survey which is available in early summer, 1994.

Southern U.S. Chinook Salmon Fisheries

The following is a summary of 1993 and 1992 chinook catches in Washington and Oregon fisheries of interest to the Pacific Salmon Commission (Table 11). The data are preliminary and will change as fish ticket data replace in-season projections, errors are discovered and corrected, and landings for the remainder of the year are included in the catch. The 1993 estimates include catches through 11/04/93; the 1992 estimates include catches for the entire year.

Table 11. Summary of chinook catch estimates in Washington and Oregon for 1992 and 1993.

Fishery	1993 Estimate	1992 Estimate
Central Oregon		
Troll	300	400
Recreational	NA	38,000
Columbia River		
Net	51,300	53,200
Recreational	10,900	19,200
Ocean (North of Falcon)		
Troll	54,600	68,900
Recreational	13,700	19,000
Net	<50	<50
Washington Coastal		
Marine Net	48,100	51,200
River Net	11,400	13,100
Strait of Juan de Fuca		
Net	1,400	900
Troll	7,800	33,000
Recreational	NA	38,400
San Juan Islands		
Net	13,600	14,100
Troll	200	100
Recreational	NA	6,800
Puget Sound		
Marine Net	41,900	52,000
River Net	12,000	11,300
Recreational	NA	52,400

Ocean Fisheries off Central Oregon

Ocean fisheries off Oregon's central coast primarily harvest a mixture of southern chinook stocks not involved in the PSC rebuilding program; these stocks do not migrate north into PSC jurisdiction to any great extent. Some stocks that spawn in Oregon coastal streams do migrate into PSC fisheries, including the Northern Oregon Coastal (NOC) stock aggregate. These north migrating stocks are harvested incidentally (probably <10%) in Oregon ocean fisheries. The only troll fishery that predominantly harvests the NOC stock aggregate is the late season near-shore fishery off the mouth of the Elk River. As of November 7, an estimated 300 chinook were landed in this fishery. Catches during the 1992 fishery totalled 400 chinook.

The recreational Catch of NOC stocks for 1992 totalled 38,000 compared to 44,500 chinook in 1991.

Columbia River

Columbia River 1993 freshwater recreational and commercial catch data are incomplete. A preliminary estimate of the 1993 spring and fall chinook net catch totals 53,100, compared to 53,200 in 1992. Both of these years are new record low commercial net catches on the Columbia River. The previous record low was 57,700 in the El Nino year of 1983 (1983-1992 average equals 217,600). Estimates of the incidental catch of summer chinook in the Yakima Indian Nation commercial sockeye fishery are not yet available, but catches are expected to have been very low.

Recreational estimates for 1993 are not yet available. A preliminary recreational catch estimate for 1992 totals 19,200 chinook.

Ocean Fisheries North of Cape Falcon

In 1993, ocean commercial and recreational fisheries operating in the Pacific Fisheries Management Council (PFMC) region north of Cape Falcon were constrained by domestic quotas for both chinook and coho salmon. Separate quotas were established for the tribal troll and non-tribal fisheries.

Under PFMC quota management, ocean fisheries are terminated either when coho or chinook quotas are achieved or when seasons expire. In 1993, quotas were set based on concerns for the Skagit and Stillaguamish wild coho stocks. A preliminary estimate of non-tribal troll chinook catch totals 30,600 (400 Oregon and 30,200 Washington). This is 89% of the 34,400 allowable chinook harvest (35,000 total allowable harvest minus 600 estimated hooking mortality in the pink only fishery) and substantially down from the 45,900 landed in 1992. Approximately 25,400 of these non-tribal troll caught chinook were taken during the early season chinook fishery, May 1 through June 15, 1993.

Preliminary recreational catches are estimated at 13,700 (900 Oregon and 12,800 Washington), about 55% of the 25,000 chinook quota and down from 19,000 in 1992. In 1993, an all-salmon-except-coho fishery was conducted in Area 4B during May. The catch of 200 chinook counted against the ocean chinook quota. This fishery landed 100 chinook in 1992.

A preliminary estimate of 1993 tribal troll chinook catch totals 24,000, 73% of the 33,000 chinook quota and slightly up from 22,500 in 1992.

As of September 23, 1993, all on-going non-tribal ocean fisheries north of Cape Falcon (Westport, Ilwaco, La Push and 4B recreational fisheries and the all-salmon troll fishery) were closed. This action was taken because of strong conservation concerns for Puget Sound and Washington Coastal natural coho.

Washington Coast

Net and sport catches for Willapa Bay and Grays Harbor and tributaries are preliminary at this time. A non-tribal net fishery in Willapa Bay is scheduled to continue through November. There are no tribal fisheries conducted in Willapa Bay. A preliminary 1993 estimate of Grays Harbour and Willapa Bay net catch totals 48,100 chinook, compared to 51,200 in 1992.

The 1993 commercial net fisheries in north coastal rivers have harvested an estimated 11,400 chinook, compared to 13,100 in 1992. The pre-season spring/summer chinook estimate for the Queets River just met the escapement goal. Consequently, a limited harvest of only 48 fish was taken to maintain the age structure database enabling estimates of brood year contributions.

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River Net	12,000	11,300
Recreational	NA	52,400

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Washington Coast

Net and sport catches for Willapa Bay and Grays Harbor and tributaries are preliminary at this time. A non-tribal net fishery in Willapa Bay is scheduled to continue through November. There are no tribal fisheries conducted in Willapa Bay. A preliminary 1993 estimate of Grays Harbour and Willapa Bay net catch totals 48,100 chinook, compared to 51,200 in 1992.

The 1993 commercial net fisheries in north coastal rivers have harvested an estimated 11,400 chinook, compared to 13,100 in 1992. The pre-season spring/summer chinook estimate for the Queets River just met the escapement goal. Consequently, a limited harvest of only 48 fish was taken to maintain the age structure database enabling estimates of brood year contributions.

Spring chinook comprised 69% (1,117) of the 1993 chinook catch on the Quillayute River. On the Hoh River, roughly 50% of the total chinook catch (approximately 520) were spring chinook, although 139 of these were considered "dip-ins". Catches for the Humpulips and Chehalis rivers are included in the Grays Harbour marine net totals.

Strait of Juan de Fuca

A preliminary estimate of 1993 net catch in the Strait of Juan de Fuca totals 1,400 chinook, compared to 900 in 1992. Through November 4, the Strait of Juan de Fuca tribal troll fishery has harvested an estimated 7,800 chinook. Tribal troll catch through December 31, 1992 in this area was 33,000. Tribal troll catch estimates from this area do not include tribal catch in Area 4B during the May 1-September 30 PFMC management period; catches during this period have been included in the North of Cape Falcon troll summary.

In 1993, about 200 chinook were caught in the Area 4B state waters fishery, after the PFMC fishery, compared to 30 in 1992.

For the second year, a creel census was conducted in Area 5. The survey began on July 16 and ended on September 6. The preliminary estimate for 1993 recreational chinook catch in Areas 5 during this time is 6,700. No estimate was made for Area 6. The 1992 catch during this same period was 22,300 in Areas 5 and 6. The total 1992 recreational chinook catch in Areas 5 and 6 was 38,400. A 30-inch maximum length restriction was in effect between April 16 and June 15.

San Juan Islands

A preliminary 1993 estimate of chinook net catch in the San Juan Islands totals 13,600, compared to 14,100 in 1992. Recreational catch estimates for 1993 in Area 7 are not available at this time. A preliminary estimate of recreational chinook catch for 1992 in Area 7 totals 6,800 compared to 5,100 in 1991.

Puget Sound

Recreational and commercial fisheries in Puget Sound were regulated by time and area closures to protect depressed spring chinook stocks. A preliminary estimate of 1993 net catch in Puget Sound marine areas totals 41,900 chinook, compared to 52,000 in 1992. A preliminary estimate of 1993 net catch in Puget Sound freshwater areas totals 12,000 chinook, compared to 11,300 in 1992. Other than population assessment fisheries, no directed net fisheries for chinook were allowed in the Skagit and Stillaguamish/Snohomish terminal areas in order to protect depressed chinook stocks.

Puget Sound recreational catch estimates for 1993 are not available at this time. Recreational fisheries were managed in the same general manner as in recent years. A preliminary estimate of 1992 recreational chinook catches for Areas 8-13 totals 52,400 compared to 46,700 in 1991.

Coho Salmon Fisheries

Southeast Alaska Coho Salmon Fisheries

There are no specific provisions of the Annex IV chapter on coho salmon that apply to Southeast Alaska fisheries. These fisheries are managed by the Alaska Department of Fish and Game to achieve gear allocation objectives established by the Alaska Board of Fisheries and general coho salmon conservation objectives. The 1993 fisheries were managed in a manner similar to that since

1980. No catch ceilings are used, rather they are managed on in-season assessment of run strength. In addition to other fisheries regulations, an eight-day troll closure was implemented during mid-August to meet Board of Fisheries conservation and allocation objectives and a five-day closure was implemented from July 7-12 in compliance with the Incidental Take Permit.

Preliminary all gear harvest was 3,553,591 commercial harvest plus 74,000 recreational harvest (Table 12).

Table 12. Coho salmon harvest in Southeast Alaska in 1993 by gear type.

Gear Type	Harvest
Troll	2,393,741
Drift Gill Net	444,730
Purse Seine	477,100
Set Gill Net	237,390
Trap	630
Recreational	74,000
Total	3,627,591

The harvest of coho salmon in 1993 is second only to 1992's record harvest. Returns were strong throughout Southeast Alaska and very strong returns were again seen in the northern inside area. Southeast Alaska hatcheries are estimated to have contributed over 506,000 coho to the 1993 Southeast Alaska fisheries.

Coho escapements were generally strong throughout the region.

Southern U.S. Coho Salmon Fisheries

This review compiles available coho data from 1992 and 1993 southern U.S. fisheries of interest to the Pacific Salmon Commission (Table 13). These data are preliminary and are expected to change as errors are corrected and fisheries are completed. Commercial statistics for 1993 include catches through November 4.

Table 13. Summary of Coho Catch Estimates in Washington and Oregon Fisheries for 1992 and 1993.

Fishery	1993 Estimate	1992 Estimate
Columbia River		
Net	33,900	58,800
Recreational	27,000	45,200
Ocean (North of Falcon)		
Troll	77,200	95,000
Recreational	139,300	134,100
Net	<50	<50
Washington Coastal		
Marine Net	35,600	26,700
River Net	10,700	18,300
Strait of Juan de Fuca		
Net	4,600	6,000
Troll	100	1,300
Recreational	NA	113,700
San Juan Islands		
Net	12,300	10,400
Troll	100	400
Recreational	NA	5,700
Puget Sound		
Marine Net	142,400	324,500
River Net	18,200	46,600
Recreational	NA	81,600

Columbia River Net

The 1993 net catch in the Columbia River was 33,900 coho. This is significantly below the 1992 catch of 58,800 and is the lowest since the El Nino year of 1983.

Columbia River Sport

The estimate for the 1993 Columbia River recreational catch is 27,000. This is approximately 60% of the 1992 catch of 45,200. The low catches in 1993 (both net and sport) reflects the extremely poor returns to the Columbia River of both early and late stock coho.

North of Cape Falcon Ocean

The U.S. ocean fisheries operating north of Cape Falcon, Oregon, were constrained by coho ceilings developed through the domestic regulatory process of the Pacific Fisheries Management Council. Coho catch ceilings in the ocean fisheries are developed to conserve depressed wild coho stocks originating in Puget Sound and Washington coastal rivers. In 1993, catch ceilings were shaped primarily by concern for the Skagit and Stillaguamish natural coho stocks.

North of Cape Falcon Troll

In 1993 the non-tribal troll fisheries operated under a ceiling of 47,500 (37,500 catch and 10,000 for hooking mortality). Two all-salmon fisheries and two coho non-retention fisheries occurred in 1993. During the pre-season planning, 10,000 coho were allocated to the two non-retention fisheries over the estimated hook and release mortality. The total catch of 15,500 was only 41% of the 37,500 allowable harvest and below the 1992 catch of 19,200 despite a significantly higher ceiling in 1993.

Tribal troll fisheries caught an estimated 61,700 coho or 69% of their 90,000 fish ceiling. Consistent with the non-tribal troll fishery, the 1993 landings were less than the 75,900 coho landed in 1992. The ocean total for the tribal troll fishery includes the coho caught in Area 4B from May 1 through September 30.

North of Cape Falcon Sport

The 1993 recreational fishery north of Cape Falcon was constrained by a ceiling of 202,500 coho, developed through the PFMC process (including a hook-and-release mortality estimate of 400 coho). For allocation purposes, this fishery was managed on the basis of subarea coho quotas which corresponded to the ports of Ilwaco/Astoria, Westport, La Push, and Neah Bay. Approximately 139,300 coho (69% of the ceiling) were caught in 1993. This catch was slightly above the 1992 catch of 134,100 coho. The Area 4B catch is considered ocean catch until the PFMC subarea quota for Neah Bay is met, at which point the fishery is managed as a State waters fishery.

As of September 23, 1993, all on-going non-tribal ocean fisheries north of Cape Falcon (Westport, Ilwaco, La Push, and 4B recreational fisheries and the all-salmon troll fishery) were closed. This action was taken because of strong conservation concerns for Puget Sound and Washington Coastal natural coho resulting from observations of unusually small coho and indications that terminal area run sizes for both hatchery and natural fish were significantly below pre-season forecasts.

Washington Coastal Marine Net

Net and sport catches for Willapa Bay and Grays Harbour and tributaries are preliminary at this time. A non-tribal net fishery in Willapa Bay is scheduled to continue through November.

Pre-season forecasts of coho run sizes for Willapa Bay and Grays Harbour streams totalled 194,500. However, based on early catches, the expected terminal run size has been updated to an estimated 103,000 coho. This 47% decline is consistent with the run size trends observed this year for other Washington coho stocks. A total of 23,800 coho have been harvested by the 1993 non-tribal Willapa Bay and Grays Harbour net fisheries (Grays Harbour 4,400; Willapa Bay 19,400) compared to a catch of 11,500 in 1992. Tribal fisheries in Grays Harbour have landed 11,800 coho compared to 15,200 in 1992. There are no tribal fisheries in Willapa Bay.

Washington Coastal Marine Sport

A small recreational fishery (less than 200 coho) has historically occurred in late summer and fall in the Grays Harbour estuary. In 1991, effort and catch significantly increased in response to the large coho run returning to Grays Harbour and the August closure of the Area 2 ocean sport fishery. In 1993, the fishery repeated the small catches seen in 1992. Catch from this fishery has not been reported in Table 1.

North Washington Coastal River Net

The 1993 tribal net fisheries in Washington's coastal rivers have harvested approximately 10,700 coho compared to 18,300 in 1992. Concerns over wild coho run size limited fishing on both the Hoh and Quillayute rivers. When the Quillayute river mid-season updated failed to show a surplus of fall coho, the Quilleute Tribe's fishery and the river's sport fishery were closed, as per the pre-season agreement between the State and the Tribe. The coastal river net harvest includes catch for the Quillayute, Hoh, Queets, Quinault, Moclips, and Copalis Rivers. Catch for the Humptulips and Chehalis rivers are included in the Grays Harbour tribal coastal marine net totals.

Strait of Juan de Fuca Marine Net

The tribal net fisheries in Areas 4B, 5, and 6C harvested 4,600 coho in 1993 compared to 6,000 in 1992. No non-tribal net fisheries were scheduled during the sockeye and pink management period in 1993.

Strait of Juan de Fuca Troll

The coho harvested by the tribal troll fishery in Area 4B during the May through September PFMC management period are summarized with the North of Cape Falcon troll data. The tribal troll fishery outside of the PFMC management period in Areas 4B, 5, and 6C harvested 100 coho in 1993 compared to 1,300 in 1992.

Strait of Juan de Fuca Sport

A Washington State managed recreational fishery was conducted in Area 4B in 1993. This fishery was closed early on September 23 to conserve wild coho. An estimated 8,100 coho were landed during this fishery.

For the second year a creel survey was performed in Area 5. The survey began on July 16 and ended on September 6. The fishery was coho non-retention from May 1 through July 15. All species were legal from July 16 until the fishery closed as scheduled on September 6. The estimated catch in Areas 5 and 6 during this time period in 1993 is 47,200 (9,600 coho were estimated to have been killed by hooking mortality). This catch was substantially below the ceiling of 139,300 as well as the 1992 harvest of 113,700.

San Juan Islands Net Fisheries

The 1993 tribal net fisheries in Areas 6, 6A, 7 and 7A have harvested 5,800 coho during Fraser sockeye and pink fisheries. These fisheries landed 8,500 coho in 1992. Non-tribal net fisheries harvested 5,900 coho during sockeye and pink fisheries and 700 coho during chum fisheries compared to 2,200 in 1992. In 1993, Areas 7 and 7A accounted for 4,700 (38%) and 7,600 (62%), respectively, of the combined tribal and non-tribal catch of 12,300. There was not a coho directed fishery in Areas 7/7A in 1993.

San Juan Islands Sport

Catch estimates are not yet available for the 1993 sport fishery in Area 7. The 1992 coho catch of 5,700 is above the 1991 catch of 4,000.

Puget Sound Marine Net

Tribal and non-tribal 1993 net fisheries in Puget Sound marine areas other than 4B, 5, 6A, 6C, 7, and 7A harvested 121,100 and 21,300 coho, respectively. This compares to a tribal harvest of 227,100 and a non-tribal harvest of 97,400 coho in 1992. No coho directed non-tribal net fisheries were scheduled in marine Areas 10 and 11 due to allocation constraints caused by a pre-terminal catch of a significantly reduced South Sound hatchery and natural coho run. In addition, no coho directed non-tribal fisheries were scheduled in Areas 8, 8A, 12 and 12B in order to conserve natural coho returning to these areas. Tribal fisheries were expected in these areas; however, most were cancelled due to poor coho returns.

Puget Sound River Net

River net fisheries in Puget Sound harvested approximately 18,200 coho in 1993 compared to 46,600 in 1992.

Puget Sound Sport

Catch estimates are not available at this time for the 1993 Puget Sound sport fishery. During 1993, the Skagit River recreational salmon fishery was entirely closed for coho retention and was closed to all salmon retention from September 24 to October 31 for coho conservation purposes. The Area 8-2 recreational fishery was closed September 30 through October 15 (closure extended through 10/31 within Port Susan) to protect Sillaguamish coho. In addition, the opening of the Stillaguamish River recreational chum fishery was delayed until November 1.

Chum Salmon Fisheries

The mixed-stock fisheries in United States 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 runs of local origin.

Mixed Stock Fisheries

Areas 4B, 5, 6C

As in previous years, the chum fishery in Areas 4B, 5, 6C was restricted to Treaty Indian gillnet gear only. Chum fishing in these areas was delayed until the latter part of the week of October 10 due to domestic coho conservation concerns. The duration of the commercial fishery was also restricted due to pre-season forecasts indicating a relatively poor fall chum return to Puget Sound.

Test fisheries were conducted during the week prior to the commercial fishery opening to collect GSI samples. The commercial fishery was initially opened for five days from noon on October 14 to noon on October 19. The fishery remained closed for 24 hours and re-opened at noon on October 20 for an additional three days, closing at noon on October 23. Test fishing for the collection of GSI samples continued for two weeks following the close of the commercial fishery.

Incidental chum catches in fisheries prior to the chum management period totalled only 14 fish. Catches in the Strait of Juan de Fuca commercial chum fishery were considerably greater than expected given the forecasted abundance of Puget Sound and Canadian chum runs. The total commercial harvest during the chum management period was 40,145. There were an additional 1,646 chum harvested in test fisheries for GSI collection, bringing the total chum catch in Areas

4B, 5, 6C, reported through November 18, to 41,805. Little, if any, additional catch is expected to be reported.

Areas 7 and 7A

Prior to the fall chum management period, relatively few chum were harvested incidental to fisheries targeting on other species (sockeye and pink). Total catches of chum salmon in Areas 7 and 7A prior to chum management were 27 fish.

Pre-season, very little fishing opportunity was anticipated for Areas 7 and 7A due to a low forecast for the Johnstone Strait chum run size (less than 3 million). Under the terms of the chum Annex, the U.S. was limited to a harvest of no more than 20,000 chum in Areas 7 and 7A when the Johnstone Strait run size is less than 3 million chum (and total catch is less than 225,000). Given this limitation, the U.S. scheduled a limited reef net only fishery beginning October 10. The anticipated catch was only a few thousand fish and the total harvest for the reef net gear in Areas 7 and 7A was reported at 3,826 chum.

Throughout the chum management period, U.S. and Canadian technical staffs kept in close communication on the status of the chum run size entering Johnstone Strait. Indications from the initial evaluation fishery and subsequent rest fisheries in late September and early October were that the run was slightly lower than expected, with the estimated total run size remaining less than 3 million. However, on October 20, DFO staff notified U.S. managers that test fisheries had picked up a large abundance of chum salmon and the Johnstone Strait run size was now updated to 3.2 million. This allowed additional fishing in Johnstone Strait under the "clockwork" management plan (exceeding the 225,000 catch level), and allowed a U.S. fishery in Areas 7 and 7A with a limit of 120,000. However, the U.S. managers were asked by the DFO staff to consider delaying any Areas 7 and 7A fishing until the first week of November due to concerns over the lack of very many chum showing up in the Fraser River.

On October 29, U.S. managers were notified that the Johnstone Strait run size was now projected at 4 million and the catch in Johnstone Strait had exceeded 640,000. As provided in the chum annex, the U.S. Areas 7 and 7A fishery total allowable catch was increased to 140,000 chum.

U.S. managers agreed to daily fishery openings until November 1 and to begin with a Non-Treaty fishery due to an allocation imbalance from the 1992 fishery. A Non-Treaty fishery opened on Monday, November 1, for purse seines from 6:00 a.m. to 5:00 p.m.; and for gillnets from 4:00 p.m., November 1 to 7:00 a.m., November 2. The estimated catch for this opening is 44,652.

The first treaty Indian fishery opened on November 3 at 6:00 a.m., and closed at 9:00 a.m. on November 4. The reported catch to date for this fishery is 20,459 chum. This was followed immediately by another Non-treaty opening beginning at 4:00 p.m. on November 4 and closing at 5:00 p.m. on November 5. The reported catch from this fishery is 44,660 chum.

The final U.S. fishery in Areas 7 and 7A was a second Treaty Indian fishery which opened at noon on November 7 and closed at 6:00 p.m. on November 8. The catch from this fishery is currently reported at 21,715 chum, bringing the total chum catch in Areas 7 and 7A, including harvest in test fisheries, to 135,685. This total harvest is slightly less than the total allowable harvest of 140,000 chum. A few landings may still be unreported for this fishery which could slightly increase this catch total and reduce the shortfall.

Puget Sound Terminal Area Fisheries and Run Strength

Pre-season forecasts for chum returns to Puget Sound were for a fall chum run of about 930,000, which is a slightly below average return. Most Puget Sound chum runs have been updated in-season with all areas indicating runs larger than the pre-season forecasts. The total in-season estimate of Puget Sound chum run sizes, as of November 19, is approximately 1.3 million. Many Puget Sound chum fisheries are still underway or just beginning, and additional in-season estimates of abundance will be made in the coming weeks. At this time, it is far too early to assess spawning escapement.

(Source document) *Preliminary 1993 Post-Season Report for United States Fisheries of Relevance to the Pacific Salmon Treaty*. United States Section of the Pacific Salmon Commission. November, 1993.

C. 1993 POST-SEASON REPORT FOR CANADIAN TREATY LIMIT FISHERIES

Catches reported below are based on in-season estimates (hailed statistics), on-the-grounds counts by DFO management staff, sales slip data (commercial troll and net), and creel surveys (sport). The preliminary 1993 commercial catches were obtained from sales slips to November 1, 1993 and in-season hails; south coast sport catches are from creel survey data to September 30, 1993. Annex fisheries are reported in the order of the Chapters of Annex IV. Comments are provided 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 are only for those stocks and fisheries covered by the Pacific Salmon Treaty (PST); domestic catch allocations have been excluded. The attached table summarizes 1985-1993 catches in Canadian fisheries that have been under limits imposed by the Pacific Salmon Treaty.

Transboundary Rivers

Stikine River

No progress was made with respect to re-negotiating harvest shares of Stikine salmon during the Pacific Salmon Commission negotiations in 1993. As a result, the provisions previously agreed to were rolled over for a one year period. The harvest sharing objectives for 1993 were to share the total allowable catch (TAC) of Stikine River sockeye salmon, 50% to Canada and 50% to the United States, and to allow a Canadian total catch of 4,000 coho salmon and incidental catches of other species.

As required by the Transboundary Chapter of Annex IV, the Transboundary Rivers Technical Committee prepared a pre-season forecast to guide initial fishing patterns of both countries. The initial forecast of 135,000 sockeye was revised to 143,339 sockeye at the beginning of the season with updated forecasting data. The revised total run forecast included an estimated Tahltan Lake sockeye run of 62,300 fish which was above the previous ten-year average of 48,481 sockeye, and an estimated run of 81,039 non-Tahltan sockeye, again above the previous ten-year average for this stock component of 59,927 sockeye. The 1993 forecast and management, stock assessment and enhancement objectives and procedures were detailed in: *Salmon Management and Enhancement*

A total of 47,197 sockeye were caught in the combined Canadian commercial and Aboriginal fishery. This was by far the highest sockeye catch on record, exceeding the 1983-1992 average by 141%. An additional 1,752 sockeye salmon were taken under an "Excess Salmon To Spawning Requirements Licence (ESSR)" which permitted the terminal harvest of sockeye at Tahltan Lake once the escapement goal had been achieved. Although there was opportunity to harvest additional sockeye under the ESSR license, the small size of Tahltan sockeye in 1993 (average weight of 2.5 kg) made the venture unprofitable to continue on a larger scale.

In-season predictions of the total sockeye run size ranged from 216,000 to 258,800 fish, well above the pre-season forecast. The peak forecast occurred for statistical week 29 (week beginning July 11) and was the result of a very strong Tahltan Lake stock component. The strength of the non-Tahltan return was similar to that of the Tahltan Lake sockeye run, which resulted in relatively stable forecasts throughout the latter half of the season. By the end of the fishing season, the Stikine Management Model predicted a total run of 238,400 Stikine sockeye salmon with a TAC of 184,400 fish, and a Canadian and U.S. allowable harvest of 92,200 sockeye salmon each.

Sockeye escapement into Tahltan Lake was 51,610 fish which was approximately 81% above the previous ten-year average of 28,442 sockeye, and was well above the escapement goal of 24,000 sockeye for Tahltan Lake. Of the total number of fish entering the lake, 4,506 were taken for hatchery brood stock. The preliminary post-season estimate of the total Tahltan stock size was 106,573 sockeye, compared to the pre-season expectation of 62,300 fish. The preliminary post-season estimates of the non-Tahltan run size and escapement were 153,362 and 81,535 sockeye, respectively. Thus, the total Stikine escapement was approximately 133,145 sockeye, which is more than two times the interim escapement goal of 54,000 fish and 91% above the previous ten-year average of 69,578 sockeye.

The total coho catch of 2,616 fish was 35% below the 1993 quota of 4,000 coho. As in 1992, unfavourable economic factors were the primary reason the quota was not taken. The in-river coho run strength was below average based on test fishing and aerial survey data. It appears the interim escapement goal range of 30,000 to 50,000 fish was not achieved in 1993.

The total 1993 gillnet catch of chinook was 1,803 adults and 308 jacks compared to previous ten-year averages of 1,794 large chinook and 490 jacks. The adult chinook count of 11,449 fish at the Little Tahltan weir was a record, 2.4 times the 1985-1992 average of 4,790 adult chinook. The escapement goal for this system is 5,300 large chinook. The count of 60 jacks was 82% below the 1985-92 average of 330 jacks. Aerial surveys of Stikine chinook index spawning areas were above average.

Enhancement activities continued in 1993 with 5.9 million sockeye eggs taken at Tahltan Lake and flown to the Port Snettisham hatchery for incubation. Approximately 1.947 million fry were outplanted into Tahltan Lake, and 1.990 million fry were outplanted into Tuya Lake in June and July of 1993 from the 1992 egg-take. The fry were mass-marked with a thermally-induced otolith mark.

A record 3.255 million sockeye smolts were enumerated emigrating from Tahltan Lake in 1993.

Taku River

As with the Stikine River, no progress was made with respect to re-negotiating harvest shares of Taku River salmon during Pacific Salmon Commission negotiations in 1993. As a result, the

provisions previously agreed to, i.e. the 1988 to 1992 harvest sharing regimes, were continued for a one year period. The harvest sharing provisions for 1993 allowed Canada to harvest 18% of the TAC of Taku River sockeye salmon, 3,000 coho salmon, and incidental catches of other species.

The Canadian pre-season forecast was for an average to below average return of approximately 204,000 sockeye, and a Canadian harvest of about 23,000 sockeye.

In-season projections of the total run size and TAC were made frequently throughout the season based on the joint Canada/U.S. mark-recapture program, the estimated catch of Taku sockeye in the U.S. District 111 gillnet fishery, the catch in the Canadian in-river fishery, and historical run timing information. The in-season forecasts consistently indicated a run size much greater than expected ranging from approximately 297,000 to 314,000 sockeye. The final in-season forecast was a total run of 305,500 sockeye, a TAC of 225,500 to 234,500 sockeye, and a Canadian allowable harvest of 40,600 to 42,200 sockeye.

The preliminary post-season estimate of the total run, based on tagging and preliminary harvest data, was a record 277,021 sockeye. This translates into a TAC of 197,021 to 206,021 sockeye and a Canadian allowable catch of 35,464 to 37,084 sockeye. The estimated run size in 1993 was 42% above the 1984-92 average run size.

The 1993 Canadian sockeye catch was a record 33,247 fish comprised of 33,217 sockeye harvested in the commercial fishery and 30 sockeye taken in the Aboriginal fishery. For comparison, the previous ten-year average catches in the commercial and Aboriginal fisheries were 19,303 and 130 sockeye respectively. Preliminary analysis indicates that the total Canadian sockeye catch in 1993 represented 16.1% to 16.9% of the TAC and was approximately 2,217 to 3,837 short of the Canadian allowable catch. The main reason for the shortfall was the occurrence of a Tulsequah flood during week 31 (last week in July) which severely affected the fishery performance in this, week which is usually close to the peak of the season.

Based on the Canada/U.S. mark-recapture program, the estimated total escapement of 103,592 sockeye was well above the interim escapement goal of 71,000 to 80,000 fish. Weir counts at Little Trapper and Little Tatsamenie lakes were 17,432 and 5,028 sockeye, respectively. Both counts were above the principal brood year escapements in 1988; the Little Trapper weir count was the second highest on record. The sockeye weir count at Kuthai Lake was a record 6,308 fish; this program was conducted by the Taku River Tlingits as one of their Aboriginal Fisheries Strategy (AFS) projects.

The coho catch of 3,033 fish was close to the 1993 quota of 3,000 pieces. The preliminary mark-recapture and test fishery data suggest the interim escapement goal of 27,500 to 35,000 was surpassed.

The Canadian chinook catch consisted of a record 1,634 large fish and 171 jacks. The commercial catch of 1,619 large chinook was roughly 2.5 times the previous ten-year average of 651 fish, whereas, the catch of chinook jacks was slightly below the previous ten-year average of 186 jack chinook. Chinook aerial escapement counts were above average in all of the Taku River chinook index streams. The combined index count was a record 13,204 chinook, 69% above the previous ten-year average. This was the first year that the index escapement goal of 13,200 fish has been met.

Enhancement activities continued in 1993 with approximately 1.2 million sockeye eggs taken from each of Little Trapper and Little Tatsamenie stocks. The eggs were flown to the Port Snettisham hatchery for incubation. Approximately 0.909 million sockeye fry were out-planted into

Tatsamenie Lake, and 1.113 million fry into Trapper Lake, in June/July of 1993 from the 1992 egg-takes. The fry were mass-marked with a thermally-induced otolith mark.

Alsek River

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

Canada does not commercially fish in the Alsek drainage, but does conduct important Aboriginal and sport fisheries. In keeping with Annex provisions, Canadian catches of Alsek chinook and early sockeye continued to be restricted. The 1993 Aboriginal fishery catch included 152 chinook and an estimated 2,300 sockeye compared to previous ten-year average catches of 194 chinook and 2,006 sockeye. A below average catch was also recorded in the sport fishery which harvested 171 chinook, 329 sockeye and 37 coho. Previous ten-year average sport catches are 314 chinook, 373 sockeye and 116 coho. The below average chinook catch was attributed to relatively poor fishing conditions caused by turbid water, which persisted throughout most of the season, and the compressed nature of chinook run timing in 1993.

At the Klukshu River, an Alsek River tributary, the total weir counts were: 3,302 chinook, 55% above the previous ten-year average of 2,126 fish, the second highest on record; 5,369 early sockeye, 67% above average; 11,371 late run sockeye, 26% below average; and a coho count of 778 fish, 54% below the ten-year average of 1,732 coho. A below average escapement of 3,135 sockeye was estimated in Village Creek from electronic counter data. Aerial surveys indicated average to above average chinook escapement in other Alsek drainage tributaries in Canada.

Northern British Columbia Pink Salmon

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

A below average return was anticipated for Canadian northern boundary pink stocks. For Area 3, local pink stocks were expected to provide a catch of 750,000; Skeena River pinks were expected to provide a catch of two million. The Area 4 catch was expected to be 1.4 million pinks for a total Area 3-4 catch of 4.15 million.

The Canadian management objective, in keeping with the Treaty Annex, is 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 1993, based on in-season hailed data, was 1.24 million in Areas 3 (1-4) and 5 (11-12); the 1985-93 average catch is 1,992,000. The percentage of the 1993 net catch taken in subareas (1-4) during the 1993 season, 62%, was between the 1985-93 average of 62% and the pre-Treaty average of 76%.

Pink escapements to rivers and streams in Area 3 were near target levels, but below escapements of recent years. The preliminary Area 4 escapement of 800,000 to one million is close to the minimum escapement target of one million pinks.

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 (Areas 101-4, 101-8, and northern portions of Areas 101-3 and 103) to trolling for pinks on July 22, or earlier if a 300,000 pink troll catch was taken in the strip before July 22. The annual

Area 1 troll catch of pinks must not exceed 1.95 million and there is a four-year cap (1990-93) of 5.125 million.

Based on in-season estimates, the Canadian troll catch in the A-B line strip was 264,500 when it closed to trolling at midnight on July 22.

The Area 1 troll fishery for pink salmon was closed on September 12. Based on preliminary sales slip data to November 1, the catch was 889,900 in 1993. The preliminary estimate of the 1990-93 cumulative catch is 4.468 million leaving an uncaught balance of 657,300 to be counted in new arrangements for the 1994 season.

Chinook Salmon

The Parties did not include chinook ceilings in the agreement covering the 1993 fishing season.

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 1993 troll catch was 182,000 based on sales slips to November 1, 1993. This troll catch plus the net catch estimate of 36,500 from sales slip data and the preliminary sport catch estimate of 40,000 gives a total North/Central coast catch of 258,500. Terminal net catches of 7,400 chinook have been excluded from this total.

The troll fishery was open July 1 to August 1, closed coastwide to all trolling for 6 days during August for sockeye accounting, then closed for the season on September 12. Major chinook areas closed to all trolling August 2-4, August 7-15, and August 19-27. There were 22 days of chinook non-retention.

Based on preliminary information, chinook escapements in 1993 were similar to those in recent years.

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

There was no Pacific Salmon Treaty ceiling for chinook in 1993, however the objective was to keep chinook harvest rates to levels experienced in recent years.

Trolling opened on July 1 with areas F1, G, H, and S closed (see attached chart) . Except for area S, these areas were opened for the balance of the season on July 24.

Trolling for chinook continued until September 30, except for 6 days in August when all WCVI trolling was closed.

The preliminary estimate of the 1993 WCVI troll catch is 271,000 based on sales slips to November 1, 1993.

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

In response to conservation concerns for the Lower Georgia Strait (LGS) chinook stocks, Canada continued a series of area and gear-specific management actions to reduce LGS harvest rate by 20 percent. Therefore the Canadian management objectives in the Strait of Georgia for 1993 were to manage sport and troll fisheries for catches below the Treaty ceiling.

The Canadian objective for the troll fishery was to manage for a 31,000 chinook harvest (62 cm minimum size limit). The troll season for chinook started on June 28 and continued until July 23. Chinook were re-opened from September 1 to 18 to take the balance of the allocation. The Strait of Georgia troll catch is 32,500 based on sales slips to November 1, 1993.

In the sport fishery, the chinook management plan implemented in 1989 in Georgia and Johnstone Strait, was continued in 1993. This plan includes an annual bag limit of 15, a daily bag limit of 2 and a size limit of 62 cm for Johnstone Strait, and Georgia Strait north of Cadboro Point. For the Canadian portion of Juan de Fuca Strait (Victoria area), the size limit was 45 cm and the annual bag was 20.

The 1993 sport catch for the Strait of Georgia to the end of September was 118,845 based on creel survey results.

Fraser River Sockeye and Pink Salmon

Canada and the United States could not agree during 1992/93 negotiations on a long term arrangement limiting United States interceptions of Fraser River sockeye and pink salmon. Instead, the Parties agreed to a one year arrangement regulating U.S. fisheries during the 1993 season.

For Fraser sockeye, the allowable U.S. catch in Panel Waters would be 20 percent of the TAC if the TAC was less than 12.062 million fish. If the TAC was between 12.062 million and 15 million fish, the U.S. catch would be 2.412 million plus 10 percent of the TAC between 12.062 and 15 million. If the TAC exceeded 15 million fish, the U.S. catch would be 2.706 million fish plus 5 percent of the TAC in excess of 15 million to a maximum catch of 2.806 million fish. U.S. interceptions outside of the Panel Area will be addressed during negotiations on 1994 arrangements. The U.S. also agreed in 1993 not to fish the Early Stuart sockeye run, which provided for adequate escapement and viable fisheries in the upper portion of the Fraser River drainage.

For Fraser River pink salmon, the total U.S. catch would be limited to 25.7 percent of the TAC, to a maximum of 3.6 million fish.

Based on in-season estimates, the return of Fraser River sockeye was approximately 22.7 million fish. Compared to pre-season forecasts, the actual return was nearly 31 percent larger than forecast. At this level, the 1993 return will be the largest return since 1913. The previous record was 18.4 million in 1989.

The commercial catch was 16.3 million sockeye, of which 13.4 million fish were caught by Canada and 2.8 million (includes 185,000 outside Panel Waters) were caught by the United States. The non-commercial catch was 1.1 million fish.

Based on in-season estimates, the Fraser River pink salmon return was approximately 11.5 million fish. The run was 63 percent smaller than forecast and was less than the average since 1985 of 16.5 million.

The commercial catch was 5.4 million pink salmon, of which 3.7 million were caught by Canadian fisheries and 1.7 million fish were caught by United States fisheries.

Management of the Fraser River sockeye was complicated by this year's El Nino event that resulted in an exceptionally high northern landfall and subsequent diversion through Johnstone Strait. The majority of the escapement into the Fraser River migrated through Johnstone Strait. Canadian troll and net fisheries in Panel Waters were adversely affected by the atypical migration

pattern. Area 20 net fisheries were severely curtailed to provide sufficient passage of sockeye for U.S. Panel Waters fisheries. The Panel also required Canada to modify its Area 29 gillnet fishery to facilitate "blowback" of Fraser sockeye into the U.S. zone.

The 1992 pilot AFS agreement with the lower Fraser bands below Sawmill Creek was repeated in 1993. In 1993, the sockeye allocation was 620,000 fish, an increase from the 1992 allocation of 395,000 fish. The pink salmon allocation was 105,000 fish. The agreement specified fisheries management arrangements, opportunities to sell catch and mandatory landing requirements for all salmon catch. The upper Fraser salmon allocations, specified in communal licenses issued to a number of tribal groups and an individual band, totalled 322,910 sockeye and 22,400 pink salmon. The aggregate Fraser River AFS allocations for sockeye and pink were 942,910 and 127,400 respectively.

Preliminary catch estimates, based on landings in the lower Fraser and catch estimation programs in the upper Fraser, total 848,055 sockeye and 19,413 pink salmon, of which 641,018 sockeye and 16,010 pink salmon were taken in the lower Fraser. An estimated additional catch of 185,000 Fraser sockeye were taken in Indian fisheries outside of the Fraser River area.

Fraser River spawning escapement estimates are incomplete and currently under review.

Coho Salmon

Area 20 Net Catch

There were no targeted coho fisheries in Area 20 in 1993.

Based on sale slip information to November 1, 1993, incidental net catches during two weeks of Fraser River sockeye fishing in August totalled 6,109 coho, 2,127 chinook and 134 chum salmon. The short 1993 season was necessary due to the extremely high diversion of sockeye salmon through Johnstone Strait (see Fraser River section).

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

The Canadian objective was to manage to a catch ceiling of 1.7 million coho.

There were time/area closures near the Canada/U.S. boundary from July 1 to 24 in order to avoid small coho catches early in the season. These closures also applied to chinook (see WCVI chinook section).

The preliminary estimate of the 1993 WCVI troll catch is 938,300 based on sales slips to November 1.

Southern British Columbia Chum Salmon

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

Johnstone Strait

Pre-season expectations indicated a total inside run size of 2.657 million chum salmon, including 100,000 destined for Puget Sound streams.

There were three directed commercial chum fisheries in Johnstone Strait in 1993. The first occurred on September 21-23 (seines 24 hours, gill nets 40 hours). The catch for this assessment fishery was 85,200 and indicated a run size of 2.2 million, which would only allow for a 10% or less harvest rate under the clockwork plan. Test fishing continued in Johnstone Strait in order to monitor the run size. For the two weeks following the commercial fishery, test fishing catches strengthened. Run size assessment based on test fishing data, in conjunction with the earlier commercial fishery, resulted in an estimated stock size of 3.2 million on October 19, which allowed a 20% harvest rate under the clockwork plan. Consequently a second fishery was conducted on October 23-25 (seines 10 hours, gill nets 38 hours) which harvested a further 652,000 chum salmon. Subsequent run size assessment indicated a total clockwork chum run of greater than 3.2 million. Once again test fishing assessment continued following the commercial fishery. With the highest catches of the season in the test fishery and the healthy commercial catch the previous week, the run size was estimated at 4.0 million. Under clockwork rules the harvest rate increased from 20% to 30%. This meant the clockwork TAC was 1.2 million. As of October 29 the Johnstone Strait commercial clockwork catch totalled 763,000 (not including an incidental troll catch of 3,200. In addition, it was anticipated that a further 173,000 would be taken by directed chum fisheries in U.S. Areas 7 and 7A, Indian food fisheries in Areas 11-13, Johnstone Strait test fisheries, and as incidental catch in Area 14. This allowed for a remaining commercial catch in Johnstone Strait of about 260,000. The third and final clockwork fishery occurred November 2 through November 4 (seines 8 hours and gill nets 42 hours) and caught 355,000 chum. Post-season run size assessment will be completed once escapement enumeration is finished. Early returns to terminal areas suggest that escapement goals should be met in 1993.

Georgia Strait

The following table provides open dates in the Strait of Georgia terminal chum fisheries as of November 9. There were a total of three openings in Area 14. Catches from these fisheries totalled 240,000. Terminal fisheries in Jervis Inlet, Area 16, were conducted twice this season for a total catch of 46,000. In Area 17, one fishery was conducted producing a catch of 17,500. Area 18 had one commercial opening for a total catch of 9,200.

WEEK ENDING DATES	STATISTICAL AREA			
	14	16	17	18
October 23	OPEN	-	-	-
October 30	-	-	-	-
November 6	OPEN	OPEN	-	-
November 13	OPEN	OPEN	OPEN	OPEN

Outside Net (Areas 21 and 22)

Chum salmon returning to Area 22 (Nitinat Lake) are caught in Area 21 and parts of Areas 121 and 20-1. Pre-season expectations were for a harvestable surplus of approximately 800,000 chum. The escapement objective is 250,000 for the area, including 175,000 into the Nitinat Lake tributaries, 15,000 for test fishing payment, and 60,000 for hatchery requirements.

The fishing plan is based on providing an early opportunity for gillnets, with subsequent seine fisheries dependant on achieving weekly escapement goals into Nitinat Lake. Early gill net opportunities (eg. start date) are constrained by objectives of reducing the by-catch of steelhead.

Gill net fisheries were conducted starting September 27 for four (4) days, starting October 4 for four (4) days and again starting October 11 for two (2) days. Fisheries were then halted since escapement targets were not being achieved. By October 19-20, test fishing in Nitinat Lake indicated sufficient escapement to initiate seine fisheries. Seine fisheries were conducted over three days, October 23, 24 and 26. Combined seine and gill net fisheries commenced October 27 and continued through November 10.

In total there were 25 days fishing for gill nets and 18 days fishing for seines. The combined gear fishery continued for 15 days. The hailed commercial catch was 820,000 chum, with a relatively low incidence of coho, chinook and steelhead. In addition 20,000 chum were taken by test fishing.

During the single gear fisheries, the fishing area was limited to waters inside a line from two miles south of Pachena Point to two miles south of Bonilla Point. During the combined gear fisheries a gill net only area was instituted in part of Area 20-1 inside a line two miles south of Bonilla Point to a point two miles south of Logan Creek. This gill net area is less than one half the size of the extension used in 1991.

Preliminary observations suggest that escapement objectives will be met in Area 22 with over 200,000 chum counted in the Nitinat River. The hatchery achieved its target of 36 million eggs. Chum catch within Area 22 (Nitinat Lake) by native fisheries, test fishing and hatchery broodstock operations totalled about 200,000.

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

The 1993 troll catch of chum is 14,900 based on sales slips to November 1, 1993. The catch was taken during the season, predominantly in the northwest region of WCVI.

G.S.I. Sample Collection

In Johnstone Strait, nine weeks of both test and commercial fishery catches were sampled for a total of about 4,000 fish. In the mid-Vancouver Island area, 900 fish were sampled from commercial fisheries over a three week period.

At Nitinat, 1,100 chum were sampled from the commercial fisheries over a six week period.

There was no GSI sampling in the WCVI troll fishery due to low chum catches.

Preliminary 1993 Catches in Canadian Treaty Limit Fisheries and 1985-92 Catches for Comparison. Prepared for the Nov 29 to Dec 3, 1993 meeting of the Pacific Salmon Commission

Fisheries/Stocks	Species	1993+	1992**	1991	1990	1989	1988	1987	1986	1985
Stikine River (all gears)	Sockeye	47,197	26,284	22,763	18,024	20,032	15,291	9,615	17,434	25,464
	Coho	2,616	1,855	2,648	4,037	6,098	2,117	5,731	2,280	2,175
	Chinook-lge	1,803	1,836	1,511	2,250	2,669	2,370	2,201	1,936	1,111
	Chinook-jak	308	238	660	959	289	444	444	975	185
	Pink	29	122	394	496	825	418	646	107	2,356
	Chum	395	231	208	499	674	733	459	307	536
	Steelhead	67	132	71	199	127	261	219	194	240
Taku River (commercial gillnet)	Sockeye	33,217	29,472	25,067	21,100	18,545	12,014	13,554	14,739	14,244
	Coho	3,033	4,077	3,415	3,207	2,876	3,123	5,599	1,783	1,770
	Chinook-lge	1,619	1,445	1,177	1,258	895	555	127	275	326
	Chinook-jak	171	147	432	128	139	186	106	77	24
	Pink	16	0	296	378	695	1,030	6,250	58	3,373
	Chum	15	7	2	12	42	733	2,270	110	136
	Steelhead	11	15	5	22	24	86	223	48	32
Areas 3 (1-4) and 5-11 (commercial net)	Pink	1,242,000	1,099,000	6,961,000	831,000	2,259,000	425,000	1,851,000	1,983,000	1,277,000
Area 1 (commercial troll)	Pink	890,000	760,000	1,647,000	1,165,000	1,377,000	1,630,000	495,000	416,000	687,000
North/Central Coast (commercial/sport)	Chinook	258,300	262,000	303,200	253,000	301,200	245,600	282,800	261,000	275,000
West Coast Vancouver Island Area 12 (com. troll)	Chinook	271,000	345,500	202,900	298,000	203,700	408,700	379,000	342,000	358,000
	Chinook	4,000	2,600	1,000	2,000	2,000	2,000	2,000	4,000	4,000
Georgia Strait (sport) (troll)	Chinook	118,800	116,600	112,700	112,000	133,000	119,000	121,000	182,000	235,000
	Chinook	32,500	37,300	32,000	34,000	29,000	20,000	39,000	44,000	56,000
	Total	151,300	153,900	144,700	146,000	162,000	139,000	160,000	226,000	291,000
Fraser River stocks (total Canadian catch)	Sockeye	13,428,000	3,906,000	6,947,000	13,411,000	12,776,000	1,615,000	3,776,000	9,372,000	8,754,000
	Pink	3,731,000	-	6,405,000	-	7,181,000	-	2,579,000	-	8,725,000
Fraser River stocks (total U.S. catch)	Sockeye	2,876,000	700,000	1,881,000	2,427,000	2,439,000	679,000	1,932,000	2,755,000	2,925,000
	Pink	1,725,000	-	2,789,000	-	2,260,000	-	1,339,000	-	3,834,000
West Coast Vancouver Island (commercial troll)	Coho	938,300	1,664,000	1,890,000	1,864,000	1,953,000	1,596,000	1,821,000	2,157,000	1,389,000
Johnstone Strait clockwork catch#	Chum	1,166,000	1,414,000	262,000	1,184,000	482,000	1,112,000	127,000	1,177,000	587,000

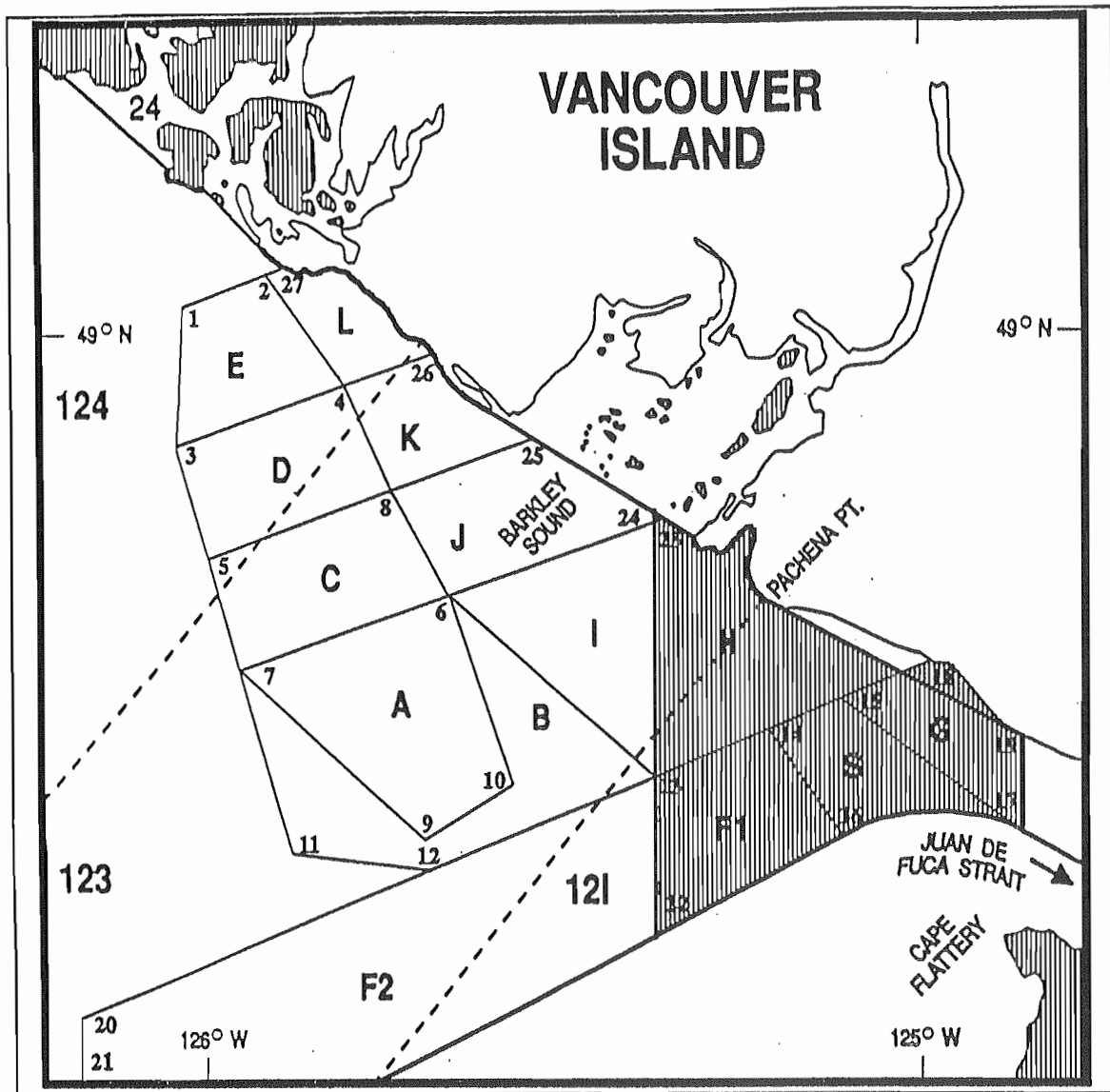
+ 1993 catches are based on in-season hails, sales slips to Nov 1 1993, preliminary sport catch estimates, and creel survey sport catch estimates to September 30, 1993.

** 1992 catches are preliminary.

* North Coast catch less terminal exclusion catches of 7,400 in 1993, 6,100 in 1992, 6,000 in 1991, 5,500 in 1990 and 4,800 in 1989.

Canadian clockwork catch includes commercial, IFF and test fish catches in Areas 11-13 and 29 for 1985-87 and in Areas 11-13 for 1988-92.

1993 CONSERVATION AREAS



CHINOOK AND COHO CONSERVATION AREAS

A	Chinook Conservation Area A	F1	Coho Conservation Area F1
B	Chinook Conservation Area B	F2	Coho Conservation Area F2
C	Chinook Conservation Area C	H	Coho Conservation Area H
D	Chinook Conservation Area D	I	Coho Conservation Area I
E	Chinook Conservation Area E	J	Coho Conservation Area J
G	Chinook Conservation Area G	K	Coho Conservation Area K
S	Chinook Conservation Area S	L	Coho Conservation Area L

(Source Document) 1993 Post-Season Report for Canadian Treaty Limit Fisheries. Canada Department of Fisheries and Oceans. December, 1993.

D. 1993 UPDATE REPORTS FOR SALMONID ENHANCEMENT PROGRAMS IN CANADA AND THE UNITED STATES

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

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

1. 1993 Annual Report on the Salmonid Enhancement Activities of the United States

The United States provided a report dated January 31, 1990 to Canada that combined under one cover all pertinent biological data for United States enhancement projects with a detailed account of plans for new projects. The 1993 Annual Report, the fourth in the series, incorporates updated information, including projections for releases from the 1992 brood year, as well as preliminary data on numbers of adults returning to hatcheries, and the number of eggs taken during 1992. Final information and projections current through the end of the 1992 calendar year are contained in this report.

Southern Southeast Alaska

New Production

In 1992, the following hatcheries either added additional incubation or rearing capacity by increasing their physical plants or increasing their water flow:

Port Armstrong
Neets Bay
Burnett Inlet
Gastineau Channel
Stettisham
Crystal Lake

Loss of Production

Due to a pipeline failure, Port Armstrong Hatchery lost most of its BY 90 coho stock, as well as all of its BY 91 chinook stock. There were no other significant losses of production.

Trends in Production

Most private non-profit hatcheries are still in the process of brood stock development and, consequently, have not reached their capacities. Potential eggtakes, releases, and returns should increase over the next few years until the hatcheries reach their physical and legally-permitted capacities.

Washington State Department of Fisheries

Production Changes

During the 91-93 biennium, production decreases at 15 state funded facilities were implemented in response to budgetary shortfalls.

For the 93-95 biennium production changes have been proposed at eight facilities in response to budgetary shortfalls and are to be implemented unless alternate funding or operating entity can be arranged.

Production increases in response to a program to increase recreational fisheries opportunities were implemented at three facilities.

Trends in Production

Trends in production are depicted in the following table.

Thousands of pounds of salmon released by the Washington Department of Fisheries, 1983-1992.

Release Year	Fall Chinook	Spring Chinook	Coho	Chum	Pink	Annual Total
1983	1,532	466	2,121	119	0	4,238
1984	1,514	697	2,414	92	1	4,718
1985	1,609	605	2,373	131	0	4,718
1986	2,014	583	2,576	119	3	5,295
1987	1,856	495	2,695	115	0	5,161
1988	1,843	707	2,605	99	7	5,261
1989	1,958	613	2,619	102	0	5,292
1990	1,910	874	2,439	93	3	5,319
1991	1,686	1,179	2,234	71	0	5,170
1992	1,753	1,052	2,549	82	5	5,441

Treaty Tribes of Western Washington

New Facilities and Production

The Muckleshoot and Suquamish Tribes are developing a marine net pen facility in mid-Puget Sound near Seattle. This facility will be used to produce 200,000 yearling coho in 1994 and approximately 950,000 yearling coho annually thereafter.

The Muckleshoot and Puyallup Tribes have expanded their White River spring chinook rebuilding program with the addition of three acclimation ponds in 1993. One of these ponds was used for a release of 142,000 sub-yearling spring chinook in the spring of 1993. A fourth pond is planned for construction in 1994.

The Quinault Indian Nation is expanding its Salmon River Acclimation Pond facility on the Queets system. The new Salmon River Fish Culture Facility will begin operation in the spring of 1994 and will include incubation and full-term rearing of all current Queets production programs. This production includes 800,000 Salmon River coho yearlings and 150,000 steelhead for enhancement, and 200,000 coho for remote site wild supplementation. Additional releases include 200,000 to 300,000 wild fall chinook which are tagged as a U.S./Canada indicator stock.

The Quinault Nation has also resumed attempts to supplement the Quinault sockeye population with small releases of fingerlings from their net pen facility in July 1993. The Nation expects to continue and likely expand the program in future years.

Loss of Production

In the Spring of 1993 an Infectious Haematopoietic Necrosis (IHN) epizootic occurred in sockeye fry reared at the Makah Tribe's Umbrella Creek Hatchery. The hatchery's entire production of 107,000 BY 92 sockeye salmon was destroyed and the hatchery disinfected. Production will resume with BY 93 fish.

Overall Production Trends

Trends in tribal fish production are listed in the following table. Beginning in 1985, annual releases increased substantially. From 1982 to 1984, total annual releases averaged approximately 33 million fish. From 1985 to 1992, total annual releases increased to an average of approximately 46 million fish. Moderate increases in fall chinook, spring chinook, and coho yearling production are planned for future years. Production of other species are expected to remain similar to recent years. Beginning in 1989, releases from the Quinault National Fish Hatchery have been reported by the USFWS. Although this involves no net loss in production for the region, an annual decrease of approximately two million fish is reflected in the tribal release numbers.

Hatchery Releases for Western Washington Tribes (1,000's of fish). Release numbers include tribal cooperative projects with state, federal and private organizations.

Release Year	Fall Chinook	Spring/ Summer Chinook	Sub- Yearling Coho	Yearling Coho	Chum	Pink	Sockeye	Sub- Yearling Steelhead	Yearling Steelhead	Total
1982	10,871	100	2,683	6,249	13,119	105	469	683	572	34,858
1983	9,836	130	3,162	5,136	12,892	0	476	320	730	32,682
1984	8,721	110	2,766	5,815	11,266	737	10	766	948	31,141
1985	9,686	422	9,512	6,598	25,190	0	200	1,402	1,252	54,262
1986	11,632	237	2,893	7,536	22,380	0	240	1,159	1,242	47,319
1987	11,080	133	2,584	6,957	23,470	0	12	932	978	46,246
1988	13,094	476	1,699	8,150	21,092	882	133	577	905	47,008
1989	12,102	682	2,364	8,033	20,221	0	200	398	872	44,872
1990	14,212	659	1,269	7,693	14,981	110	0	353	821	40,098
1991	17,237	446	2,194	9,458	14,887	0	12	769	903	45,906
1992	12,847	1,105	3,800	11,589	12,417	46	48	339	686	42,877

Oregon Department of Fish and Wildlife

New Production

No new production is planned for 1992 brood year.

Loss of Production

Due to well water shortages at Umatilla Fish Hatchery, the 1992 brood goals have been reduced by 3.258M Up River Bright Fall Chinook and 40K Summer.

Major Trends

Mitchell Act funding continues to be appropriated in an untimely manner and is insufficient to maintain existing fish hatchery programs. If funding shortfalls continue, hatchery closures and reductions in various programs can be expected in the future.

General Fund reductions as a result of Measure Five, a property tax reduction measure, may also result in hatchery closures and program reductions.

The implementation of Oregon's Wild Fish Policy will change programs in some areas emphasizing natural production, habitat improvement and acclimation over increased production.

The combined water temperature for the new relocated wells at Bonneville Fish Hatchery averaged 57 degrees during the fall of 1992, previous normally was 50 degrees. This resulted in higher than normal losses of Tule stock Fall Chinook fry and fingerling. ODFW is working with USACE to resolve the problem which is a byproduct of the new navigation lock construction.

Idaho Department of Fish and Game

New Production

The sockeye salmon captive broodstock program for endangered (U.S. Endangered Species Act) Snake River sockeye salmon continued in 1992, using Redfish Lake returning adults and outmigrant juveniles. However, one male was trapped for the captive brood program. Sperm was placed in cryopreservation for future use and genetic aspects. A portion of the sockeye smolt emigrating from the lake in 1992 were once again incorporated into the captive brood program.

Losses in Production

The 1990, 1991, and 1992 spring and summer chinook salmon brood escapements and egg takes were well below potential hatchery capacities. Smolt releases below hatchery capacity in 1992 will be followed by below-capacity releases in the springs of 1993 and 1994.

Trends in Production

Hatchery production, as well as natural production, is predicted to diminish with the low adult fish numbers returning to Idaho. The continuing trends of average and below-average water years, low flows in the mainstream migration corridor, and exacerbated mortality of smolts through the federal hydroelectric system, continue to take their toll on smolts as well as returning adult fish. Adult brood shortages for hatchery production occurred in both 1991 and 1992 for spring and summer chinook.

The observed decreasing trend in numbers of wild redds counted in trend areas indicates declining abundance of wild spring and summer chinook. The 1992 count was 12 percent of the average counts from 1960-1964, a period of pre-mainstream hydroelectric system completion. Counts have declined since the indicator stock program was initiated.

United States Fish and Wildlife Service

U.S. Fish and Wildlife Service production shows anticipated increases for broods 1991 and 1992 due to the return of Spring Creek NFH to full production and associated releases of excess fry from Spring Creek NFH.

(Source Document) *1993 Annual Report on the Salmonid Enhancement Activities of the United States*. United States Section of the Pacific Salmon Commission. January, 1994.

2. 1993 Update Report for the Salmonid Enhancement Program in British Columbia

In Canada, the Salmonid Enhancement Program (SEP) is a jointly funded program of the federal and provincial governments designed to enhance British Columbia and the Yukon Territory's five salmon and two sea-run trout species. SEP was initiated in 1977 to assist the Department of Fisheries and Oceans in reaching the objective of doubling salmonid stocks. Funding was provided to construct, operate, maintain, and assess salmonid culture facilities as well as to operate existing facilities.

The Salmonid Enhancement Program is presently undergoing an evaluation by the Internal Audit and Evaluation Branch, Ottawa which is expected to be completed in mid 1994.

Summary of Eggs Taken and Juvenile Releases

A summary of total releases of juveniles in 1993 by SEP unit and program component is presented in the following table:

Data by Species and Stock/River for individual facilities in the Enhancement Operations and Community Programs components are presented by production unit in Tables 2 and 3 of the report, which are not reproduced here. These data include: egg target, eggs taken (or transferred to or from another facility), fry or yearlings rearing as of December 31, 1993, and number released by release stage. In cases where Stock or River is not specified, assume that the stock is native to the facility. Estimates for some of the spawning channels are not available at this time but will be forwarded in the spring.

1993 Releases from the Salmonid Enhancement Program (thousands)

	Sockeye	Chum	Chinook	Coho	Pink	Steelhead	Cutthroat
Enhancement Operations							
Coastal Division		171,570	34,239	6,504	5,080	301	32
Fraser/NBC Division	287,466	20,932	11,174	5,259		505	57
	287,466	192,502	45,413	11,763	5,080	806	89
Community Programs							
Community Involvement Division		8,512	10,222	5,467	10,597	125	32
Resource Restoration Division	302	23,282	95	1,928	1,530		
	302	31,794	10,317	7,395	12,127	125	32
Lake Enrichment Program	24,400						
TOTAL SEP	312,168	224,296	55,730	19,158	17,207	931	121

Significant Changes in Program

Coastal Division

Production was reduced at six hatcheries:

Quinsam Hatchery - Production was reduced by 1.5 million chinook smolts and 3 million pink fry.

Big Qualicum Hatchery - Production was reduced by 0.5 million chinook smolts. Sea pen releases of chinook have been discontinued.

Conuma Hatchery - Production was reduced by 2 million chum at a single satellite.

Puntledge Hatchery - Production was reduced by 1 million chum fry. Sea pen releases of chinook salmon have been discontinued.

Kitimat Hatchery - Production was reduced by 1.75 million chum fry when Bish Creek and Dala River chum satellite operations were discontinued.

Snootli Hatchery - Coho smolt production was discontinued (200K).

Fraser River and Northern B.C. Operations

Capilano Hatchery - Chinook sea pen releases have been suspended pending return data from releases to date. Poor performance of Big Qualicum chinook prompted a switch to Chilliwack/Harrison broodstock.

Chilliwack Hatchery - Pink outplants returned to the hatchery rather than to the spawning grounds, indicating problems if a large-scale outplant program were initiated. There was high (42%) pre-spawning mortality among steelhead females.

Clearwater Hatchery - 1992 Brood Upper Adams sockeye eggs were incubated and initially reared at Clearwater. Interconnection of outdoor raceways allowed for recirculation of water to increase winter temperatures that had previously slowed egg development. 320K two gram fry were released into the Upper Adams in May 1993; one third directly to the river, the others from net pens in the upper lake.

Horsefly Channel - In the 1992 brood year (off-peak cycle) only 858 males, 894 females and 353 jacks were loaded into the channel. Fry output was estimated at 2.6 million (87% survival).

Quesnel Hatchery - Continuing strong returns of marked adults in the Quesnel River chinook escapements are occurring. Total survival of earthen channel reared yearlings appears to be in excess of 1%.

Tenderfoot Creek Hatchery - Chinook returns from Porteau Cove netpens continue to exceed expectations.

Transboundary Sockeye Enhancement - Due to concerns over early migration of outplanted Trapper Lake fry, egg targets were dropped from 3.0M to 1.0M. Fall of 1993 was the first year of enhanced returns to Tahltan Lake. Otoliths are being read to determine outplanted fry survivals.

Upper Pitt Hatchery - The 1992 brood suffered 53% mortality from fertilization to ponding, resulting from trying to control fungus without malachite. Only 2.3 million sockeye fry were ponded. Different methods in 1993 incubation resulted in only 12% mortality to hatch for 5.5 million eggs. Mortality to swimup is expected to be low (1 - 2%).

Development Division

Chilko Channel - Approximately 5,400 sockeye successfully spawned in the channel this year.

Fraser River Fish Passage - Maintenance work continued. Permanent lighting was installed at Hell's Gate, China Bar and Little Hell's Gate.

Nekite Channel - Approximately 500 summer chums spawned in the channel this year.

Phillips Channel - Approximately 1,000 pink salmon, 500 chum and an unknown number of chinook spawned in the channel this year.

Community Involvement Division

No significant changes have occurred within the division in 1993. Attached is a copy of the 1993/94 directory to the Community Economic Development, Public Involvement and School Projects which lists all sites.

Resource Restoration Division

The division continues to identify, design and develop fish habitat restoration opportunities throughout British Columbia. During the 1992/93 field season, over 12 projects ranging in development costs from \$15,000 to \$50,000 were completed. In addition fifteen minor habitat alterations were investigated and acted upon. The majority of these projects were under \$5,000 each. All of the projects completed in this fiscal year involved creation of spawning/rearing habitat through back-channel development or bank stabilization. Culvert modification, beaver dam

alteration, fishway repair and replacement, and over-wintering rearing pond creation are all examples of technology used to meet our Divisional mandate for the Program.

Lake Enrichment Program

Chilko Lake - The lake was fertilized for the fourth consecutive year in 1993. Unlike most fertilized coastal lakes, we have observed an incremental increase in response to fertilization during the four year period, most likely due to long water residence time. Primary production rates increased an average of 50% during treatment. The zooplankton community responded with increased production rates and a shift in species composition to *Daphnia* from the less desirable *Cyclops* and *Bosmina*. Size of sockeye smolts from fertilized years was substantially larger than during unfertilized years. The first adult return (1989 brood year) from a full season of treatment was in the fall of 1993. Pre-season forecasts did not consider lake fertilization and were for an escapement of approximately 75,000 adults, but the actual escapement was 550,000 adults, or about seven times higher than predicted. The Pacific Salmon Commission's preliminary estimate of total return of Chilko sockeye in 1993 is 2.6 million. Analyses are not complete, but we estimate that a minimum of one-half of this return is directly attributable to lake fertilization.

(Source Document) *1993 Update Report for the Salmonid Enhancement Program in British Columbia*. Department of Fisheries and Oceans, Canada. February, 1994.

Reports of the Joint Technical Committees

PART V

REPORTS OF THE JOINT TECHNICAL COMMITTEES

Executive summaries of reports submitted to the Commission by the joint technical committees during the period April 1, 1993 to March 31, 1994 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. 1992 Annual Report. TCCHINOOK (93)-2. November 19, 1993.

The Pacific Salmon Treaty established a system of fishery-specific catch and harvest-rate restrictions intended to:

"halt the decline in spawning escapements of depressed stocks; and 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".

The goal of the program is to rebuild depressed naturally-spawning stocks and restore production through progressive increases in spawning escapements achieved through a combination of catch ceilings in selected mixed-stock fisheries and harvest rate restrictions in nonceiling, passthrough fisheries. The Pacific Salmon Commission instructed the Chinook Technical Committee (CTC) to "develop procedures to evaluate progress in the rebuilding of naturally spawning chinook stocks". The February 1987 Chinook Technical Committee Report, "Assessing Progress Toward Rebuilding Depressed Chinook Stocks", established an evaluation framework that documented an indicator stock program, identified information requirements, and recommended analytical procedures for the assessment of rebuilding. The Committee also identified a number of policy issues that had to be resolved before final conclusions could be reached regarding the status of rebuilding on a regional or coastwide basis. Agreement on those issues has not yet been reached.

In assessing the status of individual stocks under the rebuilding program, the Committee identified three main elements that must be examined: 1) spawning escapement levels; 2) fishery harvest and stock-specific exploitation rates; and 3) production responses to increases in spawning escapements. The Committee recommended that rebuilding assessment be stratified into three phases corresponding with three five-year chinook life-cycles in the rebuilding period: 1984-1988; 1989-1993; and 1994-1998. The Committee felt that a three-phase approach to assessment would address the problems of changing data availability and quality over time.

This report provides an evaluation through the midpoint of the second phase of the rebuilding program using data through 1992. This report includes recent catch in fisheries of concern to the Pacific Salmon Commission (Chapter 1), assessment of spawning escapements for 4₂ escapement indicator stocks (Chapter 2), fishery-harvest and stock-specific-exploitation rates based on 40 exploitation rate indicator stocks (Chapter 3), a summary of the Chinook Model assessment (Chapter 4), and an integration of results from Chapters 2-4 (Chapter 5).

RECOMMENDATIONS

Stock Status and Fishery Regimes

With, at most, five years remaining before the target date of rebuilding for chinook stocks, and 50% of the escapement indicator stocks classified as either Probably Not Rebuilding or Not Rebuilding, the CTC concludes that not all stocks will rebuild by the target date with the current management regime. Recent reductions in survival rates and reduced contributions from major stock groups will likely reduce the rate of rebuilding of natural stocks in the coming years, unless adjustments to management regimes are made. The CTC recommends that the Parties:

- 1) ***Define the objectives of the chinook rebuilding program for the five years remaining before the target rebuilding date of 1998.*** These objectives should include specification of criteria for evaluation of rebuilding:
 - a) the set of indicator stocks that are to be rebuilt by 1998; and
 - b) management objectives and constraints (e.g., target harvest rates, minimum catch levels) for particular fisheries.
- 2) ***Consider alternatives to fixed quotas for controlling harvest rates.*** The wide fluctuation in chinook abundance suggest that required reductions in harvest rates will be difficult to achieve with fixed catch quotas. Alternatives include the use of catch levels linked to production of chinook abundance obtained from the chinook model and/or methods which can effectively control harvest rates through fishing effort limitations.
- 3) ***Reduce incidental fishing mortality or set allowable harvests based on total mortality.*** Reductions in stock exploitation rates for reported catch have been offset to a significant extent by increases in incidental mortality.
- 4) ***Evaluate the potential for actions which compliment harvest controls, including enhancement and the reduction of nonfishing related sources of mortality.*** The severely depressed status of some stocks, and the lack of a positive response in escapements, suggest that stock specific actions may be necessary, in addition to the control of harvests in mixed stock fisheries, to rebuild some stocks.

Given well defined objectives, the CTC can work with the Chinook Work Group to develop an appropriate management regime. However, in the absence of new objectives for the rebuilding program, or the clarification of the passthrough provision, the CTC recommends that the Parties:

- 5) ***Manage ceiling fisheries so as to achieve, at a minimum, the 1985 target harvest rate reductions for total mortalities.*** Given the current status of the escapement indicator stocks, these harvest rate reductions remain useful as initial targets.
- 6) ***Evaluate compliance with the passthrough provision using the CTC Nonceiling Index.*** The CTC recommended index for the evaluation of exploitation rates on depressed stocks in nonceiling fisheries provides a technically feasible approach for evaluating compliance with the passthrough provision. Any definition of passthrough which may ultimately be adopted by the PSC must be technically measurable to determine compliance.

Monitoring and Evaluation

- 1) ***Eliminate data limitations which are comprising the ability of the CTC to complete the escapement and exploitation rate assessment.*** General research needs of the CTC have been addressed in detail by the CTC (1992b). Data needs for the annual report, that have not been completely satisfied, include the following:
 - a) ***Report estimated CWT recoveries to the Pacific States Marine Fisheries Commission (PSMFC) by July of the year following the fishery.*** As requested by the PSC, the CTC is currently conducting the Exploitation Rate Assessment on a year-out basis to allow agencies sufficient time to collect and report recovery data. However, the following data were still not available from the PSMFC: i) Estimated recoveries for the 1992 Puget Sound sport fisheries; ii) 1991-1992 tributary sport recoveries in the Columbia River; and iii) escapement recoveries for most southern U.S. stocks.
 - b) ***Collect and provide information on the age and sex composition of escapement.*** Age and sex specific escapement data are essential to evaluate brood production, stock productivity, and escapement goals. Age specific data also improve the quality of the calibration of the CTC chinook model.
 - c) ***Tag representative Exploitation Rate indicator stocks at sufficient levels.*** The CTC is especially concerned about the lack of adequate representation of spring and summer stocks and the lack of an indicator stock (with escapement data) for Harrison River stock.
 - d) ***Establish consistent and standardized recovery programs for CWT fish at hatcheries and on spawning grounds.*** Accurate estimates of escapement are essential for the Exploitation Rate Assessment. The CTC is concerned that: i) pilot studies have indicated that many tagged fish may not be successfully identified at hatcheries; and ii) CWT fish which do not return to the hatchery may not be accounted for on a consistent basis. In addition, standardized procedures should be instituted for enumeration of marked and unmarked releases and tag retention rates.
 - e) ***Provide estimates of sublegal encounter rates in troll fisheries and legal and sublegal encounter rates in chinook nonretention and net fisheries.*** The CTC has estimated that incidental fishing mortality is approximately 30-50% of the reported catch (CTC 1987). However, sampling programs to determine the magnitude and stock composition of the nonlanded catch mortality are virtually nonexistent.
 - f) ***Provide estimates of nonreported chinook catches by Canadian Native fisheries.*** The CTC is unable to fully evaluate impacts of these fisheries on chinook stocks and the rebuilding program until these data are provided.
- 2) ***Conduct research on factors affecting freshwater and marine survival of chinook stocks.*** Factors such as predation, El Nino events, habitat destruction, and enhancement practices can significantly affect chinook production and the rebuilding program.

B. JOINT CHUM TECHNICAL COMMITTEE

No reports were finalized for publication by this Committee during this reporting period.

C. JOINT COHO TECHNICAL COMMITTEE

Joint Coho Technical Committee. Interim Estimates of Coho Stock Composition for 1984-1991 Southern Area Fisheries and for 1987-1991 Northern Panel Area Fisheries. TCCOHO (94)-1. February 10, 1994.

In 1988, the Pacific Salmon Commission instructed the Coho Technical Committee (CoTC) to develop methodologies for estimation of stock compositions of coho harvested by Southern Panel area fisheries. Over the past year, the feasibility of applying these methodologies to estimate stock compositions for Northern Panel area stocks and fisheries has been explored. This report presents interim stock composition estimates based on the progress of research to date.

After investigating a number of approaches, including run reconstruction and production factor estimation, the CoTC determined that analysis of coded-wire-tag recovery data provided its first estimates of stock composition for Southern Panel area fisheries for 1984 through 1986 (CoTC, 1989) based on a Constrained Least Squares estimation model. Interception estimates associated with these stock compositions are summarized below.

Interim Estimates of Coho Salmon Interceptions By Southern Panel Area Fisheries, 1984-1991 and Northern Panel Area Fisheries, 1987-1991 (Thousands of Fish). Based on Constrained Least Squares Estimation and Recoveries of Coded-Wire-Tags.

Year	Southern Panel Area		Northern Panel Area	
	Canadian Interceptions of U.S. Coho Stocks	U.S. Interceptions of Canadian Coho Stocks	Canadian Interceptions of U.S. Coho Stocks	U.S. Interceptions of Canadian Coho Stocks
1984	1,244.7	76.0		
1985	1,636.2	105.7		
1986	1,947.5	110.5		
1987	1,305.5	150.7	50.7	267.6
1988	1,087.7	155.8	29.0	127.7
1989	1,857.7	95.3	40.4	399.8
1990	1,079.3	160.2	122.3	559.8
1991	1,114.7	169.6	83.5	815.8

Further investigations into methodologies will be undertaken by the CoTC, including the refinement of estimation models and data. The estimates presented in this report are preliminary and, therefore, likely to be revised as work on development of joint methodologies progresses. Additional work is necessary to determine the sensitivity of the estimates to underlying assumptions. Furthermore, the statistical reliability of the estimates should be investigated and reported.

D. JOINT NORTHERN BOUNDARY TECHNICAL COMMITTEE

Joint Northern Boundary Technical Committee. Research Needs and Priorities for Sockeye, Pink Chum, and Steelhead Salmon in the Northern Boundary Area. TCNB (93)-1. November, 1993.

The Standing Committee on Research and Statistics of the Pacific Salmon Commission (PSC) requested each technical committee to identify and prioritize their information and research needs. The Northern Boundary Technical Committee addressed this request by providing the Research and Statistics Committee with a draft of this report at their November 4-5, 1992, meeting. This document finalizes this November 1992 report as an official PSC publication. We have not attempted to make this report current to November 1993.

Escapement enumeration, stock identification, and in-season abundance estimation activities were identified as research priorities for sockeye, pink, and chum. Programs to better estimate catch, escapement, and management options for reducing catches of steelhead, Skeena River steelhead in particular, are a priority. The highest priority needs for joint research activities facing the Northern Boundary Technical Committee are: application of scale pattern-based stock identification to sockeye harvested in northern British Columbia fisheries, and complete the re-analysis of adult tagging data for pink salmon and apply to annual interception estimates. Maintaining funding for existing stock assessment programs was recognized as a top priority by both countries.

Joint Northern Boundary Technical Committee. U.S./Canada Northern Boundary Area 1993 Salmon Fisheries Management Report and 1994 Preliminary Expectations. TCNB (93)-2. November, 1993.

This report reviews: 1) catch, effort, and management actions in the 1993 Northern Boundary Area pink, chum, and sockeye salmon fisheries of southern Southeast Alaska Districts 101 to 106 and northern British Columbia Areas 1, 3, 4 and 5; 2) management performance relative to Treaty requirements; 3) historical catches and escapements; and 4) preliminary 1994 expectations and fishing plans for 1994.

In southern Southeast Alaska, the all-gear salmon harvest of 45.5 million was the fourth largest on record behind harvests of 49 million salmon in 1986 and 1989 and 47 million in 1991. The harvest was comprised of 39.2 (86.0%) million pink, 2.7 (5.9%) million chum, 2.3 (5.1%) million sockeye, 1.3 (2.8%) million coho, and 98 (0.2%) thousand chinook salmon. Pink salmon escapements were well distributed and above index goals in all southern Southeast Alaska districts except District 107. Escapement indices totalled 7.88 million or 1.88 million above the 6.0 million escapement target. Escapements of sockeye, chum, and coho salmon were correspondingly strong throughout the region.

In northern British Columbia, pink returns were poor relative to recent years; 2,059,410 pink salmon were harvested in Canadian Area 3 and only 431,926 pinks in the Area 4 fishery. Pink escapements to most areas were near goals. Sockeye returns were very large; 1,202,040 were harvested in Area 3 and 1,575,989 in Area 4. Chum catches were much better than in recent years. Escapement levels for sockeye were again well above target for the Nass and Skeena Rivers. Escapements of summer chum salmon were relatively good in Area 3.

The Pacific Salmon Treaty limits the Alaska District 104 (Noyes Island) purse seine fishery to a four-year total catch (1990-1993) of 480,000 sockeye salmon prior to Statistical Week 31. Under

the terms of the agreement, when the annual catch reaches 160,000 sockeye salmon, no further daily fishing periods are allowed prior to week 31. During the first three years of the Annex (1990, 1991 and 1992), 348,169 sockeye were harvested prior to Statistical Week 31. There were three weeks of fishing prior to Statistical Week 31 in 1993. The total sockeye harvest prior to Statistical Week 31 in 1993 was 163,189 fish. This put the total sockeye harvest at the end of the four-year Annex at 511,358, or 31,358 (6.5%) sockeye over the 480,000 Annex limit.

In the Alaska District 101-11 (Tree Point) gillnet fishery the U.S./Canada Pacific Salmon Treaty calls for an average annual harvest, beginning in 1985, of 130,000 sockeye salmon. The 1993 harvest of sockeye salmon at Tree Point was 393,996 fish, the largest sockeye harvest in the history of the fishery. This brings the 1985 to 1993 average to 171,458 sockeye.

Under the Pacific Salmon Treaty the outside portions of Canada's Statistical Areas 3 and 5 are to be managed such that an average annual pink harvest of 900,000 is achieved. In 1993, 1,237,096 pinks were harvested in Management Units 3 (1-4) and 5-11 combined. The current average annual pink harvest from 1985-1993 in the Treaty area is 1,991,416.

The Canadian Area 1 pink troll fishery is managed to an annual ceiling of 1.95 million pinks with a cumulative ceiling of 5.125 million pink salmon for the period 1990-1993. In addition, the area adjacent to the Canada-U.S. boundary in the northern portion of Area 1 closes to pink retention if the pink catch reached 300,000 in this area, or by July 22, should this sub-ceiling not be met. In 1993, the pink catch in the A-B line area reached 264,500 and closed to pink retention July 22. Preliminary saleslips indicate an Area 1 troll catch of 889,900 providing a cumulative catch from 1990-1993 of 4,431,429, which leaves a shortfall of 693,571 from the ceiling.

Strong harvests are forecast for Southeast Alaskan pink salmon in 1994. The Alaska Department of Fish and Game forecasts a harvest of between 38 and 57 million pink salmon in all of Southeast Alaska in 1994. This harvest plus the target escapement of 27 million pink salmon indicates a total return of pink salmon to Southeast Alaska of approximately 65-84 million fish.

In Canada, average sockeye fisheries are anticipated in Area 3 and Area 4 in 1994, while lower than average pink catches are anticipated. The even-year pink run to Canada's Queen Charlotte Islands is expected to provide a modest surplus in 1994.

E. JOINT TRANSBOUNDARY TECHNICAL COMMITTEE

Joint Transboundary Technical Committee. Salmon Management and Enhancement Plans for the Stikine, Taku and Alsek Rivers, 1993. TCTR (93)-2. August, 1993.

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. This plan has been developed to assure that each Party has a clear understanding of objectives and procedures used in managing relevant fisheries.

This report is organized by river system and salmon species. For each species within each drainage, the preseason forecast, spawning escapement goals, harvest sharing objectives, and management procedures are presented. For salmon stocks of the Stikine River, details of the stock assessment program are also presented.

A preseason forecast of 135,000 fish was used in the Stikine Management Model (SMM) to guide fishing patterns for the first two weeks of the season giving a total allowable catch of 81,000 fish that could be shared by the two Parties. The Stikine River escapement goal has been reduced in 1993 from 60,000 to 54,000 sockeye salmon as a result of lowering the goal for the Tahltan Lake component stock from 30,000 to 24,000 fish. In-season predictions of run size during the 1993 season, as determined by the Stikine Management Model, are based on historical data from 1982 to 1992. The stock assessment program for the Stikine River run is similar to last year, with the exception that in-season scale pattern analysis will not be used to estimate marine contributions of Stikine River stocks; rather, average weekly stock compositions from the years 1986-1992 will be used in-season to estimate the U.S. marine harvest of Stikine River sockeye salmon. The 1993 run of chinook salmon to the Stikine River is expected to be above average, while the return of coho salmon is expected to be average. There are no major changes to the management plans for the other species of salmon originating in the Stikine River.

It is expected that the run sizes of Taku River sockeye and chum salmon will be below average; the coho and odd-year pink salmon run are expected to be average; and the chinook run is expected to be above average. Management of Taku River salmon stocks will be similar to that of previous years.

Alsek River chinook and coho salmon run sizes are expected to be average in 1993. The overall sockeye run is expected to be below average, with below average early and late run components. No major changes to the management plan for Alsek salmon are anticipated.

Sockeye salmon enhancement will continue in 1993 in the Stikine and Taku drainages. The following fry out-plants from the 1992 egg-takes occurred in June and July: 1.9 million to Tahltan and 2.0 million to Tuya lakes; 0.9 million to Tatsamenie Lake; and 1.1 million to Trapper Lake. Green-egg to outplanted-fry survival rates were 90.4% for Tahltan Lake fry, 72.7% for Tuya Lake fry, 61.2% for Tatsamenie Lake fry, and only 44.2% for Trapper Lake fry. Outbreaks of IHNV resulted in the mortality of 0.9 million fry that were to be planted into Trapper Lake, 0.5 million that were to be planted into Tuya Lake, and 0.3 million that were to be planted into Tatsamenie Lake. Egg-take targets for the fall of 1993 are as follows: 6.0 million at Tahltan Lake; 2.0 million at Little Tatsamenie Lake; and 1.0 million at Little Trapper Lake.

Most of the stock assessment and research programs conducted in 1992 will be continued in 1993. Notable exceptions include elimination of the in-season scale pattern analysis of District 106 and 108 sockeye salmon catches, cancellation of the operation of the Little Tatsamenie Lake weir for coho salmon enumeration, and delay of the planned second year of Taku River coho salmon radio tagging until 1994. New programs include an otolith sampling program in District 108 to estimate contribution of enhanced sockeye salmon and several new or expanded projects involved with assessment of sockeye salmon enhancement programs.

Joint Transboundary Technical Committee. Transboundary River Salmon Production, Harvest and Escapement Estimates, 1992. TCTR (93)-3. November, 1993.

Estimates of catches and escapements of Pacific salmon returning to the transboundary Stikine, Taku, and Alsek rivers for 1992 are presented and compared with historical patterns. Relevant information pertaining to the management of appropriate U.S. and Canadian fisheries is presented and the use of in-season management models is discussed.

The 1992 Stikine sockeye run was estimated at 231,900 fish, of which 106,600 fish were harvested in various fisheries and 125,300 escaped to spawn. Both total run and catch were the highest

recorded since 1982 when stock identification techniques were first used for marine catches and the escapement was the second highest estimated for the 1982 to 1992 period. The estimated U.S. marine commercial and test fishery catches of Stikine sockeye salmon were 76,400 and 1,000 fish, respectively; the Canadian inriver commercial, Indian food, and test fishery catches were 21,900, 4,400, and 3,000 fish, respectively. The preseason forecast of the run was 127,300 sockeye salmon. In 1992 the Stikine Management Model correctly predicted a larger than average run for the Tahltan stock and for the entire Stikine sockeye run. Weekly in-season model forecasts ranged from 151,800 to 229,300 sockeye salmon; the final in-season prediction was 225,100 fish. The model under-predicted the total run size early in the season but consistently improved throughout the season. Both Canada and the U.S. harvested less than the Total Allowable Catch (TAC) allowed under the Pacific Salmon Treaty. The escapement to Tahltan Lake was 60,000 fish, 137% above the 1982 to 1991 average, and above the 20,000 to 40,000 goal range. The estimated escapement of 65,400 non-Tahltan Stikine sockeye salmon was also above the escapement goal range for this stock group of 20,000 to 40,000.

The chinook catch in Canadian commercial and food fisheries in the Stikine River was 2,100 fish, 90% of the 1982 to 1991 average, with approximately 50% harvested in commercial fisheries and 50% harvested in the Indian food fishery. An additional 900 chinook salmon were taken in the Canadian inriver test fishery. The U.S. marine catch of chinook salmon in the District 106 and 108 mixed stock gill net fisheries was 2,300 fish, approximately 26% above the 1982 to 1991 average catch. The chinook spawning escapement through the Little Tahltan River weir in 1992 was 6,600 large adults, 46% above the 1982 to 1991 average and 25% above the joint U.S./Canada escapement goal of 5,300 for the Little Tahltan tributary.

The U.S. marine harvest of Stikine River coho salmon is not known since there is no stock identification program in place; however, total mixed stock coho catches in District 106 and 108 were more than three, and two and one-half times the 1982 to 1991 averages, respectively. Alaskan hatchery fish comprised approximately 34% (100,000 fish) of the combined coho harvest from the two districts. The Canadian inriver coho catch was 1,900, less than the treaty entitlement of 4,000 fish. Aerial survey escapement counts of coho salmon were above the 1984 to 1991 averages in most systems.

The Stikine River runs of pink and chum salmon are typically very small. In 1992, Canadian catches of these two species were approximately 100 and 200 fish, respectively. This is approximately 15% and 52% of the 1982 to 1991 averages for pink and chum salmon, respectively.

The 1992 total Taku sockeye run was estimated at 286,500 fish and included an estimated catch of 154,300 fish and an escapement of 132,200 fish. The run, catch, and escapement were all the highest recorded since 1984 when stock identification and run reconstruction were first used. The U.S. District 111 commercial gillnet harvest of Taku sockeye stocks, estimated by analysis of scale pattern and brain parasite incidence, was 122,400. An additional 2,000 sockeye were taken in the U.S. inriver personal use fishery. Canadian inriver commercial, Indian food fishery, and test fishery catches were 29,500, 250, and 40 fish, respectively. The Pacific Salmon Treaty defines harvest sharing of Taku River sockeye salmon as 18% of the TAC to Canada and 82% to the U.S. Since the escapement goal is expressed as a range, 71,000 to 80,000 fish, the resulting TAC is also expressed as a range. In 1992, Canada took 14% and the U.S. took 58% to 60% of the TAC. The estimated spawning escapement for Taku sockeye salmon exceeded the upper level of the escapement goal range by 65%.

The chinook catch in the Canadian commercial fishery in the Taku River was 1,600 fish, about three times the 1982 to 1991 average. The chinook catch in the U.S. District 111 mixed stock fishery was 2,300 fish, equal to the 1982 to 1991 average. Above average escapements were

observed in all of the Taku River chinook index tributaries in 1992. The combined aerial survey count of six index tributaries was 11,100 fish, which is 54% above the 1982 to 1991 average of 7,200 fish, but below the revised index escapement goal of 13,200 chinook salmon.

The Taku coho run was strong in 1992. The U.S. harvest of 172,700 coho salmon in the District 111 mixed stock fishery was a record, and over three times larger than the 1982 to 1991 average. The DIPAC Hatchery near Juneau contributed an estimated 26% of the District 111 harvest, or approximately 45,500 fish. The Canadian inriver commercial and food fishery catch was 4,300 coho salmon, above the Treaty limit of 3,000 fish. An additional 1,300 coho salmon were taken in the Canadian inriver test fishery. The inriver run size past the Canyon Island research site was estimated by mark-recapture studies to have been 50,200 through September 5. Low river levels after this point prevented a total-season mark-recapture estimate from being developed. An above-border run size estimate of 90,200-113,700 was derived by using late-season District 111 gillnet fishery CPUE to expand the mark-recapture estimate. An above-border run of this size is 20-52% above the 1987-1991 average. The interim above-border escapement goal range is 27,500 to 35,000 coho salmon. The U.S. National Marine Fisheries Service, with assistance from ADF&G and DFO, captured and radio tagged 444 coho salmon at tidewater and at Canyon Island. Migratory timing and distribution throughout the drainage were estimated by aerial surveys and remote data recording stations.

The catch of pink salmon in District 111 was 314,400 fish, approximately three times the 1982 to 1990 even year average catch. The escapement of pink salmon to the Taku River was not estimated in 1992.

The catch of chum salmon in the District 111 fishery was 112,500 fish, composed of 97,700 summer run fish (prior to mid-August) and 14,800 fall run fish. The catch of summer chum salmon was composed of coastal Alaskan wild and hatchery stocks and was 71% above the 1982 to 1991 average, but below the 1990 and 1991 harvests. The catch of fall chum salmon was composed of wild Taku River and Port Snettisham stocks and was only 46% of the 1982 to 1991 average. The Canadian inriver catch of chum salmon was below average at just seven fish reported.

The sockeye run to the Alsek River was slightly above average as indicated by above average catches, an average escapement count at the Klukshu River weir, and an above average escapement count at Village Creek. The U.S. Dry Bay catch was 19,300 sockeye salmon, 25% above the 1982 to 1991 average catch. The Canadian sport fishery catch of 600 sockeye was 49% above the previous 10-year average and the inriver Indian food fishery catch of 2,600 sockeye was 15% above the 1982-1991 average. The count of 20,200 sockeye salmon through the Klukshu weir was about equal to the 1982 to 1991 average; however the early run of 11,800 fish was a record and the late run of 8,400 was the second lowest recorded since 1976.

The chinook run to the Alsek River was below average. The U.S. Dry Bay catch of 300 fish was 29% above the 1982 to 1991 average. The combined Canadian sport and Indian food fishery catch of 300 fish was 46% of the 1982 to 1991 average. The chinook count of 1,400 fish through the Klukshu River weir was 61% of the 1982 to 1991 average of 2,200 fish, and below the Klukshu River escapement goal of 4,700 chinook salmon. Aerial survey index counts were the lowest recorded since 1982.

The coho run to the Alsek River was below average. The U.S. Dry Bay catch of 3,300 fish was 70% of the 1982 to 1991 average while the combined Canadian inriver Indian food and sport fishery catch of 200 fish was 61% above the 1982 to 1991 average. The Klukshu weir count of 1,100 coho salmon was 70% of the 1982 to 1991 average.

Joint Transboundary Technical Committee. Transboundary River Sockeye Salmon Enhancement Activities. Final Report for Fall, 1990 to Spring, 1992. TCTR (94-1). April, 1994.

Joint Canada/U.S. enhancement of transboundary river sockeye stocks began in 1989, when eggs were taken at Tahltan Lake on the Stikine River, incubated at Snettisham Central Incubation Facility (CIF) near Juneau, Alaska, and the resulting fry backplanted to Tahltan Lake. In 1990, eggs were again taken at Tahltan Lake and enhancement of Taku River sockeye salmon stocks began, with egg-takes at Little Trapper and Little Tatsamenie lakes to produce fry for outplanting to Trapper and Tatsamenie lakes, respectively. Additional egg-takes were conducted at all three sites in 1991 and 1992. Under terms of the Treaty, brood-year (BY) 1991 and 1992 Tahltan fry were divided between Tahltan and Tuya lakes. Activities up to the summer of 1990 have been previously reported (PSC 1991); the present report begins with the egg-takes in the fall of 1990 and continues through to smolt migrations and outplants in the spring of 1992. Some important information obtained subsequent to this period is mentioned.

Methods are described, including egg-take and hatchery operations, otolith marking, outplanting, monitoring of outplants including hydroacoustic/limnological surveys and smolt sampling, and ancillary activities. Results of hatchery and otolith marking activities are presented and difficulties in monitoring growth and survival described. Results for the period from egg-take through smolt are then presented for each lake, followed by results of limnological observations and ancillary activities. The report concludes with a discussion, including a brief comment on the success of the outplants to each lake. Important results and conclusions are summarized below.

Hatchery operations: Modifications to the Snettisham temporary CIF in 1990 alleviated many of the problems encountered the first year. Further improvements in 1991 apparently helped prevent a recurrence of the whitespot disease experienced in brood-year (BY) 1990 Little Trapper stock. Little Trapper stock of both BY 1990 and BY 1991 experienced substantial losses to IHNV and did not achieve the 80% egg to fry biostandard used in planning the projects. BY 1990 and BY 1991 Tahltan stock exceeded the biostandard except for one group of BY 1991 fry destined for outplanting to Tuya Lake, which suffered high losses of undetermined cause while being held in tanks just prior to transport. The Tatsamenie stock exceeded the biostandard in both BY 1990 and BY 1991. A new improved permanent facility was completed at Snettisham in 1993 to replace the temporary CIF.

Egg-take operations: All Tahltan egg-takes to date (including 1992 and 1993) have come close to or exceeded target levels; tagging studies are being conducted to examine for evidence of genetic selection in broodstock collection. Eggs for the outplants to Trapper Lake are taken at Little Trapper Lake; all egg-takes to date at this location have come close to or exceeded the targets. Eggs to produce fry for outplanting to Tatsamenie Lake are collected at Little Tatsamenie Lake; egg-take problems here have included excessive adult mortalities during the initial year of the project and difficulties in capturing sufficient broodstock due to low escapements. Holding mortalities have been reduced to acceptable levels by development of new procedures for handling of broodstock but low escapements are likely to continue to be a problem unless the run size can be built up. Because of genetic concerns, studies are being conducted to examine the practicality of capturing broodstock at Tatsamenie Lake rather than at Little Tatsamenie Lake.

Otolith marking: A temporary laboratory has been established in Juneau to examine marking techniques and develop methods for mass processing of otoliths from returning adults. Marks have been recovered from Alaskan domestic sockeye stocks and transboundary sockeye juveniles and

smolts arising from the outplants. There were problems with the clarity of some of the marks during the initial years of the program and the ability to identify these fish in mixed stock fisheries is uncertain. However, the technique has been judged to be successful and refinements to marking techniques and development of marking protocols to prevent recurrence of similar marks in mixed stock situations should correct the initial problems.

Problems associated with growth and survival estimates: Tahltan Lake is the only outplant lake where a smolt enumeration program is conducted and comparison of fall hydroacoustic estimates with subsequent smolt estimates suggest the fall juvenile population is often badly underestimated. Possible reasons for this are presented and a regression is developed which could be used for predicting smolt numbers from fall fry estimates in most years. Other lakes were examined for conditions similar to those observed at Tahltan which might bias hydroacoustic estimates. The 1991 Trapper Lake fall estimate was judged to be considerably more accurate than the Tahltan Lake estimate but the accuracy of the 1991 Tatsamenie fall estimate was judged to be similar to that of Tahltan Lake. Some difficulties are likely to be experienced at Tuya when fry densities increase. Accuracy at most lakes will likely vary between years. Depending on the conditions encountered and the accuracy desired, it may be desirable to conduct smolt enumeration programs at other sites, at least to examine the accuracy of hydroacoustic estimates. However, it is estimated the costs of enumeration programs would be 4 to 5 times those of hydroacoustic surveys.

Evaluation of the outplants to Tahltan Lake: Monitoring of the BY 1989 and 1990 outplants to Tahltan Lake showed the fry grew well, starting smaller than wild fish but eventually catching up to them in size. Survivals from outplanted fry to smolt have exceeded the 20% biostandard used in planning the projects. Based on smolt size and limnological observations there is very little indication that the productive capacity of Tahltan Lake has been taxed, despite the record smolt runs in 1991 and 1992 associated with the outplants.

Evaluation of the outplants to Tuya Lake: Outplanting to Tuya Lake did not begin until 1992 and monitoring of this outplant will be presented in a later report. Zooplankton studies in 1990 and 1991 continue to show this lake is capable of supporting large numbers of outplanted fry.

Evaluation of the outplants to Trapper Lake: The early outmigration of outplanted fry from Trapper Lake to Little Trapper Lake and the failure to capture smolts leaving Trapper Lake has important implications for the project, since the intent is for fry to utilize the food resource in Trapper Lake. Also, large numbers of outplanted fry rearing in Little Trapper could conceivably overtax its food supply, to the detriment of wild fish. It is not possible at this point to fully evaluate the success of the outplants to Trapper Lake. Fry and smolt sizes indicate outplanted fish are growing as well as wild fish but much further study is needed to answer questions relating to survival. It is very likely this may have to be judged by adult returns.

Evaluation of the outplants to Tatsamenie Lake: As in the outplants at other lakes, BY 1990 enhanced fry were initially smaller than wild fry but had reached a similar size by the fall. Survival to the fall may be lower than at Tahltan, but this cannot be stated with certainty. Overwinter survival of enhanced and wild fish is similar and it appears unlikely enhanced fry are migrating prematurely from Tatsamenie, as is occurring at Trapper Lake. Age 1 enhanced smolts were of a substantial size, very similar to that of wild smolts. As at Trapper Lake, estimates of survival to the smolt stage were not made. At this point, it can be said that the outplants to Tatsamenie appear to be relatively successful.

F. JOINT TECHNICAL COMMITTEE ON DATA SHARING

No reports were finalized for publication by this Committee during this reporting period.

G. JOINT INTERCEPTIONS COMMITTEE

Third Report on the Parties' Estimates of Salmon Interceptions - 1980-1991. JIC (93)-1. July, 1993.

The Pacific Salmon Commission (PSC) instructed the Joint Interceptions Committee (JIC) to continue its work through PSC technical committees to: a) report on progress by the technical committees in developing joint methods for estimating interceptions of coho salmon, northern boundary pink salmon, and, in conjunction with the PSC secretariat, Fraser sockeye salmon in the northern boundary area; b) revise 1980 to 1989 interception estimates; c) provide 1990 and 1991 interception estimates; d) assess the feasibility of providing estimates of uncertainty regarding interceptions; and e) provide interceptions by area and standardized gear categories where this had not been done in the past. This report summarizes the technical committee responses.

The report contains tables summarizing the Parties' interception estimates and the differences between the estimates in this report and those in JIC (91)-1, figures showing the magnitude of remaining differences between the Parties' interception estimates, and appendices detailing the Parties' annual estimates of interceptions for 1980 to 1991, by species, fishing area and gear, to the extent reported by the technical committees.

The technical committees have not completed work on new estimation methods. Consequently, except for transboundary chinook, methods described in previous JIC reports were used to generate 1990 and 1991 interception estimates. There were minor errors and omissions, and changes to parameter values used by some of the estimation methods. The committees did not complete reporting on the feasibility of providing estimates of uncertainty regarding interceptions.

Differences between the Parties' interception estimates for northern boundary pink salmon have substantially increased from those reported in JIC (91)-1. Remaining differences are similar to those reported previously.

JIC recommends that the PSC place a high priority on securing the necessary resources to complete work on joint methods for estimating coho salmon interceptions and northern boundary pink salmon interceptions by December 1993. JIC also recommends that the technical committees complete work on stratification of interception estimates by gear and on the feasibility of providing estimates of uncertainty in the interception estimates.

H. STANDING COMMITTEE ON RESEARCH AND STATISTICS

Research and Information Needed to Fulfil the Principles and Technical Committee Assignments of the Pacific Salmon Commission. July, 1993.

The Standing Committee on Research and Statistics (R&S) is charged with advising the Pacific Salmon Commission (PSC) on the technical information and research needed to implement the Pacific Salmon Treaty (PST). Canada and the United States (the "Parties") recognized that the state of knowledge about the salmon stocks subject to the PST was inadequate for successful

implementation of the PST, and Article III required the Parties to "cooperate in management, research, and enhancement".

Since the signing of the PST, technical committees assigned to the major areas of concern (transboundary, northern boundary, chinook, coho, and chum) have independently provided advice on research and information needs to the PSC through their annual reports and Panel briefings. However, to provide a more holistic description of information needs, the R&S requested each technical committee to identify and prioritize information and research needs within its area of concern. The R&S met November 4-5, 1992, in Bellevue, Washington, to review the technical committee research reports and to consolidate the information needed to fully support the principles of the PST. The R&S considered the data and research needs in context of the principles of the PST, and the specific needs of each technical committee. In summarizing these needs (see Section II), attention has been given to identifying current data collection programs that need to be continued as well as identifying improvements needed for current programs and new programs. Further, while many of the data collection and research programs are, or would be, carried out by one agency, some can and would benefit from joint planning and coordination (see Section III, Coastwide Programs). Finally, a short summary of how the PSC might proceed in integrating this information with that forthcoming from the Joint Interceptions Committee (JIC) and Joint Objectives and Goals Committee (JOGC) is presented in Section IV. Recommendations of the R&S to the Parties concerning priority areas of research and cooperation in information collection are presented in Section V.

The PSC and Parties must recognize that without more accurate data and a commitment to more consistent data collection, the Parties will not be able to responsibly answer the increasingly complex questions in salmon management and implementation of the PST. The costs of poor data will only become more and more evident, some examples being: population and extinctions; reduced harvest opportunities, particularly as fisheries become increasingly regulated to conserve smaller or less productive stocks; increased disruption to traditional fisheries, and continued controversy over interceptions. Information intensive programs, involving many years of experience, experimentation, and learning by the Parties are required to address the principles of the PST.

Publications of the Pacific Salmon Commission

PART VI

PUBLICATIONS OF THE PACIFIC SALMON COMMISSION

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

Documents listed here are those which were published during the period covered by this report. For previous publications, please refer to the Pacific Salmon Commission 1989/90 Fifth, 1990/91 Sixth, 1991/92 Seventh and 1992/93 Eighth Annual Reports, or contact the Pacific Salmon Commission Library.

A. ANNUAL REPORTS

8. Pacific Salmon Commission 1992/93 Eighth Annual Report. November 1993.

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

B. REPORTS OF JOINT TECHNICAL COMMITTEES

i. Joint Chinook Technical Committee

26. TCCHINOOK (93)-2 - *1992 Annual Report*. November 19, 1993.

ii. Joint Chum Technical Committee

No reports were finalized for publication during this reporting period.

iii. Joint Coho Technical Committee

9. TCCOHO (94)-1 - *Interim Estimates of Coho Stock Composition for 1984-1991 Southern Area Fisheries and for 1987-1991 Northern Panel Area Fisheries*. February 10, 1994.

iv. Joint Northern Boundary Technical Committee

14. TCNB (93)-1 - *Research Needs and Priorities for Sockeye, Pink, Chum, and Steelhead Salmon in the Northern Boundary Area*. November, 1993.

15. TCNB (93)-2 - *U.S./Canada Northern Boundary Area 1993 Salmon Fisheries Management Report and 1994 Preliminary Expectations*. November, 1993.

v. Joint Transboundary Technical Committee

22. TCTR (93)-2 - *Salmon Management and Enhancement plans for the Stikine, Taku and Alsek Rivers, 1993.* August, 1993.
23. TCTR (93)-3 - *Transboundary River Salmon Production, Harvest and Escapement Estimates, 1992.* November, 1993.
24. TCTR (94)-1 - *Transboundary River Sockeye Salmon Enhancement Activities. Final Report for Fall, 1990 to Spring, 1992.* April, 1994.

vi. Joint Technical Committee on Data Sharing

No reports were finalized for publication during this reporting period.

C. REPORTS OF THE FRASER RIVER PANEL

6. *Report of the Fraser River Panel to the Pacific Salmon Commission on the 1991 Fraser River Sockeye and Pink Salmon Fishing Season.* PSC Staff. March, 1994.
7. *Report of the Fraser River Panel to the Pacific Salmon Commission on the 1992 Fraser River Sockeye Salmon Fishing Season.* PSC Staff. In preparation.
8. *Report of the Fraser River Panel to the Pacific Salmon Commission on the 1993 Fraser River Sockeye and Pink Salmon Fishing Season.* PSC Staff. In preparation.

D. TECHNICAL REPORT SERIES OF THE PACIFIC SALMON COMMISSION

5. Gable, J., and S. Cox-Rogers. *Stock Identification of Fraser River Sockeye Salmon: Methodology and Management Application.* PSC Tech. Rep. No. 5, October, 1993.

E. PUBLICATIONS BY PACIFIC SALMON COMMISSION SECRETARIAT STAFF

No reports in this series were finalized for publication during this reporting period.

F. REPORTS OF THE INTERNATIONAL PACIFIC SALMON FISHERIES COMMISSION

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

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

G. DOCUMENTS SUBMITTED BY THE PARTIES

In compliance with provisions of the Treaty, the Parties provide annual post-season fishery reports and updates on their respective salmonid enhancement programs to the Commission. Documents received during 1993/94 were:

1. *Preliminary 1993 Post-Season Report for United States Fisheries of Relevance to the Pacific Salmon Treaty*. United States Section, Pacific Salmon Commission. December, 1993.
2. *1993 Post-Season Report for Canadian Treaty Limit Fisheries*. Canada Department of Fisheries and Oceans. December, 1993.
3. *1993 Annual Report on the Salmonid Enhancement Activities of the United States in the Areas of the Pacific Salmon Treaty*. United States Section, Pacific Salmon Commission. January, 1994.
4. *1993 Update Report for the Salmonid Enhancement Program in British Columbia*. Canada Department of Fisheries and Oceans. February, 1994.

Report of the Auditors for 1993/94

PART VII
AUDITORS' REPORT AND FINANCIAL STATEMENTS
FOR THE PERIOD APRIL 1, 1993 TO MARCH 31, 1994

AUDITORS' REPORT TO THE COMMISSIONERS

We have audited the balance sheet of Pacific Salmon Commission as at March 31, 1994 and the statements of revenue and expenditures, fund balances and changes in financial position for the year then ended. These financial statements are the responsibility of the Commission's Management. Our responsibility is to express an opinion on these financial statements based on our audit.

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

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Commission as at March 31, 1994 and the results of its operations and the changes in its financial position for the year then ended in accordance with the Financial Regulations of the Commission applied on a basis consistent with that of the preceding year.

KPMG Real Marwick Thorne
Chartered Accountants

New Westminster, Canada

May 11, 1994

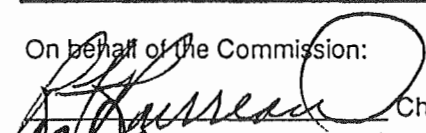
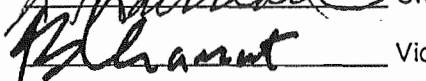
PACIFIC SALMON COMMISSION

Balance Sheet

March 31, 1994, with comparative figures for 1993

	1994	1993
Assets		
General fund:		
Current assets:		
Cash and term deposits	\$ 998,053	\$ 1,056,757
Accounts receivable	14,667	6,930
Interest receivable	4,617	10,219
Prepaid expenses	31,787	30,506
	<u>1,049,124</u>	<u>1,104,412</u>
Note receivable (note 2)	38,671	85,982
	<u>\$ 1,087,795</u>	<u>\$ 1,190,394</u>
Working capital fund:		
Cash and term deposit	\$ 90,012	\$ 88,911
Fixed asset fund:		
Fixed assets (note 3)	\$ 181,880	\$ 227,735
International Pacific Salmon Fisheries Commission Trust Fund:		
Term deposits (note 4)	\$ —	\$ 73,583
Liabilities and Fund Balances		
General fund:		
Current liabilities:		
Accounts payable and accrued liabilities	\$ 72,132	\$ 132,239
Deferred revenue (note 5)	400,000	400,000
Fund balance (note 6):		
Reserves	615,663	658,155
	<u>\$ 1,087,795</u>	<u>\$ 1,190,394</u>
Working capital fund:		
Fund balance	\$ 90,012	\$ 88,911
Fixed asset fund:		
Fund balance	\$ 181,880	\$ 227,735
International Pacific Salmon Fisheries Commission Trust Fund:		
Fund balance	\$ —	\$ 73,583

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

Year ended March 31, 1994, with comparative figures for 1993

	1994	1993
Revenue:		
Contributions from contracting parties	\$ 1,634,000	\$ 1,673,000
Interest	47,377	61,328
Other	15,815	—
Gain on disposal of fixed assets	1,838	22,831
Test fishing	714,535	263,195
	<u>2,413,565</u>	<u>2,020,354</u>
Expenditures:		
Salaries and employee benefits	1,388,550	1,259,269
Travel and transportation	55,855	60,729
Rents and communication	97,025	76,125
Printing and reproductions	17,015	9,604
Contract services	188,837	98,176
Materials and supplies	34,216	19,866
Test fishing	627,311	223,690
	<u>2,408,809</u>	<u>1,747,459</u>
Excess of revenue over expenditures	<u>4,756</u>	<u>272,895</u>
	<u>\$ 2,413,565</u>	<u>\$ 2,020,354</u>

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Working Capital Fund

Statement of Revenue and Expenditures

Year ended March 31, 1994, with comparative figures for 1993

	1994	1993
Revenue:		
Interest	\$ 2,883	\$ 3,879
Expenditures:		
Meeting expenses	1,782	-
Pearse inquiry	-	9,724
	1,782	9,724
Excess (deficiency) of revenue over expenditures	\$ 1,101	\$ (5,845)

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

International Pacific Salmon Fisheries Commission Trust Fund

Statement of Revenue and Expenditures

Year ended March 31, 1994, with comparative figures for 1993

	1994	1993
Revenue:		
Interest earned on term deposit	\$ 1,838	\$ 2,609
Book sales	1,319	4,209
	3,157	6,818
Expenditures:		
Publications	1,042	2,801
Past service costs	2,507	4,888
Pension costs	73,191	—
	76,740	7,689
Excess of expenditures over revenue	\$ (73,583)	\$ (871)

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Statement of Fund Balances

Year ended March 31, 1994, with comparative figures for 1993

	1994	1993
General fund:		
Fund balance, beginning of year	\$ 658,155	\$ 486,195
Transfer to funds:		
Fixed asset fund	(47,248)	(100,935)
Excess of revenue over expenditures	4,756	272,895
Fund balance, end of year	\$ 615,663	\$ 658,155
Working capital fund:		
Fund balance, beginning of year	\$ 88,911	\$ 94,756
Excess (deficiency) of revenue over expenditures	1,101	(5,845)
Fund balance, end of year	\$ 90,012	\$ 88,911
Fixed asset fund:		
Fund balance, beginning of year	\$ 227,735	\$ 226,588
Transfer from General Fund	47,248	100,935
Depreciation	(93,103)	(99,788)
Fund balance, end of year	\$ 181,880	\$ 227,735
International Pacific Salmon Fisheries Commission Trust Fund:		
Fund balance, beginning of year	\$ 73,583	\$ 74,454
Excess of expenditures over revenue	(73,583)	(871)
Fund balance, end of year	\$ -	\$ 73,583

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Statement of Changes in Financial Position

Year ended March 31, 1994, with comparative figures for 1993

	1994	1993
Working capital fund:		
Financing activity:		
Excess (deficiency) of revenue over expenditures	\$ 1,101	\$ (5,845)
Cash and term deposits, beginning of year	88,911	94,756
Cash and term deposits, end of year	\$ 90,012	\$ 88,911
Fixed asset fund:		
Investing activities:		
Additions to fixed assets	\$ (47,515)	\$ (110,292)
Proceeds on sale of fixed assets	2,105	32,188
Cash used for investing activities	(45,410)	(78,104)
Financing activity:		
Transfer from general fund	47,248	100,935
Gain on sale of fixed assets	(1,838)	(22,831)
Cash used for financing activities	45,410	78,104
Cash position, beginning of year	-	-
Cash position, end of year	\$ -	\$ -
General fund:		
Operating activities:		
Excess of revenue over expenditures	\$ 4,756	\$ 272,895
Add (deduct):		
Net changes in non-cash working capital balances relating to operations	(63,524)	413,726
Cash provided by operations	(58,768)	686,621
Financing activity:		
Transfer to fixed asset fund	(47,248)	(100,935)
Investing activities:		
Decrease in note receivable	47,312	10,433
Increase (decrease) in cash during the year	(58,704)	596,119
Cash and term deposits, beginning of year	1,056,757	460,638
Cash and term deposits, end of year	\$ 998,053	\$ 1,056,757

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Statement of Changes in Financial Position

Year ended March 31, 1994, with comparative figures for 1993

	1994	1993
International Pacific Salmon Fisheries Commission Trust Fund:		
Operating activities:		
Excess of expenditures over revenue	\$ (73,583)	\$ (871)
Decrease in cash during the year	(73,583)	(871)
Cash and term deposits, beginning of year	73,583	74,454
Cash and term deposits, end of year	\$ —	\$ 73,583

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Notes to Financial Statements

Year ended March 31, 1994, with comparative figures for 1993

Nature of organization:

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

1. Significant accounting policies:

(a) Fund accounting:

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

The 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 a pre-determined fixed limit in the account at the end of the fiscal year is transferred to the General fund and is treated as income.

(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 of rates sufficient to amortize the costs over the estimated useful lives of the assets. The rates of depreciation used on an annual basis are:

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

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)

Year ended March 31, 1994, with comparative figures for 1993

1. Significant accounting policies: (continued)

(d) Income taxes:

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

(e) Foreign exchange translation:

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

2. Note receivable:

The note receivable is fully secured and it is expected that the note will be retired prior to March 31, 1995.

3. Fixed assets:

		1994		1993	
	Cost	Accumulated depreciation and amortization	Net book value		Net book value
Automobiles	\$ 83,157	\$ 75,264	\$ 7,893	\$	10,441
Boats	77,446	74,147	3,299		4,749
Computer equipment	311,656	272,844	38,812		60,417
Equipment	339,293	290,975	48,318		43,909
Films	1,800	1,800	—		—
Furniture and fixtures	233,189	158,544	74,645		94,430
Computer software	70,398	67,345	3,053		5,976
Leasehold improvements	19,532	13,672	5,860		7,813
	\$ 1,136,471	\$ 954,591	\$ 181,880	\$	227,735

4. International Pacific Salmon Fisheries Commission Trust Fund:

During the 1994 fiscal year the Commission's responsibilities for administration of the IPSFC Trust Fund were completed. The remaining fund balance was transferred to that Commission's pension fund and all future responsibilities were assumed by the respective governments.

5. Deferred revenue:

Deferred revenue consists of cash contributions received from a contracting party in the current year that represent revenues for the year ended March 31, 1995.

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)

Year ended March 31, 1994, with comparative figures for 1993

6. Fund balance:

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

	1994	1993
(a) Continuing operations	\$ 545,205	\$ 541,667
(b) Reserve for note receivable	38,671	85,982
(c) Reserve for prepaid expenses	31,787	30,506
	\$ 615,663	\$ 658,155

7. Pension plan:

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

At the date of the most recent actuarial valuation as amended, January 1, 1993, the present value of accrued benefits exceeds the market value of related assets available to provide these benefits by \$110,567. It is intended to fund this deficiency from normal operations within the next 15 years.

Appendices

Appendix A

Letter of Transmittal to Governments regarding fishery regimes for 1993

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

The Honourable Ross Reid, P.C., M.P.
Minister of Fisheries and Oceans
Ottawa, Ontario
K1A 0E6

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

The Honorable Ronald H. Brown
Secretary of Commerce
U.S. Department of Commerce
14th and Constitution Avenue N.W.
Washington, D.C.
20230

Dear Sir:

I have the honour to report to you on understandings reached by the Pacific Salmon Commission regarding certain of the fishery regimes specified in Annex IV of the Pacific Salmon Treaty.

In accordance with Article XIII, Paragraph 2 of the Treaty, the Commission recommends implementation of the following arrangements for 1993:

1. Transboundary Rivers - Annex IV, Chapter 1.

With respect to the Transboundary rivers, Canada and the U.S. agree to continue the expired annex provision through 1993. Discussions directed towards adjusting agreed fishing regimes to improve access to enhanced sockeye returns will continue prior to the 1994 season.

2. Northern B.C. and S.E. Alaska - Annex IV, Chapter 2.

With respect to Portland Canal chum salmon, Canada and the U.S. agree to prohibit net fisheries in relevant areas as recommended by the bilateral Northern Panel on February 15, 1993. In addition, they agree to continue discussion of restoration and enhancement programs for northern boundary chum salmon.

3. Fraser River Sockeye and Pink Salmon - Annex IV, Chapter 4.

Canada and the U.S. agree that the management regime for the Fraser sockeye and pink salmon fishery in 1993 is as follows:

a) For sockeye salmon:

- i) When the estimated TAC is less than 12.062 million fish, the U.S. catch in the Panel area shall not exceed 20 percent of the TAC;
- ii) When the estimated TAC is between 12.062 and 15 million fish, the U.S. catch in the Panel area shall not exceed 2.412 million fish plus 10 percent of the TAC between 12.062 and 15 million fish;
- iii) When the estimated TAC is greater than 15 million fish, the U.S. catch in the Panel area shall not exceed 2.706 million fish plus 5 percent of the TAC above 15 million fish, but the catch shall not exceed 2.806 million fish;
- iv) Differences concerning catches of Fraser sockeye caught outside of the Panel area remain unresolved and will be addressed in connection with negotiations on 1994 arrangements.
- v) The U.S. will not fish in 1993 on the early Stuart run in order to provide adequate escapement and viable fisheries in the upper portion of the Fraser River drainage.

b) For pink salmon the total U.S. catch shall be 25.7% of the TAC, but shall not exceed 3.6 million fish.

- c) Calculation of 1993 TACs for Fraser River sockeye and pink salmon, and any catch overages or underages in 1993, shall be as specified in Annex IV, Chapter 4 of the Treaty and as specified in previous agreements by the Fraser Panel.
- d) The dispute referred to in Canada's Note 189 of November 24, 1992 and the Department of State's Note of December 8, 1992 remains unresolved and will be addressed in connection with negotiations on 1994 arrangements.
- e) Based on these arrangements, the Fraser Panel shall develop fishery management plans for the Fraser Panel area as soon as possible.

4. Coho Salmon - Annex IV, Chapter 5.

For 1993, Canada will limit its WCVI coho troll fishery to 1.7 million. Other coho chapter provisions remain unchanged.

5. Southern B.C. and Washington State Chum Salmon - Annex IV, Chapter 6.

With respect to southern chum, Canada and the U.S. agree to continue the expired Annex provisions through 1993.

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

The Commission respectfully requests your early approval of these recommendations.

Yours truly,

Yves Fortier, Chair
Pacific Salmon Commission

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

Annex IV

Chapter 1

TRANSBOUNDARY RIVERS

1. Recognizing the desirability of accurately determining exploitation rates and spawning escapement requirements of salmon originating in the Transboundary Rivers, the Parties shall maintain a Joint Transboundary Technical Committee (Committee) reporting, unless otherwise agreed, to the Northern Panel and to the Commission. The Committee, inter alia, shall
 - (a) assemble and refine available information on migratory patterns, extent of exploitation and spawning escapement requirements of the stocks;
 - (b) examine past and current management regimes and recommend how they may be better suited to achieving preliminary escapement goals;
 - (c) identify enhancement opportunities that:
 - (i) assist the devising of harvest management strategies to increase benefits to fishers with a view to permitting additional salmon to return to Canadian waters;
 - (ii) have an impact on natural Transboundary river salmon production.
2. The Parties shall improve procedures of 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 February 1988 Understanding between the United States and the Canadian Section of the Pacific Salmon Commission concerning Joint Enhancement of Transboundary River Salmon Stocks (Understanding) shall be as follows:
- a. When the estimated TAC of Stikine River sockeye salmon is zero or less:
 - 1. Canada may conduct its native food fishery but the catch shall not exceed 4,000 fish, there will be no commercial fishing;
 - 2. The United States shall not direct commercial fisheries at Stikine River sockeye salmon in District 108;
 - 3. The United States may fish in the commercial 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 1 and 20,000 fish:
 1. Canada shall conduct its commercial and native food fisheries so that the all gear catch is at least 4,000 fish and may increase its catch to include any surplus available in-river total allowable catch but not to exceed 7,000 fish;

2. The United States may direct commercial fisheries at Stikine sockeye salmon in District 108 if the total TAC of Stikine River sockeye salmon is greater than the actual catch of Stikine River sockeye salmon in District 106 plus 7,000;
 3. The United States may fish in the commercial 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 February 1988 Understanding concerning Joint Enhancement of Transboundary River Salmon Stocks (Understanding), shall be as follows:
 - a. Canada shall harvest no more than 18 percent of the TAC of the sockeye salmon originating in the Canadian portion of the Taku River each year.
 - b. Canada shall harvest no more than 3,000 coho salmon each year.
- (ii) Canadian harvests of chinook, pink and chum salmon may be taken as an incidental harvest in the directed fishery for sockeye and coho salmon.
- (iii) Both Parties shall take the appropriate management action to ensure that the necessary escapement goals for chinook salmon bound for the Canadian portions of the Taku River are achieved by 1995.

- (iv) If the United States unilaterally withdraws from mutually agreed enhancement goals and activities as specified in the Understanding, then the harvest sharing of naturally occurring Taku River salmon as stated in sections (i) and (ii) above shall remain in effect.
- (v) If Canada unilaterally withdraws from mutually agreed enhancement goals and activities as specified in the Understanding, then Canada's share of naturally occurring Taku River sockeye salmon shall be 15 percent of the TAC. Furthermore, Canada shall commercially harvest coho, chinook, pink, and chum salmon only incidentally during a directed sockeye salmon fishery.

4. The Parties agree that if the catch allocations set out in paragraph 3 are not attained due to management actions by either Party in any one year, compensatory adjustments shall be made in subsequent years. If a shortfall in the actual catch of a Party is caused by management action of that Party, no compensation shall be made.

5. The Parties agree that the following arrangements shall apply to United States and Canadian fisheries harvesting salmon stocks originating in Canadian portions of the Alsek River: recognizing that chinook and early run sockeye stocks originating in the Alsek River are depressed and require special protection, and in the interest of conserving and rebuilding these stocks, the necessary management actions shall continue until escapement targets are achieved.

6. The Parties agree to consider cooperative enhancement possibilities and to undertake as soon as possible studies on the feasibility of new enhancement projects on the Transboundary Rivers and adjacent areas for the purpose of increasing productivity of stocks and providing greater harvests to the fishers of both countries.

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

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

Chapter 2

NORTHERN BRITISH COLUMBIA SOUTHEASTERN ALASKA

1. Considering that the chum salmon stocks originating in streams in the Portland Canal require rebuilding, the Parties agree in 1990 and 1991 to jointly reduce interceptions of these stocks to the extent practicable and to undertake assessments to identify possible measures to restore and enhance these stocks. On the basis of such assessments, the Parties shall instruct the Commission to identify long-term plans to rebuild these stocks.
2. With respect to sockeye salmon, the United States shall
 - (a) with respect to District 4 purse seine fishery:
 - (i) for the four year period, 1990 through 1993, limit its fishery in a manner that will result in a maximum four-year total catch of 480,000 sockeye salmon prior to United States Statistical Week 31;
 - (ii) when the annual catch reaches 160,000 sockeye salmon, no further daily fishing periods in District 4 will be allowed prior to Statistical Week 31;
 - (iii) all underages not to exceed 20% of the Annex ceiling will add to, and overages will subtract from, the subsequent four-year period.
 - (b) limit its drift gillnet fishery in Districts 1A and 1B in a manner that will result in an average annual harvest of 130,000 sockeye salmon.
3. With respect to pink salmon, Canada shall
 - (a) limit its net fishery in Areas 3-1, 3-2, 3-3, 3-4, and 5-11 in a manner that will result in an average annual harvest of 900,000 pink salmon;
 - (b) with respect to the Area 1 troll fishery:
 - (i) for the four year period, 1990-1993, limit its Area 1 pink salmon troll catch to a total of 5.125 million;
 - (ii) during the period 1990 through 1993, close the pink salmon troll fishery in the most northerly portion of Area 1 in management units 101-4, 101-8, 101-3 north of 54 degrees 37 minutes N. and 103 north of 54 degrees 37 minutes N to pink salmon trolling when the pink salmon fishery has lasted 22 days starting with the beginning of the troll season in Area 1, but no earlier than July 22, except that the most northerly portion of the area shall close to pink salmon trolling whenever the catch in that area reaches 300,000 pinks.
 - (iii) limit the maximum harvest in the entire Area 1 in any one year to 1.95 million pink salmon; and,
 - (iv) all underages, not to exceed 20% of the Annex ceiling, will add to, and overages will subtract from, the subsequent four-year period.
4. In 1987 and thereafter, in order to ensure that catch limits specified in paragraphs 2 and 3 are not exceeded, the Parties shall implement appropriate management measures which take into account the expected run sizes and permit each country to harvest its own stocks.

5. In setting pink salmon fisheries regimes for 1987 and thereafter, the Parties agree to take into account information from the northern pink tagging program.
6. The Parties shall at the earliest possible date exchange management plans for the fisheries described herein.
7. In order to accomplish the objectives of this Chapter, neither Party shall initiate new intercepting fisheries, nor conduct or redirect fisheries in a manner that intentionally increases interceptions.
8. The Parties shall maintain a Joint Northern Boundary Technical Committee (Committee) reporting, unless otherwise agreed, to the Northern Panel and the Commission. The Committee, inter alia, shall
 - (a) evaluate the effectiveness of management actions;
 - (b) identify and review the status of stocks;
 - (c) present the most current information on harvest rates and pattern on these stocks, and develop a joint data base for assessments;
 - (d) collate available information on the productivity of stocks in order to identify escapements which produce maximum sustainable harvests and allowable harvest rates;
 - (e) present historical catch data, associated fishing regimes, and information on stock composition in fisheries harvesting these stocks;
 - (f) devise analytical methods for the development of alternative regulatory and production strategies;
 - (g) identify information and research needs, including future monitoring programs for stock assessments; and,
 - (h) for each season, make stock and fishery assessments and recommend to the Northern Panel conservation measures consistent with the principles of the Treaty.

CHINOOK SALMON

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

- (a) instruct their respective management agencies to establish a chinook salmon management program designed to meet the following objectives:
 - (i) halt the decline in spawning escapements in depressed chinook salmon stocks; and,
 - (ii) attain by 1998, escapement goals established in order to restore production of naturally spawning chinook stocks, as represented by indicator stocks identified by the Parties, based on a rebuilding program begun in 1984;
- (b) continue the chinook working group to clarify policy issues relating to the execution of this Chapter; for example, the definition of pass-through, and the development of common procedures for adjusting catch ceilings in response to changes in abundance, positive incentives and enhancement add-ons; the chinook working group will develop options for consideration by the Commission and Panels as appropriate;
- (c) jointly initiate and develop a 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 1991, the all-gear catch in Southeast Alaska shall not exceed the base ceiling of 263,000 chinook salmon plus 10,000; in 1992, the all-gear catch in Southeast Alaska shall not exceed 263,000 chinook salmon; these catches exclude the Alaska hatchery add-on as described in the letter of transmittal; in 1991 and 1992 Alaska shall open its general summer troll fishery on July 1; the June fishery shall not exceed 40,000 chinook salmon (excluding the Alaska hatchery add-on) taken in a manner similar to 1989 and 1990; and areas of high chinook abundance shall be closed during chinook non-retention periods to reduce incidental mortalities;

- (ii) in 1991, the all-gear catch in Northern and Central B.C. shall not exceed the base ceiling of 263,000 chinook salmon plus 10,000; in 1992, the all-gear catch in Northern and Central B.C. shall not exceed 263,000 chinook salmon; these catches exclude a portion of the catch in extreme terminal areas as described in the letter of transmittal;
 - (iii) in 1991 and 1992, the annual troll catch off the west coast of Vancouver Island shall not exceed 360,000 chinook salmon;
 - (iv) in 1991 and 1992, the total annual catch by the sport and troll fisheries in the Strait of Georgia shall not exceed 275,000 chinook salmon; Canada will undertake management measures to achieve the target of rebuilding Lower Georgia Strait and Fraser River chinook stocks by 1998;
 - (v) adjustments to the ceilings may be made in response to reductions in chinook abundance so that the indicator stocks are rebuilt by 1998;
 - (vi) fishing regimes are reviewed by the Committee and structured so as not to affect unduly or to concentrate disproportionately on stocks in need of conservation;
 - (vii) starting with the 1987 season, a 7.5 percent management range is established above and below a catch ceiling. On a continuing basis, the cumulative deviation (in numbers of fish) shall not exceed the management range. In the event that the cumulative deviation exceeds the range, the responsible Party shall be required in 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(c)(vi) of this Chapter are adhered to.
3. The Parties shall submit a report to the Commission by December 1991 which presents
- (a) joint recommendations for chinook salmon escapement goals in the transboundary rivers;
 - (b) given the goals recommended in 3(a), a jointly accepted assessment of progress toward rebuilding chinook stocks in these transboundary rivers based on escapement data available through 1991, and the likelihood of achievement of these goals by 1995; and,
 - (c) cooperatively developed management options to be identified by December 1991 and initiated in 1992 and following seasons to ensure rebuilding of chinook stocks in the transboundary rivers which are identified in 3(b) as requiring further management actions.

Chapter 4

FRASER RIVER SOCKEYE AND PINK SALMON

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

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

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

(b) that

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

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

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

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

(c) in 1985, to instruct the International Pacific Salmon Fisheries Commission to develop regulatory programs in the Area to give effect to the provisions of paragraph 1(b);

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

- (i) domestic allocation objectives of both Parties are given full consideration;
 - (ii) conservation requirements and management objectives of the Parties for species and stocks other than Fraser River sockeye and pink salmon in the Fraser River Panel Area during periods of Panel regulatory control are given full consideration; and,
 - (iii) the Commission staff is timely informed of management actions being taken by the Parties in fisheries outside of the Fraser River Panel Area that may harvest sockeye and pink salmon of Fraser River origin.
- (e) the staff of the Commission shall consult regularly in-season with the technical committee to ensure that its members are fully and timely informed on the status of Fraser River sockeye and pink salmon stocks, and the expectations of abundance, migration routes and proposed regulatory options, so the members of the technical committee can brief their respective national sections prior to each in-season Panel meeting.

COHO SALMON

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

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

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

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

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

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

SOUTHERN BRITISH COLUMBIA AND WASHINGTON STATE CHUM SALMON

1. The Parties shall maintain a Joint Chum Technical Committee (Committee) reporting, unless otherwise agreed, to the Southern Panel and the Commission. The Committee, inter alia, will undertake to
 - (a) identify and review the status of stocks of primary concern;
 - (b) present the most current information on harvest rates and patterns on these stocks, and develop a joint data base for assessments;
 - (c) collate available information on the productivity of chum stocks to identify escapements which produce maximum sustainable harvests and allowable harvest rates;
 - (d) present historical catch data, associated fishing regimes, and information on stock composition in fisheries harvesting those stocks;
 - (e) devise analytical methods for the development of alternative regulatory and production strategies;
 - (f) identify information and research needs, to include future monitoring programs for stock assessment; and,
 - (g) for each season, make stock and fishery assessments and evaluate the effectiveness of management.
2. In 1991 and 1992, Canada will manage its Johnstone Strait, Strait of Georgia, and Fraser River chum fisheries to provide continued rebuilding of depressed naturally spawning chum stocks, and, to the extent practicable, minimize increased interceptions of United States origin chum. Terminal fisheries conducted on specific stocks with identified surpluses will be managed to minimize interception of non-targeted stocks.

3. In each of 1991 and 1992,

(a) for Johnstone Strait run sizes less than 3.0 million

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

(b) for Johnstone Strait run sizes from 3.0 million to 3.7 million

- (i) Canada, taking into account the catch of Canadian chum in United States Areas 7 and 7A, will limit its harvest rate in Johnstone Strait to 20 percent, resulting in a Johnstone Strait catch level of 225,000 to 640,000 chum; and,
- (ii) when the catch in Johnstone Strait is from 225,000 to 640,000 chum, the United States catch of chum in Areas 7 and 7A shall not exceed 120,000;

(c) for Johnstone Strait run sizes of 3.7 million and greater

- (i) Canada, taking into account the catch of Canadian chum in United States Areas 7 and 7A, will harvest at a rate in Johnstone Strait of 30 percent or greater, resulting in a Johnstone Strait catch level of 640,000 chum or greater; and,
- (ii) when the catch in Johnstone Strait is 640,000 chum or greater, the United States catch of chum in Areas 7 and 7A shall not exceed 140,000;

(d) it is understood that the Johnstone Strait run sizes, harvest rates, and catch levels referred to in 3(a), 3(b), and 3(c) are those determined in season, in Johnstone Strait, by Canada; and,

(e) the United States shall manage in a manner that, as far as practicable, maintains a traditional proportion of effort and catch between United States Areas 7 and 7A, and avoids concentrations of effort along the boundary in Area 7A.

4. In 1991 and 1992, the United States shall conduct its chum fishery in the Strait of Juan de Fuca (United States Areas 4B, 5 and 6C) so as to maintain the limited effort nature of this fishery, and, to the extent practicable, minimize increased interceptions of Canadian origin chum. The United States shall continue to monitor this fishery to determine if recent catch levels indicate an increasing level of interception.

5. If the United States chum fishery in Areas 7 and 7A fails to achieve the 1991 and 1992 catch levels specified in paragraphs 3(a)(ii), 3(b)(ii), and 3(c)(ii), any differences shall be compensated by adjustments to the Areas 7 and 7A fishery in subsequent years, except that chum catches below the level specified in paragraph 3(a)(ii) shall not be compensated.

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

7. Canada will manage the Nitinat net chum fishery to minimize the harvest of non-targeted stocks.

8. In 1991 and 1992, Canada shall conduct electrophoretic sampling of chum taken in the West Coast Vancouver Island troll fishery if early-season catch information indicates that catch totals for the season may reach levels similar to 1985 and 1986. Sampling, should it occur, will include catches taken from the southern areas (Canadian Areas 121-124).

Chapter 7

GENERAL OBLIGATION

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

Appendix C

Instructions to the Panels and Chinook Working Group for the 1993/94 Negotiations

General instructions

1. At the Nov. 29-Dec. 3/93 post season meeting:
 - a. conduct 1993 post-season review;
 - b. receive reports from the Joint Technical Committees;
 - c. begin Panel and Chinook Working Group (CWG) negotiations as provided in these instruction on expired provisions of Annex IV.

The Chair and Vice-Chair of each Panel should decide how best to start and conduct the negotiations in their respective Panels (including whether, and in what form, papers should be exchanged).

Panels and the CWG are encouraged to utilize the expertise of the technical committees.

2. Panels and working groups are not limited to meeting only at the formal PSC meetings.
3. The desired product is agreed fishing regimes for incorporation in Annex IV. Attempt to replace the expired fishing provisions with acceptable multi-year arrangements, but which also provide that the Parties may, to the extent they agree on positive improvements, modify the chapters prior to the formal Annex expiration date.
4. Review existing language in the Annex IV chapters and remove or update any provisions that are no longer relevant.
5. Report to the Commission on January 28/94 on the results of the negotiations which should include a working draft of each chapter, with bracketed language reflecting each Party's positions if agreement has not been reached, for use by the Commission at its February session. If working drafts of each chapter have not been completed, the Commission will assign a drafting group to complete this task for its February, 1994 session.

NORTHERN PANEL INSTRUCTIONS

Chapter 1 - Transboundary Rivers

Some annex provisions applicable to transboundary rivers need to be replaced, preferably with long-term Annex arrangements.

Focus of Panel Negotiations:

Continue and complete negotiations initiated during the 92/93 cycle (long term annexes preferable).

Review current sockeye enhancement arrangements (egg take and release sites) and recommend adjustments as may be appropriate.

Review the current management regimes and catch allocation agreements for coho and negotiate terms of any adjustments.

Initiate discussions relative to harvest arrangements for rebuilt chinook salmon stocks.

Strive to develop and exchange draft Annex language addressing substantive provisions identified above prior to the conclusion of the November 29 - December 3 meeting.

Considerations:

With assistance of Transboundary Technical Committee:

- *** review initial years of enhancement on Stikine and Taku Rivers and discuss access opportunities;
- *** discuss options for additional enhancement in the transboundary Rivers;
- *** review status of chinook rebuilding program, including the appropriateness of the escapement goals, on Stikine, Taku, and Alsek Rivers.

Chapter 2 - Northern B.C./S.E. Alaska

Expired annex provisions applicable to northern boundary fisheries (including Portland Canal chum) need to be replaced, preferably with long-term Annex arrangements.

Focus of Panel Negotiations:

Following review of the current management regimes and catch allocation agreements, recommend new Annex provisions; e.g., for Canadian Area 1 Troll and SEAK District 4 pre-week 31 fisheries.

Recommend ways to address identified conservation problems of mutual interest.

Recommend a long-term stock conservation and rebuilding agreement for Portland Canal chum stocks.

Strive to develop and exchange draft Annex language addressing substantive provisions identified above prior to the conclusion of the November 29 - December 3 meeting.

Considerations:

Performance relative to Annex provisions; e.g., Canadian Area 3 and Southeast Alaska Tree Point.

Discuss the status of coho stocks in the northern boundary area, updating the 1990 report on catches, escapements and enhancement activities.

Discuss status of steelhead stocks and management information needs in the boundary area.

Consider development of long-term stock conservation and production opportunities for northern boundary chum stocks.

Take into account the Northern Panel planning process to consider opportunities/options for improved management, conservation, and enhancement in the northern boundary area. The opportunities/options considered should build on the JOGC process and aim at increasing benefits to fishermen of both countries, optimize production, simplify management, and facilitate annual negotiations/discussions.

CHINOOK WORKGROUP INSTRUCTIONS

Chapter 3 - Chinook Salmon

Certain Annex provisions have expired and need to be replaced, after consideration of the status of the rebuilding program and actions (including but not limited to harvest measures) necessary to ensure that the Treaty's chinook rebuilding goals are met by 1998.

Focus of Chinook Working Group Negotiations:

Recommend an annex that prescribes harvest levels, with the goal of achieving a long-term arrangement.

Recommend a workplan and schedule for concluding bilateral development of an abundance-based approach to harvest management that could be applied by mutual agreement prior to the formal expiration of the Annex.

Recommend general hatchery add-on and terminal exclusion procedures.

Report to the Commission by January 28, 1994 on the progress of the rebuilding program, including:

- definitions needed for the consideration or evaluation of the rebuilding program including: "rebuilt", "rebuilding", "stock of concern", "depressed stock", "escapement indicator stock", and "pass-through;"
- a program to monitor and reduce incidental chinook mortalities on a coast-wide basis;
- a chinook management program that is responsive to the abundance of chinook stocks to ensure that the Treaty's chinook rebuilding goals are met by 1998.

Considerations:

Progress on ongoing government-to-government discussions on implementation of Article III.

Development of a common view of rebuilding program status and options to utilize both harvest management and other tools (e.g., production) to ensure success of the program, especially in regards to stocks of concern.

Ensure that Treaty pass-through provisions are met for depressed chinook stocks.

Need to retain flexibility in approach utilized to effectuate harvest constraints.

FRASER RIVER PANEL INSTRUCTIONS

Chapter 4 - Fraser Sockeye and Pink Salmon

Expired Annex provisions applicable to Fraser sockeye and pink salmon fisheries need to be replaced, preferably with long-term Annex arrangements.

Focus of Panel Negotiations:

Following a review of past harvest sharing arrangements, develop and consider substantive elements of various sockeye salmon management approaches (including a marginal percentage-based approach) for inclusion in a multi-year annex.

Following a review of past harvest sharing arrangements, develop and consider substantive elements of various pink salmon management approaches for inclusion in a multi-year annex.

Strive to develop and exchange working drafts in Annex language addressing key substantive provisions identified above prior to the conclusion of the November 29-December 3, 1994 meeting.

Considerations:

The concept of avoiding targeting on certain stocks or stock groupings.

As defined in the August 1985 diplomatic note exchanged by the Parties, the division of responsibilities between Canada and the Commission (Fraser River Panel) for management of Fraser River sockeye and pink salmon is open for discussion.

Review of the scope of the Panel's management jurisdiction.

Management requirements of other stocks affected by management of the Fraser sockeye and pink fishery.

Commission guidance will be provided concerning catches of Fraser River sockeye outside Panel Area Waters.

SOUTHERN PANEL INSTRUCTIONS

Chapter 5 - Coho Salmon

Expired Annex provisions applicable to coho salmon fisheries need to be replaced, preferably with long-term Annex arrangements.

Focus of Panel Negotiations:

Review the harvest management regime for coho salmon, and, if appropriate, recommend revisions.

Recommend a workplan to develop an alternative approach for managing the WCVI troll fishery based on the abundance of stocks that can be applied by mutual agreement prior to the formal expiration of the Annex.

Strive to develop and exchange working drafts addressing substantive provisions identified above prior to the conclusion of the November 29-December 3, 1993 meeting.

Considerations:

Progress on ongoing government-to-government discussions on implementation of Article III.

Current depressed resource status (and near-term projections) in Washington, Oregon, and southern British Columbia, and implications to fisheries.

Impact of management options for WCVI troll coho on fisheries, and consideration of the extent/manner/mechanism of mitigation appropriate for possible changes in interceptions.

Harvest by the WCVI sport fishery.

Update/continue discussions of Area 7/7A directed coho fisheries.

Chapter 6 - Chum Salmon

Expired Annex provisions applicable to chum salmon fisheries need to be extended or replaced, preferably with long-term Annex arrangements.

Focus of Panel Negotiations:

Following review of existing Annex provisions, develop and recommend substantive changes only to the extent they are essential and easily agreed to.

Strive to develop and exchange working drafts addressing substantive proposed changes, if any, prior to the conclusion of the Nov. 29-Dec. 3 meeting.

Considerations:

Develop a workplan and schedule for continuation of discussions of Joint Objectives and Goals to identify and develop cooperative opportunities for improving the chum stocks and fisheries of both parties for incorporation in the chum annex in the future.

Discuss status of steelhead stocks and management information needs.

Appendix D

Appointment of Officers for 1993/94

Effective December 1, 1993, the new slate of officers for the Pacific Salmon Commission was identified as follows:

(a)	Commission Chair	U.S.	D.A. Colson
(b)	Commission Vice-Chair	Can.	Y. Fortier
(c)	Fraser River Panel Chair	U.S.	W. Robinson
(d)	Fraser River Panel Vice-Chair	Can.	A. Lill
(e)	Northern Panel Chair	U.S.	K.C. Duffy
(f)	Northern Panel Vice-Chair	Can.	C. Dragseth
(g)	Southern Panel Chair	Can.	P. Sprout
(h)	Southern Panel Vice-Chair	U.S.	T. Cooney
(i)	Meetings of the Northern and Southern Panels		
	- Chair	Can.	P. Sprout
	- Vice-Chair	U.S.	K.C. Duffy
(j)	Meetings of the Fraser and Southern Panels		
	- Chair	U.S.	W. Robinson
	- Vice-Chair	Can.	A. Lill
(k)	Stan. Comm. on F&A	U.S.	R. Rousseau
(l)	Stan. Comm. on F&A	Can.	P. Chamut
(m)	Stan. Comm. on R&S	Can.	B. Buchanan
(n)	Stan. Comm. on R&S	U.S.	K. Brigham

Appendix E

Pacific Salmon Commission Approved Meeting Schedule 1994/95 and 1995/96

The 1994/95 meeting schedule has been approved as follows:

1. 1994/95
 - (a) PSC Executive Session
October 11-13, 1994
Stockman's Hotel
Kamloops, B.C.
 - (b) Post-Season Meeting
November 29-December 2, 1994
Four Seasons Hotel
Vancouver, B.C.
 - (c) PSC & Panel Meeting
January 23-27, 1995
Four Seasons Hotel
Vancouver, B.C.
 - (d) PSC Tenth Annual Meeting
February 6-10, 1995
Hotel location to be confirmed
Portland, Oregon

The 1995/96 meeting cycle dates and locations have been agreed as follows:

2. 1995/96
 - (a) PSC Executive Session
October 10-12, 1995
Cape Fox Hotel
Ketchikan, Alaska
 - (b) Post-Season Meeting
November 27-December 1, 1995
Four Seasons Hotel
Vancouver, B.C.
 - (c) PSC & Panels Meeting
January 22-26, 1996
Hyatt Regency Hotel
Bellevue, Washington
 - (d) PSC 11th Annual Meeting
February 5-9, 1996
Four Seasons Hotel
Vancouver, B.C.

Appendix F

Approved Budget FY 1994/95

1. Income

A. Contribution from Canada	\$ 800,000
B. Contribution from U.S.	<u>800,000</u>
Sub-total	\$1,600,000
C. Carry-over from 1993/94	439,752
D. Interest	<u>20,000</u>
E. Total Income	<u>2,059,752</u>

2. Expenditures

A. 1. Permanent Salaries & Benefits	\$1,270,020
2. Temporary Salaries & Benefits	<u>223,016</u>
3. Total Salaries & Benefits	1,493,036
B. Travel	70,671
C. Rents, Communications, Utilities	128,276
D. Printing and Publication	17,500
E. Contractual Services	189,737
F. Supplies and Materials	37,768
G. Equipment	<u>113,028</u>
H. Total Expenditures	<u>\$2,050,016</u>

3. Balance (Deficit) \$ 9,736

4. Test-Fishing Program

A. Forecast Revenues	\$ 793,560
B. Forecast Expenditures	<u>677,933</u>
C. Forecast Balance	<u>\$ 115,627</u>

5. Total Balance (Deficit) \$ 125,363

Appendix G

Pacific Salmon Commission Secretariat Staff as of March 31, 1994

EXECUTIVE OFFICE

Ian Todd
Executive Secretary

Janice Abramson
Secretary

Vicki Ryall
Meeting Planner

Teri Tarita
Librarian/Records Administrator

FINANCE & ADMINISTRATION

Kenneth N. Medlock
Finance and Administration

Bonnie Dalziel
Accountant

FISHERY MANAGEMENT

James C. Woodey
Chief Biologist

Jim Gable
Head, Racial Identification Group

Jim Cave
Head, Stock Monitoring Group

Mike Lapointe
Project Biologist, Sockeye

Valerie Craig
Project Biologist, Test-Fishing

Bruce White
Project Biologist, Pinks

Peter Cheng
Project Biologist, Acoustics

Keith Forrest
Project Biologist, Racial Database

Ian Guthrie
Head, Biometrics

Carol Lidstone
Scale Analyst

Doug Stelter
Statistician

Jullie Parkin
Assistant Scale Analyst

Kathy Mulholland
Computer Services

Holly Derham
Assistant Scale Analyst

Appendix H

Membership Lists for Standing Committees, Panels, Joint Technical Committees and other Appointments as of March 31, 1994

UNITED STATES

CANADA

1. STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

Mr. Rollie Rousseau (Chair)
Mr. Charles P. Meacham Jr.
Mr. Charles K. Walters
Mr. James Heffernan
Mr. W. Ron Allen
Mr. John L. McGruder

Mr. Patrick S. Chamut (Vice-Chair)
Ms. Joyce Quintal-McGrath
Mr. C.C. (Bud) Graham
Ms. Heather James

Staff: I. Todd (ex. officio)

Editorial Board

Dr. Norma Jean Sands

Mr. A.W. (Sandy) Argue

Staff: I. Todd

2. STANDING COMMITTEE ON RESEARCH AND STATISTICS

Ms. N. Kathryn Brigham (Vice-Chair)
Mr. Andrew J. McGregor
Mr. Ben Van Alen
Dr. Don Bevan
Dr. James C. Olsen
Dr. Gary S. Morishima
Mr. Gary R. Graves
Mr. Michael Grayum
Mr. James B. Scott
Dr. John E. Clark

Mr. Bruce Buchanan (Chair)
Dr. Brian Riddell
Mr. David Peacock
Mr. Ron Kadowaki
Mr. Sandy Johnston
Mr. Don Anderson
Mr. Wayne Saito
Mr. Louis Lapi
Dr. Jake Rice

Research and Statistics Working Group

Dr. Norma Jean Sands
Mr. Larry Rutter
Dr. Phil Mundy
Mr. Thomas D. Cooney
Mr. Rich Lincoln (alternate to Cooney)
Mr. Charles K. Walters

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

Staff: I. Todd (ex. officio)

Ad Hoc Joint Interceptions Committee

Dr. Gary S. Morishima (Co-Chair)
Dr. Richard Moore
Mr. Ben Van Alen

Mr. A.W. (Sandy) Argue
Mr. Ken Wilson
Ms. Barb Snyder

COMMISSIONER REPRESENTATIVES

Mr. Robert A. Tuner

Mr. Patrick S. Chamut

Ad Hoc Joint Objectives and Goals Committee

Mr. Thomas D. Cooney (Co-Chair)
Ms. N. Kathryn Brigham
Mr. Larry Rutter
Mr. Kevin C. Duffy

Mr. C.C. (Bud) Graham (Co-Chair)
Mr. Colin N. MacKinnon
Mr. A.W. (Sandy) Argue

3. FRASER RIVER PANEL

Mr. William L. Robinson (Chair)
Mr. A. Dennis Austin
Ms. Lorraine Loomis
Mr. Jack R. Giard

Mr. Al F. Lill (Vice-Chair)
Mr. Ernie Crey
Mr. Mike Forrest
Mr. Jim Hill
Ms. Ruth Kendall
Mr. Larry Wick

Fraser River Panel Alternates

Ms. Teresa Clocksin
Mr. W. Ron Allen
Mr. Robert Suggs

Mr. Vince Fiamengo
Mr. Mike Griswold
Ms. Kaarina McGivney
Mr. Mike Medenwaldt
Mr. Russell Nugent

4. SOUTHERN PANEL

Mr. Thomas D. Cooney (Vice-Chair)
Mr. Burnell Bohn
Mr. J. Gary Smith
Mr. Robert Haindel
Mr. Terry R. Williams
Mr. James E. Harp

Mr. Paul Sprout (Chair)
Mr. Tom Davis
Mr. Ron Fowler
Mr. William Green
Mr. John Legate

Southern Panel Alternates

Dr. Donald O. McIsaac
Mr. Mark Cedergreen
Mr. Eugene Greene Sr.
Mr. Michael A. Peters

Ms. Susan Steele
Mr. Roy Alexander
Mr. Bob Duncan
Mr. Warren Peterson
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