Pacific Salmon Commission

2010/2011 Twenty Sixth 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

Twenty Sixth Annual Report 2010/2011

Vancouver, B.C.
Canada

November 2013

PACIFIC SALMON COMMISSION

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

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Letter of Transmittal

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

This report summarizes the activities of the Commission for the fiscal year April 1, 2010 to March 31, 2011. It reports on the results of the 2010 fishing season and on meetings of the Commission and its subsidiary bodies. Also included are the annual reports of the Northern and Southern Fund Committees, and an independent auditor's report on financial activities of the Commission during the fiscal year April 1, 2010 to March 31, 2011

Additional details about the Commission's activities and the Treaty are available at www.psc.org.

Sincerely,

Ms. Susan Farlinger
Chair

PACIFIC SALMON COMMISSION

OFFICERS for 2010/2011

Chair	Ms. Susan Farlinger
Vice-Chair	Mr. Olney Patt, Jr.

COMMISSIONERS

Canada	**United States**
Mr. Ron Fowler	Mr. David Bedford
Mr. Gerry Kristianson	Dr. Jeffrey Koenings
Mr. Saul Terry	Mr. Larry Rutter
Mr. Russ Jones	Mr. Ron Allen
Mr. Paul Macgillivray	Mr. James E. Bacon
Dr. Brian E. Riddell	Mr. Roy Elicker
	Mr. John Field

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INTRODUCTION

Since the early 20th century, Canada and the United States have discussed and collaborated on Pacific salmon conservation and management. Interception of Pacific salmon bound for rivers of one country in fisheries of the other has been a particularly important issue over the years. Scientific research identified a number of intercepting fisheries on species and stocks originating from Alaska, British Columbia, Washington, Oregon and Idaho. This research indicated that Alaskan fishers were catching some of the salmon bound for British Columbia, Idaho, Oregon and Washington. Canadian fishers off the West Coast of Vancouver Island were capturing some of the salmon bound for rivers of Washington and Oregon, while fishers in northern British Columbia were intercepting certain fish returning to Alaska, Washington, Oregon and Idaho. U.S. fishers were catching Fraser River salmon as they traveled through the Strait of Juan de Fuca and the San Juan Islands towards the Fraser River.

Cooperative management of stocks subject to interception became a matter of common concern to Canada and the United States, and governments desired a mechanism to enable each country to reap the benefits of its respective management and enhancement efforts. That mechanism is now provided through the *Treaty Between the Government of Canada and the Government of the United States of America Concerning Pacific Salmon* (hereafter the "Pacific Salmon Treaty" or "the 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 treaty, *inter alia*, established a) a bilateral fishery management organization known as the Pacific Salmon Commission (the Commission), and b) bilateral fishery management regimes for conservation and harvest sharing of salmon stocks. Each country (Party) retains jurisdictional management authority but must manage its fisheries in a manner consistent with the provisions of the Treaty. The Treaty is intended to enable bilateral conservation and enhancement to prevent overfishing, increase production, and ensure that each country receives benefits equivalent to its own salmon production. The Commission also serves as a forum for consultation between the Parties on their salmonid enhancement operations and research programs.

The Commission comprises four Commissioners (and alternates) from each country as the principle deliberative body. The Commission has also established numerous subsidiary committees, and four geographically oriented panels. The Panels report to the Commission and provide advice on the conservation and management of selected stocks of concern, with certain exceptions as noted below:

Transboundary Panel: stocks originating from the Alsek, Stikine and Taku River systems.

Northern Panel: stocks originating in rivers situated between Cape Suckling in Alaska and Cape Caution in British Columbia.

Southern Panel: stocks originating in rivers located south of Cape Caution, other than Fraser River sockeye and pink salmon.

Fraser River Panel: has special in-season regulatory responsibilities for stocks of sockeye and pink salmon originating from the Fraser River.

Yukon River Panel: makes recommendations to authorities in Alaska and the Canadian government concerning the conservation and coordinated management of salmon originating in the Yukon River in Canada, but does not report to the Commission.

The panels review annual post-season reports, annual pre-season fishing plans and ongoing and planned salmonid enhancement programs of each country. They also provide recommendations to the Commission for development of fishery regimes in accordance with the objectives of the Treaty. These

regimes, once adopted by the Commission and accepted by the Parties, are implemented by the relevant fishery management agencies in each country.

The Parties accord the Fraser River Panel 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.

With long-term fishery arrangements in place through periodic amendment of the Treaty, the meeting agendas for the Commission have concentrated on implementation that will improve fisheries management and aid the countries' efforts to recover weakened stocks. These efforts include establishment of two bilaterally-managed restoration and enhancement funds, provisions to enhance bilateral cooperation, and improvements to the scientific basis for salmon management.

The Commission generally meets three times annually and conducts its business between meetings through its permanent Secretariat located in Vancouver, British Columbia. In the period April 1, 2010 to March 31, 2011, the Commission met on three occasions:

1. Commission Fall Meeting
   October 19-21, 2010 – Kamloops, B.C.

2. Post-Season Meeting of the Commission and Panels
   January 10-14, 2011 – Vancouver, B.C.

3. 26th Annual Meeting of the Commission
   February 14-18, 2011 – Portland, Oregon

This, the Twenty-Sixth Annual Report of the Pacific Salmon Commission, provides a synopsis of the activities of the Commission and its subsidiary bodies during its Twenty-sixth fiscal year of operation, April 1, 2010 to March 31, 2011.

Activities of the Commission

PART I
ACTIVITIES OF THE COMMISSION

A. EXECUTIVE SESSION OF THE PACIFIC SALMON COMMISSION
October 19-21, 2010, Kamloops, B.C.

The Commission met twice in bilateral session during the week.

Newly appointed Canadian Commissioners Ms. Sue Farlinger and Dr. Brian Riddell were welcomed to the Commission table.

The Commission discussed the Decline of Fraser Sockeye Workshop held in June 2010 and the workshop report that was finalized in August 2010. [1]

Mr. Mark Saunders of Fisheries and Oceans Canada, a member of the workshop steering committee, reported that during the first two days of the three-day workshop, presenters provided information about various hypotheses surrounding the causes of the decline in the given runs. An eight-member Expert Panel met on the third day to discuss and debate the plausibility of, and the evidence behind, the hypotheses. The Panel also considered future research that could be carried out to further the understanding of the decline in Fraser River sockeye.

Dr. Riddell, who was a member of the Expert Panel, presented an overview of the workshop results and recommendations. The Commission agreed to charge a sub-group of Commissioners with developing a proposal for how the Commission could follow-up on the workshop report. The group would be directed to present its recommendations to the Commission for discussion at the January 2011 Commission meeting.

Mr. Macgillivray provided an update about key events regarding the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River (The Cohen Commission). The Cohen Commission was focusing its activities on document disclosure and interviewing potential witnesses and experts. It would begin to hold public hearings on October 25, 2010.

The Commission discussed the renewal of Annex IV, Chapter 4 (the Fraser Chapter), of the Pacific Salmon Treaty. It was determined that Canada could not enter into a long-term agreement on the Fraser Chapter until the Cohen Commission issued its final report. The Commission agreed to extend the existing provisions of the Fraser Chapter for two years. The agreement would be in force in 2011 and 2012, and the current Commission guidance to the Fraser Panel regarding fishery operations would be maintained.

[1] **Peterman R.M., D. Marmorek, B. Beckman, M. Bradford, N. Mantua, B.E. Riddell, M. Scheuerell, M. Staley, K. Wieckowski, J.R. Winton, C.C. Wood.** 2010. Synthesis of evidence from a workshop on the decline of Fraser River sockeye. June 15-17, 2010. A Report to the Pacific Salmon Commission, Vancouver, B.C. www.psc.org/pubs/FraserSockeyeDeclineWorkshopReport.pdf

B. MEETING OF THE COMMISSION AND PANELS
January 10-14, 2011, Vancouver, B.C.

Three bilateral sessions were held during the week.

Executive Secretary Don Kowal presented a Strategic Overview prepared by the Secretariat staff. The review identified ongoing projects and initiatives undertaken by the Secretariat in order to carry out its duties relative to the Pacific Salmon Treaty. The review also included an examination of alternate methods of carrying out tasks that might result in potential efficiencies.

The Commission agreed to table the program review for bilateral discussion at the February 2011 Annual Meeting.

The Parties tabled their respective post-season fishing reports.

The Commission discussed the extension of Annex IV, Chapter 4 (the Fraser Chapter) of the Treaty. Domestic approval processes were successful and the existing Chapter 4 would be extended in full force until December 31, 2012. The Commission confirmed that existing Commission guidance to the Fraser River Panel would apply to the 2011 and 2012 fishing seasons.

The Commission discussed the Workshop on the Decline of Fraser River Sockeye. The small bilateral organizing committee formed by the Commission to develop steps to follow-up on workshop recommendations had not yet met. However, Canada believed that an inventory of existing monitoring and research activities surrounding the variations in Fraser sockeye returns should be compiled and that information gaps in scientific advice about Fraser sockeye should be identified.

The Commission agreed that it was important that it maintain a leadership role in researching the decline in Fraser River sockeye. The Commission agreed to further discussions at the February 2011 session.

The Commission adopted a report from the Chinook Interface Group (CIG) and thereby approved recommendations that allowed the Chinook Technical Committee to move forward on a number of its assignments.

The Southern, Northern, Transboundary and Fraser River Panels presented progress reports on work plan tasks.

Dr. David Bernard and Mr. Chuck Parken, co-chairs of the Sentinel Stocks Committee (SSC), presented a progress report on the Sentinel Stocks program. The Commission agreed that the SSC could discuss extending the Sentinel Stocks Program from its original five years to six or seven years, if doing so would result in the Commission obtaining quality escapement estimates for all designated areas before the current Chinook Chapter expires in 2018.

Mr. Scott MacPherson and Dr. Arlene Tomkins, co-chairs of the Coded Wire Tag Improvement Team (CWTIT) presented a progress report on projects funded through the PSC Coded Wire Tag (CWT) Improvement Program. The report included information about a workshop held to review the progress of previously funded projects, and a summary of CWT Improvement Projects funded in 2009 and 2010 in Canada and in 2010 in the United States.

Mr. Thom Hooper and Melody Farrell, co-chairs of the Habitat and Restoration Technical Committee (HRTC) reported that during the upcoming year the HRTC planned: to focus on developing information sharing tools and approaches; to look at habitat reporting and trends in various jurisdictions; to examine

the effectiveness of monitoring habitat and restoration initiatives; and to determine what advice it could provide to the Endowment Fund Committees.

The Commission discussed the future of the Committee on Scientific Cooperation (CSC). The U.S. Section was supportive of the Committee's work and believed that it would soon be in the position to designate Committee members.

The Commission paid tribute to Dr. Dick Beamish and Mr. Steve Pennoyer. Both were members of the Committee on Scientific Cooperation, with Dr. Beamish representing Canada and Mr. Pennoyer representing the United States. Dr. Beamish and Mr. Pennoyer were retiring from their positions on the Committee. The Commission thanked both for their many years of service to the PSC.

C. PACIFIC SALMON COMMISSION ANNUAL MEETING
February 14-18, 2011, Portland, Oregon

Three bilateral sittings were held during the meeting.

The Commission discussed the Strategic Overview prepared by Secretariat staff and distributed before the January 2011 session.

The Commission discussed the possibility and the value of conducting a third-party external review of the Commission's operations. It was agreed that a third party review would provide an independent assessment of the resources needed to support the Commission's obligations and responsibilities under the Pacific Salmon Treaty. It was noted that such performance reviews are now regular practice in regional fishery management organizations around the world.

The Commission agreed to form a steering committee that would meet by email and teleconference to draft terms of reference and develop a budget for an external review. The group would also examine the Strategic Overview prepared by Secretariat staff to determine if potential cost efficiencies outlined in the report were viable in the near-term. The steering committee would present a proposal at the Commission's October 2011 meeting about how an external review should proceed.

The Commission discussed a report delivered by the Coded Wire Tag Improvement Implementation Team (CWTIT) that included 2011 Coded Wire Tag (CWT) Improvement Funding Recommendations. Several of the projects recommended for funding by CWTIT were ongoing domestic CWT programs rather than projects aimed at improving or revising existing programs. These ongoing projects involve sampling ocean salmon fisheries off of the coasts of Washington and Oregon. The United States had initiatives underway to fund the projects on a more permanent basis but none were yet in place and if the projects were not funded under CWTIT the foundation of the CWT program would be placed in jeopardy. Therefore, the Commission approved funding the contingency programs through CWTIT until a more permanent funding solution was found.

Mr. Chuck Parken and Dr. Marianna Alexandersdottir, co-chairs of the Sentinel Stocks Committee (SSC), presented a report that included a list of Sentinel Stocks Projects (SSP) recommended for funding in 2011. The report also listed projects not currently recommended for funding because the Committee had disagreements on various issues surrounding them. These issues included whether a particular stock was of bilateral concern and the likelihood that previously failed projects would be able to produce successful results. The SSC would meet in April and, if the Committee was satisfied that relevant issues were resolved, the Committee would recommend that the projects proceed in 2011.

The Commission agreed that, after the SSC's April session, the Committee would provide the Commission with a written report. After consultation with their respective National Section members, the Commission Chair and Vice Chair would meet by teleconference and make the final decision about approving Sentinel Stocks Projects.

Mr. Angus MacKay, Endowment Fund Manager, presented the 2011 annual report of the Southern Boundary Restoration and Enhancement Fund and the Northern Boundary and Transboundary Rivers Restoration and Enhancement Fund. He highlighted that the Fund Committees were able to fund projects in 2010 after not being able to do so in 2009 due to poor financial performance of the two Funds.

Dr. Gary Morishima and Dr. Gayle Brown, co-chairs of the Selective Fishery Evaluation Committee (SFEC) presented a report to the Commission. They presented concerns about the timing of the SFEC process: Mark Selective Fishery (MSF) proposals are scheduled to be submitted to SFEC in November, but at that time domestic planning processes in both countries are not yet complete. Therefore, it is difficult for SFEC to generate an assessment of the potential impacts of MSFs. SFEC planned to address these concerns and others in a "lessons learned" summary report to the Commission at the January 2012 Post-Season meeting.

The Commission received progress reports on workplan tasks from the Chairs and Vice Chairs of the Transboundary, Northern, Fraser River, and Southern Panels.

The Commission heard a report from the small group developing a response to the recommendations in the report of the workshop on the decline of the Fraser River sockeye held by the Commission in June 2010. The group, which included Mr. Saunders, Mr. Macgillivray, Dr. Riddell, Mr. Rutter and Mr. Gary Graves, had held several meetings and was working on a two-stage process proposal. During the first stage, Fisheries and Oceans Canada would provide funding to hire a contractor to compile an inventory of the people and organizations actively involved in relevant regional research. The group also planned to organize a workshop to be attended by a group of collaborators who would be tasked with performing an information gap analysis. The group would examine the institutional capacity to do additional research, identify missing information, and identify what further work needs to be done to provide management with a better understanding about what is contributing to the decline in Fraser sockeye productivity. The Commission supported the process as outlined.

The Commission discussed and adopted the report of the Finance and Administration Committee. In doing so, the Commission approved the proposed operating budget for the PSC Secretariat for fiscal year 2011/2012.

Fisheries and Oceans Canada and the U.S. National Marine Fisheries Service delivered a joint presentation about a series of workshops scheduled for 2011 to evaluate the status of science regarding killer whales and their dependence on salmon. Canada and the United States would host these workshops independently of the Commission, but the results could be informative for Commissioners and the bilateral management of Chinook fisheries.

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 by conference call and in person on December 15, 2010 and twice at the Sheraton Wall Centre in Vancouver on January 11, 2011 and January 13, 2011 and at the Embassy Suites in Portland on February 15, 2011 to consider a range of financial and administrative issues. The Committee's deliberations focused on the budget proposal for FY 2011/2012.

The Committee recommended the Commission budget at the contribution level of C$1,879,636 per party (Appendix B) with expenditures of C$3,909,586. This represents an increased contribution per party over last year of C$93,605. The Committee recommended acceptance of this budget. This budget excludes any test fishing program costs, which would be finalized once input from the Fraser Panel has been received.

The Committee also reviewed staff projections of expenditures for the balance of the current fiscal year. The staff reported a forecast carry-over of C$135,313 at March 31, 2011. It was recommended that the carryover from 2010/2011 be carried to fiscal 2011/2012 to offset costs incurred during the 2011/2012 fiscal year.

The Committee received and reviewed the requested report on the Secretariat's capital asset replacement plan.

The Committee also reviewed the audited financial statements of the Commission to March 31, 2010. Within these statements was a note on the unfunded pension liability. Staff provided a brief explanation of the actuarial process for this item. The liability is reviewed triennially, with the next one being done as of January 1, 2011. Supplementary payments are being made to address the shortfall. As the markets improve, the liability may shrink and reduce the need for further additional funding.

The Committee reviewed the PSC Meeting Schedule and confirmed the schedule and locations through to the October 16-18, 2012 Executive Session.

2. Secretariat Staffing Activities

A list of Secretariat staff employees as of March 31, 2011 is presented in Appendix E.

An updated membership list for panels, standing committees, joint technical committees and ad hoc working groups as of March 31, 2011 is presented in Appendix F.

B. MEETINGS OF THE STANDING COMMITTEE ON SCIENTIFIC COOPERATION

The Standing Committee on Scientific Cooperation did not meet during this meeting cycle; therefore no report was submitted.

C. MEETINGS OF THE NORTHERN AND SOUTHERN FUND COMMITTEES

The Northern and Southern Fund Committees have agreed that given the congruent nature of their agendas and their decision to combine the funds into a single master account for investment management purposes, and the efficiencies involved with respect to interaction with the fund managers, it was appropriate to meet together as a Joint Fund Committee. Thus the Joint Fund Committee met in person on two occasions: April 21st and November 4th, 2010.

The Joint Committee's first meeting in 2010 was held on April 21st, 2010 at the PSC offices in Vancouver. Mr. Chris Kautzky of Hewitt Associates reported on Fund performance for 2009. He said that one year ago in April 2009, the state of the markets had been unclear. It wasn't certain at that time that the financial crisis had bottomed-out. In retrospect it now appeared that between March and the end of 2009 the Fund had posted positive returns, despite slowing somewhat in the fourth quarter.

Mr. Kautzky also discussed an analysis his firm had made of the Fund's fixed income holdings.

He also discussed costs associated with a change to the investment strategy comprising a move into real estate and infrastructure.

The Joint Fund Committee then heard a presentation form Dr. Jeff Koenings of the PSC's Habitat Scoping Committee.

The meeting concluded with the Committees dealing with procedural matters including motions to approve the repayment of the U.S. Section for funds provided by the U.S. in 2009 to support the Sentinel Stocks program in its first year.

The other Joint Fund Committee meeting of the year was an in-person meeting held at the PSC offices in Vancouver on November 4th, 2010.

Mr. Kautzky presented the Third Quarter Report. He said the Fund had performed better for the quarter and indeed the year reflecting an improvement in the equity markets in general. However, there were still on-going issues with the Fund's investment managers. The Committee heard presentations from the three investment managers in person. Following the presentations the Committee discussed their next steps.

The Committee felt that the performance of LSV had been acceptable under the circumstances.

The Committee agreed that Brandes had performed well four years ago, but the subsequent three years had been unsatisfactory. However the Committee felt they had been kept abreast of developments through regular quarterly reports; through annual in-person interviews with Brandes representatives and through special reports from Aon Hewitt. Based on this discussion, the Committee chose not to replace Brandes at this time.

With respect to BlackRock, the Committee was in agreement that the firm had not delivered on their mandate to make a small increment of gain over the benchmark over time and therefore approved a

motion to direct BlackRock to change the Fund's portfolio from the current alpha tilts product to a passive US strategy.

Mr. Kautzky then described the progress made over recent months by the small group of four Fund Committee co-chairs in developing recommended changes to the Fund's investment strategy. He stated that the small group both fully supported and wished to implement the new asset allocation strategy and the diversification of the portfolio into both real estate and infrastructure, with a clear preference to making the transition one at a time starting with real estate.

In the last agenda item of the meeting Mr. Mackay reminded the Committee of the steps taken so far by Fund staff in reaction to a proposal from the Yukon Panel co-chairs that Fund staff and the PSC Secretariat take an administrative role in the delivery of the Yukon River Salmon Restoration and Enhancement Fund.

Northern Fund Committee Meetings

The Northern Fund Committee met three times during 2010.

April 21st, 2010

- The potential for funding in 2011.
- Status of on-going projects in 2011.
- Spending Policy review.
- Target spending amounts based on the most recent financial information.
- Special projects worth considering if a general call be deemed unfeasible.

May 11th, 2010 (via telephone conference call).

- A second review of the status of the on-going projects to be funded in 2011.

September 30th, 2010 (via telephone conference call)

- Tahltan Lake egg-take project proposal review.
- Establishment of a "date of record" to sequester project funds, to be September 30th annually.

Southern Fund Committee Meetings

The Southern Fund Committee met four times during 2010.

January 13th, 2010

- Final review and approval of on-going projects for 2010.
- Southern Panel coho FRAM proposal information item.

February 10th, 2010

- Approval of the Southern Panel coho FRAM proposal.
- Potential for repayment of US support to Sentinel Stocks Program in 2009, information item.
- Fraser River sockeye scientific workshop in Nanaimo, information item.

April 21st, 2010

- 2011 Call for Proposals. Notional target amount. Limited scope – habitat restoration. Grant amounts capped at $200,000.

September 30th, 2010 (via telephone conference call)

- First round selection of project concepts to be invited to proceed to Stage Two.
- On-going project status and review.
- Communication strategy re: call for proposals.
- Report on progress of S. Fund representatives on investment structure sub-committee.

A list of all 2010/11 Northern and Southern Fund projects can be found in Appendices C and D.

Activities of the Panels

PART III
ACTIVITIES OF THE PANELS

A. FRASER RIVER PANEL

The Fraser River Panel completed the 2010 fishery management plan for Fraser River sockeye salmon in Panel Area waters on June 10, 2010. The Panel carried out its in-season fishery management responsibilities as per Annex IV, Chapter 4 and the February 11, 2010 Commission Guidance to the Fraser River Panel. Commission staff conducted its regular in-season assessment programs and reported results to the Panel.

The Panel met in bilateral session during the January and February 2011 meetings of the Commission to review the results of the 2010 fishing season, to receive reports from Canada on spawning escapements and to discuss issues of concern for the 2011 fishing season. Commission staff reviewed concerns regarding the likely continued early upstream migration behavior of Late-run sockeye and provided the Panel with policy options for 2011.

B. NORTHERN PANEL

No report was received by the time of publication.

C. SOUTHERN PANEL

The Southern Panel met bilaterally concurrent with the post season and annual meetings of the Commission in January and February of 2011. In addition, the Coho Working Group (a subset of the bilateral Southern Panel) met by telephone conference in December 2010.

The primary focus of the Bilateral Southern Panel was to review the parties post season reports for salmon fisheries in the Pacific Salmon Treaty, Annex I, paragraph (a), and to provide direction to the Chum Technical Committee and the Coho Technical Committee.

During the post season review, there were no substantive issues of concern raised by either party. Circumstances in 2010 required implementation of the newly revised Chapter 6 Southern British Columbia and Washington State Chum salmon management provisions, in that both Johnstone Straits and Fraser River in-season estimates of abundance were below critical threshold levels. Good communication on behalf of both parties resulted in prompt actions on both sides of the border, and fisheries were curtailed or suspended as required by the chapter language.

The Coho Technical Committee concluded the 2009 Coho Annual Summary for inclusion in a finalised Coho Periodic Report for publication.

The Chum Technical Committee completed the 2009 Post season report for publication.

A series of Coho Working Group conference calls to support the Coho Technical Committee endeavours and provide direction is required, and will be scheduled throughout 2011.

D. TRANSBOUNDARY PANEL

The Transboundary Panel met extensively in bilateral session during the January and February 2011 meetings of the Commission. During January bilateral sessions, the Panel received several reports by staff of the Alaska Department of Fish and Game and the Canadian Department of Fisheries and Oceans concerning fisheries, stock assessments and joint enhancement activities that took place in both countries in 2010. During the February bilateral meetings, the Panel discussed items included in the U.S. position paper concerning overage/underage, took actions regarding Taku and Stikine sockeye enhancement planning documents, and discussed added conservative actions for Taku Chinook during the 2011 fishing season.

Review of 2010 Fisheries and Treaty-Related Performance

PART IV
REVIEW OF 2010 FISHERIES AND TREATY-RELATED PERFORMANCE

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

A. FRASER RIVER SOCKEYE SALMON

Pre-season Planning

1. Preseason expectations for Fraser River sockeye salmon in 2010 included a total abundance of 11,439,000 fish. Preseason planning was based on the p50-level (median) forecast abundances for all management groups: Early Stuart - 41,000 fish, Early Summer – 783,000 fish, Summer – 2,612,000 fish and Late run – 8,003,000 fish. Birkenhead sockeye were included in the Late-run management group in 2010.

2. Preseason expectations of migration parameters included a 32% diversion rate of Fraser River sockeye through Johnstone Strait. Expected Area 20 50% migration dates were July 2 for Early Stuart, July 27 for Early Summer, August 3 for Summer and August 15 for Late-run sockeye.

3. Preseason spawning escapement goals as established by Canada's spawning escapement plan were 41,000 Early Stuart, 313,000 Early Summer, 1,045,000 Summer and 3,201,000 Late-run sockeye. In addition, Management Adjustments (MAs) of 16,000 Early Stuart, 194,000 Early Summer, 31,000 Summer and 1,120,000 Late-run sockeye were added to the spawning escapement targets to increase the likelihood of achieving the targets. The MAs for Early Stuart, Early Summer and Summer runs were based on relationships between river conditions (discharge and temperature) and historic differences between lower river and upriver escapement estimates. For Late-run sockeye, the Panel assumed a continuation of the early upstream migration behaviour and associated high mortality that has occurred since 1996 and assumed a median upstream migration date past Mission of September 6. The Late-run sockeye MA was based on average values for the Adams dominant cycle line (excluding 2006). The preseason spawning escapement target and MA totalled 54% of the total return resulting in an exploitation rate limit of 46%.

4. The projected Total Allowable Catch (TAC) of Fraser River sockeye salmon was 5,056,000 sockeye, of which the United States (U.S.) was allocated 16.5% minus a payback to Canada of 4,300 fish. Rules for calculating the TAC are set out in Annex IV, Chapter 4 of the Pacific Salmon Treaty and the February 11, 2010 Commission Guidance.

5. Domestic objectives within the U.S. included an allocation to Treaty Indian fishers of 67.7% of the U.S. share minus the 4,300 fish payback, with the rest allocated to Non-Indian fishers. In Canada, preseason catch expectations for sockeye included 260,000 fish for marine First Nations, 745,000 fish for in-river First Nations, 31,000 fish for marine recreational fishers and 115,000 fish for in-river recreational fishers. The remaining Canadian sockeye share (3,470,000 sockeye based on the pre-season TAC) was to be divided within the commercial sector as follows: 48.5% for Area B purse seines, 21.5% for Area D gillnets, 25.0% for Area E gillnets and 5% for Area H trollers.

6. Preseason modeling indicated it was unlikely the full TAC of Fraser sockeye could be harvested, due to mixed-stock constraints required to achieve the escapement targets for Early Summer and Late-run (e.g., Cultus) sockeye stocks.

7. The Panel adopted a management plan and fishery regime before the fishing season, including the "Principles and Constraints", "Guidelines to Address Late Run Concerns" and "2010 Regulations". The normal regulatory framework was established whereby all Panel Areas were closed unless opened by Panel order.

In-season Management Considerations

8. The total sockeye return was much larger than forecast, and the larger abundances were spread across all management groups. As a result there were substantial fishing opportunities for both countries.

9. All management groups returned later than expected. The Area 20 50% date for Early Stuart, Early Summer, Summer and Late sockeye runs were respectively 2, 13, 12 and 7 days later than expected.

10. The annual diversion rate for Fraser sockeye through Johnstone Strait (72%) was much higher than forecast.

11. River temperatures were warmer than average for most of the season, but particularly between late July and mid-August.

12. Due to an apparent discrepancy between Mission and Qualark estimates of fish passage and to observations of irregular fish behavior at Mission, estimates of Mission escapement from the PSC's Mission hydroacoustic program were adjusted based on fish passage estimates from DFO's Qualark hydroacoustic program.

Run Size, Catch and Escapement

13. In-season estimates of run size totalled 34,546,000 Fraser sockeye. The preliminary post-season accounted run size was 29,016,000, more than double the brood year abundance in 2006 and almost three times the median forecast abundance. This is the largest run on the 2010 cycle since records began in 1893 and the largest on any cycle since 1913. Divided into management groups, adult returns totalled 104,000 Early Stuart, 3,735,000 Early Summer, 5,437,000 Summer and 19,728,000 Late-run sockeye.

14. Catches of Fraser River sockeye salmon in all fisheries totalled 13,631,000 fish, including 11,599,000 fish caught by Canada, 1,960,000 fish by the U.S. and 72,000 fish by test fisheries. Most of the catch was taken in Canadian commercial fisheries, followed by Canadian First Nations and U.S. commercial fisheries. The overall harvest rate was 47% of the run.

15. DFO's near-final estimates of spawning escapements to streams in the Fraser River watershed totalled 13,131,000 adult sockeye. This was 2.8 times the brood year escapement and the largest escapement on record. Spawning escapements in 2010 were within the range observed in recent years for Early Stuart sockeye, the largest on record on any cycle for Early Summer sockeye, the second highest on record on the 2010 cycle for the Summer run and the largest on record on any cycle for the Late run. There were 5,825,000 effective female spawners in the Fraser watershed, representing an overall spawning success of only 80%, which was the lowest on the 2010 cycle since 1938.

Achievement of Objectives

16. In order of descending priority, the goals of the Panel are to achieve the targets for spawning escapement, international sharing of the TAC and domestic catch allocation.

17. In-season management decisions are based on targets for "Potential Spawning Escapement" (PSE), which are the sum of spawning escapement targets and Management Adjustments. In-season estimates of potential escapement (i.e., Mission escapement minus catch above Mission) were less than the targets for Early Stuart (6% under) and Late-run groups (29% under), but exceeded the targets for Early Summer (20% over) and Summer groups (15% over).

18. Spawning ground estimates of abundance totalled 1,462,000 fish or 13% less than the post-season target. Spawner abundance was well below the target for Early Stuart sockeye (42% under), close to the targets for Early Summer (2% over) and Late-run sockeye (8% over), and significantly exceeded the target for Summer-run sockeye (37% over). For Early Stuart sockeye this result is largely due to the magnitude of the difference between in-season and post-season escapement estimates (-39% DBE). Given the observed Early Stuart run size and %DBE, the spawning escapement target could not be achieved even in the absence of any fishery catch.

19. The exploitation rate for Late-run sockeye (including Cultus) was 51%.

20. Based on the TAC calculation method set out in Annex IV, Chapter 4 of the Pacific Salmon Treaty and the February 11, 2010 Commission Guidance, the Fraser sockeye TAC was 15,777,000 fish. Both countries caught less than their share, with the U.S. catch 639,000 fish under and Canada catch 1,989,000 fish under. In this calculation, the allowable catch is fixed on the date that Panel control of the last U.S. Panel Area was relinquished (October 2 in 2010), while catches are the post-season accounted totals.

21. In terms of domestic allocation objectives, Treaty Indian fishers in the U.S. caught 538,000 fish less than their share and Non-Indian fishers caught 101,000 fish less. Among commercial gear in Canada, Area B seines caught 1,307,000 fish over, Area D gillnets 1,225,000 fish under, Area E gillnets 232,000 fish under and Area H trollers 82,000 fish under their allocations.

22. By-catches of non-Fraser sockeye and pink salmon in commercial fisheries regulated by the Fraser River Panel totalled 20,000 sockeye and 2,200 pink salmon in 2010. Catches of other Fraser and non-Fraser salmon species included 8,700 chinook, 4,800 coho, 400 chum and no steelhead.

Allocation Status

23. There are no paybacks due for either Fraser River sockeye or pink salmon.

B. 2010 POST-SEASON REPORT FOR CANADIAN TREATY LIMIT FISHERIES

Introduction

Fisheries in 2010 were conducted according to Annex IV of the Pacific Salmon Treaty. The arrangements contained in Annex IV include those initially agreed to between Canada and the United States in June, 1999 as well as additional agreements reached by the Commission and/or Panels since that time (e.g. Transboundary, chinook, coho and chum arrangements). The conservation-based approach commits the two Parties to abundance-based management for all stocks covered by the Treaty.

Catches reported below provide the best information available to date, and may change once all catch information for 2010 has been reviewed. The catches are based on in-season estimates (hailed statistics), on-grounds counts by Fisheries and Oceans Canada management staff and independent observers, logbooks, dockside tallies, landing slips (First Nation fisheries), fish slip data (commercial troll and net), and creel surveys, logbooks and observers (sport and commercial).

Annex fisheries are reported in the order of the Chapters of Annex IV. Comments begin with expectations and management objectives, followed by catch results by species, and where available and appropriate, escapements. The expectations, management objectives, catches and escapements are only for those stocks and fisheries covered by the Pacific Salmon Treaty (PST); domestic catch allocations have been excluded. Table 26 summarizes 1995-2010 catches in Canadian fisheries that have at some time been under limits imposed by the Pacific Salmon Treaty.

Transboundary Rivers

Stikine River

Canada developed a fishing plan for Stikine River salmon fisheries based on the catch sharing and management arrangements outlined in Annex IV, Chapter 1, Paragraph 3 of the Pacific Salmon Treaty (PST), including the new arrangements agreed to on 17 January, 2008 for the 2009 to 2018 period. Accordingly, the 2010 management plan was designed to meet agreed escapement targets and the following harvest objectives: to harvest 50% of the total allowable catch (TAC) of Stikine River sockeye salmon in existing fisheries; to allow additional harvesting opportunities in terminal areas for enhanced sockeye that were surplus to spawning requirements; to harvest up to 5,000 coho salmon in a directed coho fishery; and, to harvest approximately 1,400 large Chinook salmon in a test fishery, conducted by the commercial fleet. Because the preseason run size estimate of only 22,900 large Chinook did not meet or exceed the PST agreed to preseason threshold run size of 28,100 large Chinook, neither country was permitted to engage in a directed net fishery. It was recognised, however, that a commercial fishery could be prosecute should the in season run size estimate meet or exceed the PST agreed to in season threshold run size of 24,800 large Chinook. The 2010 in season run size estimates failed to meet the threshold level; therefore, there was not a directed commercial fishery by Canada or the US on Stikine bound Chinook salmon.

The 2010 season opened on May 6th, statistical week 19 (SW19), and ended September 11th (SW37). From statistical week 19 (SW19) through till statistical week 25 (SW25) the commercial fishery was prosecuted under the auspice of a test fishery with a catch quota of 1,400 large Chinook. Commercial gear consisted of up to two, 135 metre (443 ft) gillnets per fisher. The maximum mesh size allowed was 204 mm (8”) through June 19th after which time the maximum mesh size was restricted to 140 mm (5.5”). Only one net was permitted throughout the course of the commercial fishery.

The lower Stikine commercial fishing grounds covered the area from the international border upstream to near the confluence of the Porcupine and Stikine rivers and also included the lower 10 km (6 mi.) of the Iskut River.

In the upper Stikine commercial fishery, which is located upstream from the Chutine River, fishing periods generally mirrored those in the lower Stikine commercial fishery lagged by one week. Fishers were permitted one net. Effort was low throughout the season, but slightly higher than the 2009 effort. Again in 2010, the commercial fishing area was extended upstream to the mouth of the Tuya River. This action was taken in order to provide for a terminal test fishing opportunity on Tuya River bound sockeye, specifically at sites located upstream of the Tahltan River. For the third consecutive year no commercial fishing activity occurred at this site. The Tuya run, which consists entirely of sockeye produced from the Canada-US Stikine enhancement program, has no spawning escapement requirement since these fish cannot return to Tuya Lake due to several velocity barriers located in the lower reaches of the Tuya River. Tuya sockeye are released into Tuya Lake as young of the year juveniles.

The First Nation fishery located near the community of Telegraph Creek, B.C. was active from late May to mid-August. There were no time or gear restrictions imposed on this fishery.

Most of the Chinook sport fishing activity in the Stikine River watershed occurs in the lower reaches and at the mouth of the Tahltan River. Additional activity occurs less intensively in the Iskut River and other areas within the Stikine River drainage. Sport fishing activity commenced in late June and peaked in mid-July. Fishing effort and catch was relatively low.

Chinook salmon

The pre-season forecast of Stikine Chinook salmon, as provided by the Canada/U.S. Technical Committee for the Transboundary Rivers (TCTR), was for a below average terminal run size of 22,900 large Chinook salmon, i.e. fish with a mid-eye to fork length >659mm (~26") or a fork length of >734mm (~29"). For comparison, the previous 8-year (2002-2009) average terminal run size was approximately 55,500 large Chinook salmon.

The total combined gillnet catch of Chinook salmon in the First Nation and commercial fisheries included 1,737 large Chinook and 1,174 jacks compared to 2000-2009 averages of 6,733 large Chinook and 1,174 jacks. The 2010 sport fishery yielded a total catch of 50 large Chinook. For the second time in the history of the directed Stikine Chinook fishery, fishers were requested to release live, large Chinook caught after SW25 during the directed sockeye fishery. Totals of 64 large Chinook and 60 jacks were voluntarily released. To account for mortality associated with the release of these fish, a mortality rate of 50% (based on post-release mortality studies in the Skeena River with steelhead) was used to provide preliminary estimates; the resulting estimated catch and release mortalities of 32 large, and 30 jack Chinook are not included in the total catch records.

In-season management was influenced significantly by run size projections derived from the Stikine Chinook Management Model (SCMM), a joint Canada-U.S. mark-recapture program, and other stock assessment tools such as the relationship between the commercial fishery CPUE and run size from 2005-2009. Harvest rate assessments by week were also used concurrently with the above-mentioned in-season run size estimation techniques. In-season estimates based on the average of the mark-capture and model estimates were calculated post SW22. In-season terminal run size projections ranged from 19,700 fish in SW24 to 22,300 fish in SW23. According to the in-season projections, the TAC for Canada remained at

the base level catch of 2,300 fish, plus 1,400 fish allocated under a test fishing regime for the entire fishery. The final post season run size was 20,400 large Chinook salmon.

Although a directed commercial Chinook fishery was not prosecuted, Canada endeavoured to honour Annex IV, Chapter 1, Paragraph 3(a)(3)(vii) which identifies the will of both Parties to spread the Chinook harvest (Canada's base level catch of 2,300 and 1,400 large Chinook provided by a test fishery) over the season, the duration of weekly fishery openings was based on weekly guideline harvests, which were based on historical run timing data. Overall, catches were below the weekly guideline harvests for the duration of the fishery. The first week of the targeted sockeye fishery, which commenced in SW26, was held at two days and a maximum mesh size restriction of 140 mm (~5.5") was imposed; these actions were aimed at protecting a weak run of large Chinook salmon while providing a fishing opportunity on the early component of the sockeye return.

The preliminary post-season estimate of the terminal run is 20,356 large Chinook salmon, including an in river run size based on mark-recapture data of 18,363 large Chinook and a total U.S. catch estimate of 1,993 large Chinook. Accounting for the total Canadian catch of 3,195 large Chinook salmon (includes commercial, First Nation, sport and test catches and an estimate of release mortality), the total system-wide spawning escapement is estimated to be approximately 15,168 large Chinook salmon. This escapement estimate is 52% below the 2002-2009 average of 30,919 large Chinook and below both the target S_{MSY} escapement goal of 17,400 large Chinook salmon, but within the escapement goal range of 14,000 to 28,000 large Chinook salmon. A run size of 20,356 large Chinook translates into an Allowable Harvest of zero (0) fish, but sufficient for both countries Canada and the US to harvest their base level catch and, for Canada, the test fish allocation.

The 2010 Chinook salmon escapement enumerated at the Little Tahltan weir included 1,057 large fish and 221 jack Chinook salmon. The escapement of large Chinook salmon in the Little Tahltan River was 17% of the recent 10 year average of 6,343 fish and 32% of the point (S_{MSY}) estimate of 3,300 spawners; it was also below the escapement goal range of 2,700-5,300 large Chinook. The Little Tahltan River escapement of large Chinook represented approximately 7% of the estimated total Stikine River escapement compared to an average contribution of approximately 18% (2000-2009).

Escapement counts in Verrett Creek (a tributary to the Iskut River) were also weak, but better than the 2008 and 2009 return, as reported by the carcass pitch crew stationed at the creek from 05-09 August. A weak Chinook salmon return to Shakes Creek (near Telegraph Creek) was reported by residents living at the creek mouth.

Stikine River Chinook run timing to the lower Stikine commercial fishing and timing to the spawning grounds appeared to be normal.

In addition to the mark-recapture study, the Little Tahltan weir project, and aerial surveys; genetic samples were collected on a weekly basis from Chinook caught in the U.S. District 108 fishery and from weekly catches taken in the Canadian commercial fishery. These data will be used to assess run timing of Stikine stocks in District 108 and the lower Stikine commercial fishery.

Sockeye Salmon

The pre-season forecast for Stikine sockeye salmon, as provided by the TCTR, was for a terminal run size[2] of 187,700 fish including: 91,200 Tahltan Lake origin sockeye salmon (59,200 wild and 32,000 planted); 48,500 planted Tuya Lake sockeye; and 48,000 non-Tahltan wild sockeye salmon. This outlook constituted an average run; for comparison, the previous 10-year average (2000-2009) terminal run size was approximately 184,200 fish.

Preliminary combined catches from the Canadian commercial and First Nation (food, social, ceremonial (FSC)) gillnet fisheries in the Stikine River totaled 50,543 sockeye in 2010, which was below the 2000-2009 average of 52,215 fish. The lower Stikine commercial fishery harvested 42,053 sockeye, while the upper Stikine commercial and First Nation fisheries harvested a total of 1,215 and 7,276 sockeye, respectively. The preliminary estimate of the total contribution of sockeye salmon from the Canada/U.S. Stikine sockeye enhancement (i.e. the fry-planting program) to the combined Canadian First Nation and commercial catches was 28,788 fish, or 57% of the catch.

In addition to these catches, 1,754 sockeye salmon were taken in the traditional stock assessment test fishery located near the international border. For the third consecutive year, a test fishery designed to target Tuya-bound sockeye operated in the mainstem Stikine River upstream of the mouth of the Tahltan River and succeeded in harvesting 2,792 sockeye salmon. An additional 224 sockeye was harvested and sampled in the Tuya River.

A total of 22,860 sockeye salmon was counted through the Tahltan Lake weir in 2010, 27% below the 2000-2009 average of 31,550 fish. The 2010 count was within the escapement goal range of 18,000 to 30,000 fish and close to point target of 24,000 sockeye salmon. An estimated 9,600 fish (42%) originated from the fry-planting program, which was below the 48% contribution observed in smolts leaving the lake in 2007, the principal smolt year contributing to the 2010 return. A total of 158 sockeye salmon was sacrificed at the weir for stock composition analysis. In addition, 4,352 sockeye salmon were collected for broodstock, resulting in a spawning escapement of 18,350 sockeye salmon in Tahltan Lake.

The bulk of Tahltan Lake sockeye entered the lake approximately 7-10 days earlier than normal; the second earliest run timing since 1977. Early run timing of this stock was also apparent in the lower river commercial fishery. The near record low Stikine River flows registered during the sockeye migration period likely contributed to an accelerated in-river migration rate resulting in these fish transiting the in-river commercial fishing grounds earlier and faster than normal. The total estimated run size of 72,936 Tahltan Lake sockeye was approximately 20% below preseason expectation of 91,200 fish.

The spawning escapements for the non-Tahltan and the Tuya stock groups are calculated using stock ID, test fishery and in-river commercial catch and effort data. The test fishery, however, did not cover the full duration of the sockeye run. Therefore, the commercial fishery catch-per-unit of effort (CPUE), which operated over the full duration of the run, was used as the principal tool in assessing the spawning ground escapements of non-Tahltan Lake and the Tuya sockeye stock groupings. The test fishery data were used to complement and/or compare run size and escapement estimates generated from the commercial data. The test fishery data set, however, did require the calculation of proxy estimates of CPUE for weeks when the test fishery did not operate. These estimates were based on the historical linear relationship between commercial and test fishery CPUE from 1986-2004. All of the weekly data sets were significantly correlated. Calculated weekly test fishery CPUE values were generated for SW26-28 and SW36 in 2010. Based on the run reconstructions generated from the commercial fishery CPUE, the preliminary

[2] Terminal run excludes U.S. interceptions that occur outside Districts 108 and 106.

escapement estimates for 2010 are 25,163 non-Tahltan and 15,687 Tuya sockeye salmon. The non-Tahltan spawning escapement estimate was within the escapement goal range of 20,000 to 40,000 fish but was 15% below the recent 10 year average of 29,634 fish and below the point target of 30,000 fish. However, surveys of the spawning grounds suggested the non-Tahltan sockeye escapement was above average. Aerial surveys of six index sites resulted in a total of 1,117 fish being counted, 25% above average. The estimated escapement of 15,687 Tuya Lake sockeye was approximately 92% above the recent 10 year average of 8,178 fish. These fish do not contribute to the natural production of Stikine River sockeye salmon due to migration barriers that obstruct entry to their nursery lake and potential spawning gravels.

Based on the in-river run reconstruction of the Tahltan Lake run expanded by run timing and stock ID data in the lower river and estimated harvests of Stikine sockeye in U.S. terminal gillnet fisheries, the preliminary post-season estimate of the terminal sockeye run size is approximately 167,029 fish. This estimate includes 72,936 Tahltan Lake sockeye, 50,083 Tuya Lake sockeye, and 44,011 sockeye of the non-Tahltan stock aggregate. A Stikine run size of this magnitude is below to the 2000-2009 average terminal run size of 185,921 sockeye salmon and is approximately 11% below the preseason forecast of 187,700 fish.

Similar to 2008 and 2009, Canada relied more heavily on other in-season abundance estimates than those derived from the Stikine sockeye management model (SMM), which was updated and refined by the TCTR prior to the season. The SMM was used exclusively in SW27 by Canada and was used in concert with other in-river assessment estimates from SW28 through SW33. It was felt that the model was over-estimating both the Tahltan Lake and mainstem sockeye run sizes. As a result, most of the in-season run projections used in management of the Canadian fisheries were based on the average of the SMM and run reconstruction analyses or the average of the SMM model and an in-river regression model as the season progressed. The run size projections ranged from 165,509 fish in SW27 to 190,048 fish in SW30. The final in-season run size estimate was 189,953 fish, based on the run reconstruction approach, while the final estimate based solely on the SMM was 213,500 fish. The preliminary post-season estimate was 167,029 with a Canadian allowable harvest of 47,361 fish. The actual catch was 53,336 fish or 13% above the allowable harvest.

Coho Salmon

For the third consecutive year, several boats remained in the fishery to harvest coho salmon resulting in a total catch of 5,301 coho salmon. A total catch of 4,952 coho salmon was taken during the targeted coho fishery from SW35-39, well above the recent 10 year average catch of 1,428 fish.

The cumulative weekly CPUE index of 6.7 observed in the coho test fishery was 22% above the recent 10 year average cumulative CPUE of 5.5. Aerial surveys of six index spawning sites had a combined count of 1,715 fish, approximately 53% below the recent 10 year average of 3,750 fish.

Joint Sockeye Enhancement

Joint Canada/U.S. enhancement activities continued with approximately 5.95 million sockeye eggs collected at Tahltan Lake in the fall of 2010; this met the target of 6.0 million. The ability to reach the egg take goal in 2010 was largely due to the changes in methodology and additional resources that were utilized. Expanding on the success observed in 2009 with the short term holding of unripe female brood stock, it was decided that all female sockeye captured during brood stock collection activities using traditional capture methodology (beach seining of the primary spawning site) would be held until ripe and then spawned. In past years, only ripe fish were held for spawning the following day. New for 2010, an additional two person crew was used to access secondary spawning sites that had not been utilized in the

past. The crew experimented with various capture techniques which included rod and reel, trap nets, set nets, and small seine nets. After several days of effort, the crew felt that the most productive approach was the use of rod and reel. Through the additional efforts in 2010, 40% of the total females spawned were from short term holding and 30% were collected from the secondary sites. Without the additional efforts undertaken in 2010, it is estimated that less than 4.0 million eggs would have been collected. The last day of brood stock collection occurred on the 25th of September (as per the protocol developed by the Enhancement Sub-committee of the TCTR), and the final egg take was completed on the 30th of September.

Approximately 1.84 million fry were out-planted into Tahltan Lake in late May of 2010. The fry originated from the 2009 egg-take and were mass-marked at the Snettisham hatchery with thermally induced otolith marks. The balance of 0.98 million fry originating from the 2009 Tahltan Lake egg take was released into Tuya Lake in mid-June of 2010. This group also had a unique, thermally induced otolith mark. Green egg to released fry survival was 52.5% for the eggs designated for Tuya Lake and 70.1% for those designated for Tahltan Lake. A total of 419,000 fry destined for Tuya Lake held at the Snettisham hatchery was destroyed due to an outbreak of IHNV.

Approximately 0.558 million sockeye salmon smolts were estimated to have emigrated from Tahltan Lake in 2010, well below the 2000-2009 average of approximately 1.53 million smolts. The contribution of hatchery origin fish was approximately 0.25 million smolts representing approximately 45% of the emigration. Both wild and enhanced sockeye smolt survivals were below average.

Although the Stikine enhancement program has been successful in producing significant numbers of sockeye salmon, the inability to harvest these fish in terminal areas continues to be a challenge. Returning adults from the Tuya Lake out-plants unsuccessfully attempt to ascend the impassable barriers in the lower reaches of the Tuya River until they either perish or back out of the system. Some of these drop outs end up in nets fished in the Telegraph Creek area raising concerns over poor quality, injured and battered up fish. Others stray[3] into Stikine River tributaries raising concerns over potential impacts on wild salmon stocks.

Various attempts have been made to date to address these concerns many of which were made possible by support from the Northern Fund. Fishing with gillnets and dip nets has occurred at various sites in the Tuya River with mixed results. To improve fish capture in the lower Tuya River, a fishway/trapping apparatus was designed and constructed in Vancouver during the spring of 2006 and transported to Whitehorse. However, full operation of the apparatus was cancelled because of a major rock slide at the Tuya River fishing site that occurred sometime in June 2006. The rockslide rendered the fishing site, which the fish trap was designed for, unusable due to changes in river hydrology and unsafe working conditions. In 2007, additional rock slide activity occurred in the lower reaches of the Tuya River. A steering committee, consisting of Canadian and U.S. engineers and other technical advisors, visited the site in August 2007 to re-assess the conditions and to consider other options. The committee decided to proceed the following year with plans to strategically blast the rock obstruction at the location of the 2006 rock slide to provide fish passage to a potentially favourable harvest site located approximately 800 metres (1/2 mi.) further upstream. In the late fall of 2008, a blasting crew succeeded in removing approximately 100 m^3 (~130 cubic yards) of rock from the blockage. A visual and test fish assessment

[3] Straying of Tuya sockeye has been confirmed using radio telemetry and sampling for thermal marks. In a report completed in February 2006, funded by the Northern Fund, which investigated potential impacts and risks of the straying of enhanced Tuya sockeye salmon, the authors concluded that …"*given the results of the literature review and the data collected to date in the Stikine River, the probability of genetic risk of Tuya River blocked fish appears to be extremely low. However, it is prudent to suppose, that given a long enough period of time and a large enough number of fish, that some successful straying and interaction of Tuya River fall back fish could take place"*.

conducted in late July 2009 and 2010 at locations below and above the blast site indicated that the majority of the fish, including Chinook salmon, succeeded in ascending the river to points above the rock slide site. The committee plans to contract an engineering firm to design a fish harvest structure for the new site. The firm will provide both design detail and cost estimates for the structure as well as the routing and costs of an access trail to the site. The initial road survey was conducted in May 2009, followed by a detailed professional survey in August 2010.

For the third consecutive year, an experimental test fishery designed to target Tuya River sockeye at fishing sites located in the lower Grand Canyon of the Stikine River upstream from the mouth of the Tahltan River was conducted. The project design followed the design adopted in 2009 in that the majority of nets were fished further upstream in the Stikine River and closer to the mouth of the Tuya River than what occurred in 2008. This change was prompted by the stock identification results from 2008 which indicated that less than 50% of the catch was Tuya River origin sockeye in 2008. The 2010 Tuya test fishery yielded a total catch of 2,792 sockeye and 17 Chinook salmon over a nine day period from 22 to 30 July. The sockeye catch consisted of Tuya (52%), Tahltan (42%), and mainstem (6%) stocks/stock aggregates. The estimated catch of 1,167 Tuya sockeye translates into an estimated exploitation rate of approximately 7% on this stock. The majority of the catch was distributed to elders of the Tahltan/Iskut First Nations, most of whom were residents of communities located within the Stikine River drainage.

Taku River

As with the Stikine River, the fishing plan developed by Canada for the Taku River was based on the new arrangements in Annex IV, Chapter 1, Paragraph 3 of the PST in effect for 2009 through 2018. Accordingly, the plan addressed conservation requirements and contained the following harvest objectives: until in season data was available, to conduct a test fishery and harvest only 10% of the AC; thereafter, to harvest Chinook salmon in a directed Chinook salmon fishery with the catch share adjusted as per weekly run projections; to harvest 20% of the TAC of Taku River sockeye salmon (adjusted as necessary according to projections of the number of enhanced sockeye), plus the projected wild sockeye escapement in excess of 1.6 times the spawning escapement goal; to harvest enhanced Taku River sockeye incidentally to wild sockeye salmon; and, to harvest 3,000 to 10,000 coho salmon in a directed coho fishery, depending on in-river run size projections, plus projected escapement in excess of the spawning escapement goal.

The 2010 commercial fishing season on the Taku River opened on Wednesday, April 28 (SW18) and ended on Friday, October 9 (SW41). However, fishing activity ceased on September 22 (SW39) due to market and transport conditions. Fishing area and gear restrictions were as per recent years and incorporated the new maximum gill net length of 36.6 metres which was established in 2008 for drift gill nets and in 2009 for set gill nets.

The Taku River commercial fishing grounds in Canada consist of the mainstem of the river from the international border upstream approximately 18 km (11 mi.), to a geological feature known locally as Yellow Bluff. Almost all fishing activity takes place in the lower half of this area, downstream of the Tulsequah River.

The First Nation fishery is primarily located in the lower Taku River in the same area as the commercial fishery as described above. However, small numbers of fish are also harvested on the lower Nakina River and at the outlet of Kuthai Lake. There were no time or gear restrictions imposed on this fishery in 2010.

Most of the Chinook sport fishing activity in the Taku watershed occurs on the lower Nakina River. Additional sport fishing sites used less intensively exist on the Tatsatua River, the Sheslay River and

other areas within the Taku River drainage. Effort and catches are poorly documented but are believed to be negligible for all species except Chinook salmon and steelhead. This is due to the remote nature of the watershed and somewhat difficult access.

Chinook Salmon

The bilateral pre-season forecast was for a terminal run of 41,328 large Chinook, approximately 14% below the previous 10-year average of 48,100 fish. At a run size of this magnitude and factoring in the new interim S_{MSY} escapement point goal of 25,500 large fish, the allowable catch (AC) was 9,428 large Chinook, with 6,181 fish (66% of total) allocated to Canada and 3,247 fish (34% of total) allocated to the US. Adding the base level catches (BLCs) of 1,500 fish for Canada and 3,500 fish for the US meant that the total allowable catch (TAC) was 14,428 fish.

Based on deliberations pursuant to Chapter 1, Paragraph 4, which occurred in February 2010, it was determined that some adjustment to management procedures were required in order to ensure that Chinook TACs were not exceeded. There was recognition that the accuracy of both preseason and in season forecasting was having a major impact on the achievement of management objectives and that the forecasting methodology required review. In the absence of such a review, and in light of the fact that preseason forecasts had been biased high in recent years, it was determined that a cautionary approach would be adopted until in season forecasts were available. This would involve reduction of the Canadian AC by approximately 90% until reliable in season projections could be made (typically after mid-May and/or 2-3 three weeks of fishing). In order to generate an in season run projection, the test fishery would be conducted as per Chapter 1, Paragraph 3(b)(3)(xii). This fishery would be conducted using commercial licensing as occurred in 2008. Once reliable joint Canada/US in season projections were available, the fishery was to be managed to either full directed fishery guidelines with the objective of meeting escapement and agreed harvest sharing objectives, or to strictly test fishery guidelines.

Table 1 identifies weekly fishery guidelines based on a test fishery target of 1,400 large Chinook, plus the AC reduced by approximately 90% to 600 fish.

Table 1. Weekly large Chinook guideline harvests for the Canadian commercial fishery in 2010

Week	Start Date (Sunday)	Test Catch*	Directed Catch	Guideline
18	April 25	93	26	119
19	May 2	185	67	252
20	May 9	277	101	378
21	May 16	270	In season estimate	In season estimate
22	May 23	171	In season estimate	In season estimate
23	May 30	168	In season estimate	In season estimate
24	June 6	145	In season estimate	In season estimate
25	June 13	91	In season estimate	In season estimate

*After an in season estimate was generated, test catch targets would be used only in the absence of an allowable catch (AC).

In-season projections of the terminal run size of large Chinook salmon, allowable catch (AC), and escapement were made starting in SW21 (May 17-23). The estimates were based on the bilateral mark-recapture program, the estimated catch of Taku River Chinook in U.S. fisheries, the catch in the Canadian in-river fishery, and historical run timing information. Run size projections ranged from 39,500 fish in SW21 to 42,600 fish in SW26 (June 21-27). The last projection made during the directed fishery

indicated a terminal run size of approximately 39,000 large Chinook, slightly below the preseason forecast. In order to honour Annex IV, Chapter 1, Paragraph 3(b)(3)(v) which identifies the need for both Parties to spread the Chinook harvest over the season, the duration of weekly fishery openings were based on weekly guideline harvests apportioned by historical run timing data developed initially using the arrangement noted above and then from in-season run projections. Catches were below weekly guidelines in two of the three openings during test fishery/ reduced directed fishery part of the season (weeks 18-2); the cumulative catch for this period, 728 fish, was also below the cumulative target of 750 fish. Catches were below weekly guidelines in three of the five openings during the period in which directed fishing occurred (weeks 21-25); the cumulative catch for this period was 3,721 fish, also below the cumulative target of 4,043 fish.

Management emphasis switched to sockeye salmon in SW26 (June 20–26); at this point, the maximum permissible mesh size was reduced from 204 mm (8.0") to 140 mm (5.5") in order to conserve Chinook salmon. Additional catches of Chinook occurred in what constitutes the Canadian Chinook base level fisheries: 764 large Chinook were taken incidentally during the directed commercial sockeye gillnet fishery; 126 large Chinook were harvested in the First Nation fishery; and an estimated 100 large Chinook were taken in the recreational fishery. The total harvest in the base level fisheries amounted to 990 fish, which was 510 fish less than the base level allowance of 1,500 fish.

The preliminary post-season estimate of terminal run size is 36,792 large Chinook, 11% below the pre-season forecast and also below in-season projections. A terminal run size of this magnitude is associated with an AC of 4,792 fish (allocated to Canada) plus a base level catch (BLC) of 5,000 fish (1,500 Canada; 3,500 U.S). This equates to TACs of 6,292 fish for Canada and 3,500 fish for the U.S.; actual catches were 4,884 and 2,046 fish, respectively.

The total Canadian catch of 4,881 large Chinook, including 4,658 commercial (excluding the test fishery catch of 555 fish), 126 First Nation and 100 recreational was 40% above the 2000-2009 average of approximately 3,500 fish, (i.e. excluding test fisheries); however, it should be noted that only three other targeted Chinook fisheries occurred during this period, in 2005, 2006 and 2009. The 2010 total harvest of small Chinook was 723 fish (including 700 commercial and 23 First Nation), 36% above the 2000-2009 average of 531 fish.

The preliminary estimate of the spawning escapement of large Chinook is 29,307 fish. This is above the new interim point target of 25,500 large Chinook and within the overall escapement range of 19,000 to 36,000 fish. The 2010 estimate is 22% below the 2000-2009 average spawning escapement of 37,700 large Chinook (which was associated with a higher target). During aerial surveys of five index areas, a total of 4,899 large Chinook were observed; this was 5% below the 2000-2009 average.

As has been the practice for a few years now, tissue samples were collected on a weekly basis from Chinook salmon caught in the Canadian commercial fishery as part of the development of the genetic stock ID program identified in Annex IV, Chapter 1, Paragraph 3(b)(3)(vi); funding has not yet been secured to process these samples.

Sockeye Salmon

The Canadian pre-season run outlook for wild sockeye was 205,418 fish, approximately 9% below the previous 10-year average total run size of 226,500 fish. In addition, approximately 2,900 adult sockeye were expected to return (2,300 of Tatsamenie Lake origin and 600 of Trapper Lake origin) from fry outplants associated with the Canada/U.S. joint Taku sockeye enhancement program; this was 46% below the average enhanced run size of 5,400 fish.

The Canadian sockeye catch was 20,236 fish, of which 20,052 were taken in the commercial fishery and 184 in the First Nation fishery. An additional 262 sockeye were taken in the coho test fishery. The commercial catch was 20% below the 2000-2009 average of 24,900 fish. The contribution of sockeye salmon from the bilateral enhancement program is estimated at 622 fish, comprising 3% of the total Canadian catch.

Projections of the total wild sockeye run size, TAC, and total escapement were made frequently throughout the fishing season. The estimates were based on the bilateral mark-recapture program, the estimated catch of Taku River sockeye in U.S. fisheries, the catch in the Canadian in-river fishery, and historical run timing information. These estimates ranged from 121,000 in SW28 (July 4-10) to 174,000 in SW33 (August 8-14). The preliminary post-season estimate of run size is approximately 158,260 fish comprising 155,363 wild sockeye and 2,897 enhanced sockeye. The wild component was 24% below the preseason forecast, while the enhanced component matched the forecast. Subtracting the escapement target of 75,000 from the run of 158,260 fish results in a TAC of 83,260 fish. The Canadian allowable catch of wild fish, based on a 20% harvest share (which in turn is associated with an enhanced return of 1-5,000 fish), was 16,073 fish; the actual catch was 19,611 fish representing 24% of the TAC. Likewise, the U.S. allowable catch of wild fish, based on an 80% harvest share, was 64,291 fish; the actual catch was 49,408 fish, representing 61% of the TAC.

The estimated spawning escapement of sockeye salmon in the Canadian section of the Taku River was 87,423 fish which was above the target range of 71,000 to 80,000 fish. The 2010 escapement is approximately 21% below the 2000-2009 average of 110,000 fish. Based on weir counts, escapements to the Kuthai, Little Trapper, Tatsamenie and King Salmon lakes were 1,626, 3,472, 3,515, and 2,977 sockeye, respectively. The Kuthai Lake escapement was 73% below the primary brood year escapement and 51% below the 2000-2009 average; it is the fifth consecutive year with well below average escapement. The Little Trapper weir count was 78% below the primary brood year escapement, 74% below average, slightly below the previous record low set in 2008, and was the fourth year in a row of below average escapements. The Tatsamenie count was close to the primary brood year escapement, but was 61% below average. The escapement to King Salmon Lake was approximately 3 times the primary brood year escapement and 45% above average.

Coho Salmon

The total commercial catch of 10,426 coho salmon was more than double the 2000-2009 average of 4,700 fish; the First Nation catch of 59 coho salmon was 82% below the average of 323 fish. The catch during the directed coho salmon fishery, i.e. after SW33, was 7,170 fish; this excludes the catch from the test fishery which took place from SW34-41 (August 15 – October 6) and landed 4,000 fish. Based on bilateral mark-recapture data, the preliminary estimate of the run into the Canadian section of the drainage is 140,914 fish, 41% above the preseason forecast of 99,900 fish, which was predicated upon average exploitation rates in U.S. fisheries. According to the PST harvest arrangements for Taku coho salmon, at a run size of this magnitude, Canadian fishers were entitled to harvest up to 10,000 coho salmon in a directed fishery starting in SW34, plus projected surplus escapement. The preliminary post-season spawning escapement estimate is 126,429 fish; this is 91,429 fish above the top end of the interim escapement goal range of 27,500 to 35,000 fish. The 2010 spawning escapement was 10% above the previous 10-year average of 115,383 coho salmon.

Joint Sockeye Enhancement

Joint Canada/US enhancement activities continued in 2010. Approximately 59% of the eggs collected in 2009 from Tatsamenie Lake survived to the fry stage at the Snettisham Hatchery in Alaska; two incubators containing approximately 251,000 fry were lost to IHNV. On May 22nd, approximately

506,000 sockeye fry were out-planted into Tatsamenie Lake. In addition, as part of an onshore extended rearing project, 212,000 fry which had been reared to 0.6 grams in the hatchery were released into four onshore rearing tanks located near the north end of the lake (on June 10th). These fish were released in two groups, one in late July and the other in mid August, at an average size of 2.5 and 3.1 grams, respectively. As was observed in 2009, a portion of these fish appeared to out-migrate almost immediately, rather than remaining in the lake to rear.

It is estimated that, in addition to the extended-rearing pre-smolts (11,000), approximately 570,000 sockeye smolts out-migrated from Tatsamenie Lake in the spring and summer of 2010; this was about 58% above average; it appeared smolt size was above average. The contribution of enhanced smolt to this out-migration was estimated to be 47% based on preliminary thermal mark analysis.

As part of the feasibility study associated with removal of a migration barrier near the outlet of Trapper Lake (detailed in the 2010 Taku Enhancement Plan), eggs were to be collected in 2010, from sockeye spawning a short distance downstream. It had been proposed that a total of 150,000 eggs be taken, and placed in Tunjony Creek, a tributary to Trapper Lake. However, due to the record low adult sockeye return to Little Trapper Lake and the lack of past success incubating eggs in Tunjony Creek, eggs were not collected.

In September and October 2010, an estimated 1.9 million viable eggs were delivered from Tatsamenie Lake to the Snettisham Hatchery for incubation and thermal marking. This was at the upper target of 2.0 million as directed by the Enhancement Subcommittee of the TCTR.

Additional enhancement-related activities undertaken in 2010 included evaluation of Trapper Lake outplants, sample processing for disease profiles of King Salmon fish populations for evaluation of sockeye enhancement potential, and access improvement potential for the King Salmon and Kuthai lakes systems.

Alsek River

Although catch sharing of Alsek salmon stocks between Canada and the U.S. has not been specified, Annex IV of the PST does call for co-operative development of abundance-based management regimes for Alsek Chinook, sockeye and coho stocks. Instead of managing to system-wide goals, which are currently being developed for Chinook and sockeye, the TCTR has established index goals for the Klukshu River stocks (under review for Chinook and sockeye). Historically, the principal escapement-monitoring tool for Chinook, sockeye and coho salmon stocks in the Alsek drainage has been the Klukshu River weir, operated by Fisheries and Oceans Canada in co-operation with the Champagne-Aishihik First Nation. The Klukshu River is a tributary to the Tatshenshini River, which is the major salmon producing river system of the Alsek drainage.

Based on joint stock-recruitment analyses conducted on Klukshu Chinook and sockeye salmon, Canadian and U.S. managers have agreed to a minimum escapement goal of 1,100 Klukshu Chinook salmon and an escapement goal range of 7,500 to 15,000 for Klukshu sockeye salmon for the 2010 season. An escapement goal for Klukshu coho salmon has not yet been developed.

The 2010 season was marked by an above average return of Chinook and sockeye salmon; this was in contrast to the last four out of five years where returns of both Chinook and sockeye have been well below average. In 2010, the estimated catches in the First Nation fishery included 197 Chinook, 1,704 sockeye, and 4 coho salmon compared to recent 10 year average recorded catches of 70 Chinook, 1,267 sockeye, and 11 coho salmon.

Preliminary catch estimates for the Alsek/Tatshenshini recreational fishery were near average for Chinook salmon, with an estimated 97 fish retained (200 released), and below average for sockeye salmon with 12 retained (108 released), and 3 coho salmon were retained and 8 were released. These were 28% above average for Chinook, 29% of average for sockeye, and 4% of average for coho salmon. Despite increasing daily and possession limits for sockeye to 4 and 8 on August 31st, the recreational catches remained low due to poor fishing conditions and a weaker than expected tail end of the run.

The most reliable comparative Chinook salmon escapement index for the Alsek River drainage is the Klukshu River weir count. The preliminary Chinook salmon weir and escapement counts in 2010 were 2,356 and 2,257, respectively, and were both nearly 70% above the 10 year averages (1,404 and 1,349). The 2010 escapement was near the upper end of the current escapement goal range of 1,100 to 2,300 Klukshu Chinook salmon.

The preliminary weir count and escapement estimates of Klukshu River sockeye salmon were 18,960 and 18,546 fish, respectively, in 2010. The count of 5,073 early run fish (count through August 15) was twice the average while the count of 13,887 late run fish was 38% above average. The total escapement of 18,546 fish was well above the upper end of the current escapement goal range of 7,500 to 15,000 fish. The sockeye salmon escapement to Village Creek was only partially enumerated in 2010 due to repairs being made to the electronic counter. A total of 2,302 sockeye were counted and an over flight of Nesketaheen Lake in late July indicated that approximately 2,500 sockeye spawners had reached the lake (10 yrs. avg. count at Village Creek is 2,755).

The Klukshu River coho weir count was 2,365 similar to the 10 year average of 2,604 fish. As in past years, the weir count does not serve as a reliable run strength indicator as the weir is normally removed well before the end of the coho salmon return to the Klukshu River.

Northern British Columbia Pink Salmon

Areas 3-1 to 3-4 Pink Net Catch

For the year 2010, Canada was to manage the 3-1 to 3-4 net fishery to achieve an annual catch share of 2.49 percent of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of approximately 23.62 million pinks, the Alaskan Districts 101, 102 and 103 AAH was 12.87 million pinks. The resulting Area 3-1 to 3-4 Canadian commercial net total allowable catch of this AAH was approximately 320,403 pinks of Alaskan Districts 101, 102 and 103 origin.

In the Canadian northern boundary area, pink salmon returns were anticipated to be below average for both Area 3 and Area 4, based on brood year return strength. Actual returns to Area 3 and 4 streams were as anticipated in 2010. The 2010 Canadian pink salmon catch in Sub-areas 3-1 to 3-4 was 30,686 and a preliminary estimate of the Alaska stock component of this catch is estimated to be 18,022, or 0.14 % of the AAH, well below the allotted 2.49 % of the AAH of 320,403 pieces.

Area 1 Pink Troll Catch

For the year 2010, Canada was to manage the Area 1 troll fishery to achieve an annual catch share of 2.57 percent of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of approximately 23.62 million pinks, the Alaskan Districts 101, 102 and 103 AAH was 12.87 million pinks. The resulting Area 1 Canadian commercial troll total allowable catch of this AAH was approximately 330,697 pinks of Alaskan Districts 101, 102 and 103 origin.

The Canadian commercial troll fishery in Area 1 was open in the northern portion of the Area from July 1 to September 30, with the directed pink fishery along the A-B line strip being open for that time period. Pink salmon directed effort was very minimal and the fishery harvested a total of 19,948 pink salmon, with an estimated 14,835, or 74.4 %, being of Alaskan origin. This equates to 0.12 % of the Alaskan District 101, 102 and 103 pink AAH, well below the annex agreement for 2.57 percent of the Alaskan Districts 101, 102 and 103 pink salmon AAH.

Chinook Salmon AABM Fisheries

The pre-season abundance index for North Coast B.C. troll and Q.C.I. Sport fisheries in 2010 was 1.17, which allowed a total catch of 152,100 Chinook salmon in these fisheries. Preliminary estimates indicate a total catch of 136,613 Chinook salmon; 90,213 caught in commercial troll fisheries and 46,400 caught in sport fisheries.

The North Coast B.C. troll fishery was opened for Chinook fishing from June 15 to August 8, 2010. The entire 2010 NBC Troll fishery was conducted under a system of individual transferable quotas. The size limit was 67 cm. Barbless hooks and revival boxes were mandatory in the troll fishery. No troll test fisheries were conducted in the North Coast of B.C. in 2010.

Sport fishing was open with a daily limit of 2 Chinook and a possession limit of 4 Chinook. An estimated 43,400 Chinook were caught in the Queen Charlotte Islands sport fishery. A minimum size limit of 45 cm was in effect and barbless hooks were mandatory in the sport fishery.

Chinook ISBM Fisheries

Fisheries included in this category are commercial net fisheries throughout north and central BC, marine sport fisheries along the mainland coast and freshwater sport, and Native fisheries in both marine and freshwater areas. Under the PST, obligations in these fisheries are for a general harvest rate reduction (estimated in aggregate across fisheries) for ocean mixed-stock fisheries and for stock-specific objectives (i.e., achieving the escapement goal) in terminal areas.

North Coast commercial gillnet catches totalled 2,182 Chinook from Areas 3 to 6 (from fish slip catch data). Chinook catch in Areas 3 and 4 were 971 and 1,211 Chinook respectively. No Chinook were reported caught in Area 5 or Area 6. These preliminary estimates of gillnet catches exclude Chinook less than 5 pounds (graded as jacks and small red fleshed Chinook) not normally included for PSC accounting. Small Chinook typically make up less than 5% of commercial gillnet catches. In addition, a total of 959 large Chinook and 84 jacks were caught in the Tyee Test fishery on the Skeena River.

Central Coast commercial gillnet catches totalled 1,549 Chinook from Area 8 (hail catch data).

Johnstone Strait commercial fisheries including Area B seine and Area D gillnet was managed by South Coast and corresponding catches are reported in the South Coast section of this report.

Tidal sport catch from lodges operating in the Rivers Inlet, Hakai Pass and Bella Bella areas were estimated using log books. Approximately 4,043 Chinook were retained at lodges in these areas in 2010. Detailed surveys of non-lodge (independent) anglers were not conducted in 2010 but catches by independent anglers are generally less than the lodge component. Creel surveys used to estimate catches of Chinook in Rivers Inlet by independent anglers averaged 334 Chinook between 2003 and 2005.

Tidal sport catches near the mainland coast of Northern BC were estimated at 7,570 by a creel survey conducted in Areas 3 and 4 in 2010. The 2010 catches in the mainland sport fishery in Areas 5 and 6 were unknown. The preliminary estimate from a freshwater creel survey conducted in the Skeena River below Terrace in 2010 was 2,689 Chinook. A previous estimate of the sport catch from the Skeena River fishery downstream of Terrace, B.C. included 6280 Chinook in 2003.

Catches by First Nations in the North Coast exceeded 13,693 Chinook. Nisga'a and Gitanyow catches from the Nass River were 4,594 Chinook. Haida catches on the Queen Charlotte Islands were estimated to exceed 2,860 Chinook. Only a portion of catches from Native fisheries in the Skeena have been reported but current estimates exceed 6,239 Chinook. Chinook catch by First Nations on the Skeena appear to be on par with 2009 estimates.

Catches by First Nations in the tidal portion of the Central Coast were reported as 84 Chinook while the non-tidal catch of terminal Atnarko River Chinook was 3,626 Chinook (jacks excluded).

Overview of Northern BC Chinook Stock Status

Since assessments of the ISBM fisheries are relative to the escapements achieved in the Chinook indicator stocks, a brief overview of the 2010 returns is provided. Northern BC terminal runs were less than 2009 in the Nass and slightly more than 2009 in the Skeena. Preliminary estimates of Nass River escapements decreased to 19,341. Skeena River Chinook escapements increased slightly with an estimate of approximately 43,331. Atnarko River Chinook escapements were estimated at 10,300, slightly larger than the 2009 return.

Fraser River Sockeye

Objectives and Overview

With the much lower than expected returns of four year old Fraser River sockeye observed in 2009, three productivity assumptions were used to generate three potential 2010 sockeye run-size forecasts: the long-term average productivity, the recent (four to eight year) productivity, and the productivity equivalent to the 2005 brood year (i.e., the 2009 four-year old return). The official forecast for 2010 used the forecast based on the assumption of recent productivity. The Fraser River Panel (FRP) adopted the 50% probability level of abundance forecast for planning purposes of 11.4 million Fraser sockeye. A majority of the total return (~70%) was expected to be Late-run sockeye. Pre-season planning indicated that harvest would be directed on Summer-run and Late-run sockeye, and harvest opportunities would likely be available for all fishery sectors if the pre-season run size forecasts materialized.

Pre-season planning incorporated provisions to meet escapement objectives and meet conservation objectives for stocks of concern while considering international and domestic objectives. Significant effort was placed on developing a pre-season plan for anticipated fisheries. Pre-season modelling indicated that achieving each country's share would be difficult considering pre-season model inputs (aggregate run sizes, timing overlaps, and diversion rate) as well as escapement and conservation objectives. The pre-season planning models included the following assumptions and guiding principles in no particular order:

- In March 1985, the United States and Canada agreed to co-operate in the management, research and enhancement of Pacific salmon stocks of mutual concern by ratifying the Pacific Salmon Treaty (PST). For 2010, the Commission provided direction to the FRP with respect to implementing Paragraphs 3 and 8 of Chapter 4, Annex IV of The Pacific Salmon Treaty;

- The U.S. share of the annual Fraser River sockeye salmon total allowable catch (TAC), harvested in the waters of Washington State was set at 16.5% of the aggregate. To the extent practicable, the Fraser River Panel (FRP) shall manage the United States fishery to implement a fishing plan that concentrates harvest on the most abundant management group (or groups). It is understood that the U.S. harvest may exceed 16.5% of the TAC for one or more of the less abundant management groups despite concentrating the harvest in this manner;

- For computing TAC by stock management groupings, the Aboriginal Fishery Exemption (AFE) of 400,000 Fraser River sockeye, shall be allocated to management groups as follows: The Early Stuart sockeye exemption shall be up to 20% of the Fraser River AFE, and the remaining balance of the latter exemption shall be based on the average proportional distribution for the most recent three cycles and modified annually as required to address concerns for Fraser River sockeye stocks and other species and as otherwise agreed by the Fraser River Panel. If, either pre-season or in-season, there is insufficient harvestable surplus (defined as run size minus escapement goal, minus management adjustments made pursuant to paragraph 3(b), minus test fishing catches) in any stock management group to allow for the total AFE distribution to that stock management group as described above, the AFE for that stock management group will be the greater of: a) the catch, b) the projected catch by Aboriginal Fisheries or c) the available harvestable surplus. The remaining balance of AFE not distributed to that stock management group will be re-distributed to the other stock management groups in the same proportions as specified above, unless otherwise agreed by the Fraser River Panel;

- If Late-run sockeye were to continue their early migration behaviour, the Management Adjust (MA) prior to a 50% migration date (to Mission) of September 3 would be applied based on a MA Model fitted to Adam's dominant/sub-dominant cycle line data, and if the migration was September 3 or later, a fixed value MA of 0.35 would be used;

- For 2010 pre-season planning purposes, the FRP agreed to use the 50% probability level of abundance forecasts for all run timing groups;

- Although the capability to assess in-season run size and migration timing would be good for Late-run sockeye, an in-season run size estimate for Cultus Lake sockeye would not be possible due to low abundance relative to co-migrating sockeye stocks. As a result the harvest impacts on Cultus Lake sockeye would be assessed using other Late-run stocks (excluding Birkenhead and Harrison) as a proxy;

- For 2010, Birkenhead sockeye would be re-integrated into the Late-run timing aggregate;

- Canada's escapement plan specified escapement requirements that varied with run size for the all run timing aggregates;

- A fixed ER floor of up to a maximum of 10% for all aggregates was put in place to allow for the harvest of co-migrating stocks and or species in cases when the run timing aggregate run size fell below the lower reference point; and,

- Cultus sockeye exploitation rate would be limited to a maximum of 20 to 30% subject to in-season information on timing and abundance estimates; without exceeding the overall Late-run exploitation rate. However, based on a large return of Late-run sockeye and the expectation of meeting or exceeding Cultus rebuilding objectives, a decision was made in-season to increase the exploitation rate above 30%.

Late-run sockeye have historically delayed in the Strait of Georgia for 4-6 weeks prior to entering the Fraser River. Beginning in 1996, this behaviour changed to one where there is a shorter delay or occasionally immediate river entry. Concerns for Late-run early entry and the associated elevated rates of en-route and pre-spawn mortality continue. As the majority of the forecasted return of Fraser River sockeye was Late-run sockeye, significant pre-season planning focused on Late-run MAs and, domestically, on conservation of Cultus Lake sockeye.

Conservation concerns for other sockeye stocks and species continued to impact the planning of sockeye fisheries in 2010. The stocks and species of concern in 2010 were: Early Stuart sockeye, Early Miscellaneous Early Summer-run sockeye, Cultus Lake sockeye, Nimpkish sockeye, Sakinaw Lake sockeye, Interior Fraser River coho and Interior Fraser River steelhead.

Pre-Season Assessment

In addition to Canada's escapement plan, estimates of run size, diversion rate, run timing and assumptions about in-season environmental conditions are key inputs required to seed the pre-season Harvest Planning Model prior to observing in-season information. The main objective of the model is to identify potential fishing opportunities while attempting to meet conservation, international and domestic objectives.

Run Size Forecasts Used for Planning

Fraser River sockeye forecasts are highly uncertain due to random variability in annual survival rates. Sockeye forecast tables express this uncertainty by providing probability distributions of the forecast ranging between the 10% probability level of abundance and the 90% probability level of abundance. In 2010, the probability levels were flipped around to reflect cumulative probabilities which are typically used for presenting Bayesian probability estimates, i.e. the 25% p-level (or p25) indicates that there is a one in four chance that the actual run size would be less than the p25 forecast value. In 2009 and earlier, the 25% p-level (or 25p) would have indicated that there was a one in four chance that the actual run size would reach or exceed the 25p forecast value.

Forecast uncertainty for sockeye has increased in recent years due to low and variable marine survival estimates (smolt-to-adult) relative to average. In 2009, the final in-season return estimate of 1.37 million fell below the 90p forecast (equivalent to the 2010 p10 forecast). The 2010 run size adopted by the Panel accounts for recent, lower trends in productivity.

As outlined in the Pacific Salmon Treaty (PST), the mid-point of the forecast provided by Canada will be used for management purposes unless the Panel adopts a more precautionary or optimistic forecast until in-season updates of run size are available. In 2010, as recommended by the Department of Fisheries Oceans (DFO) Centre for Scientific Advise Pacific (CSAP) review, the FRP adopted the forecast approach that assumes recent productivity will persist through 2010. For pre-season planning purposes, the FRP used the 50% probability level for all run timing groups and stocks. The 2010 50% probability forecasts for all four management aggregates were as follows: Early Stuart 41,000; Early Summer-run 783,000; Summer-run 2,612,000; and Late-run 8,003,000, for a total of 11,439,000 Fraser sockeye. Comparing forecasted stocks with the historic cycle line run sizes averages (1980-2008), the Early Stuart forecast was 36% of average, Early Summers (excluding miscellaneous stocks) 73% of average, Summers 52% of average, and Lates (excluding miscellaneous stocks) 86% of average. Overall, the 2010 forecasted stocks were 74% of the cycle line average (excluding miscellaneous stocks).

Diversion Rate

The final pre-season forecast of the proportion of Fraser sockeye diverting through Johnstone Strait was 32%. The estimate is based on the relationship between the mean daily sea surface temperature measured at the Kains Island (Quatsino) lighthouse in May and June, and the estimated post-season northern diversion rate for 1977-2009. Increased sea surface temperatures are associated with higher diversion rates.

Timing Forecasts

The forecast of the 50% date (peak timing) by DFO for Early Stuart and Chilko sockeye arriving to Area 20 was July 2nd and August 4th respectively. Forecast methods use a linear multiple regression model with two predictor variables: 1) Gulf of Alaska eastward current speed index (in May for Early Stuart, and in March for Chilko), and 2) Gulf of Alaska mean sea surface temperature (SST) in the previous November and December.

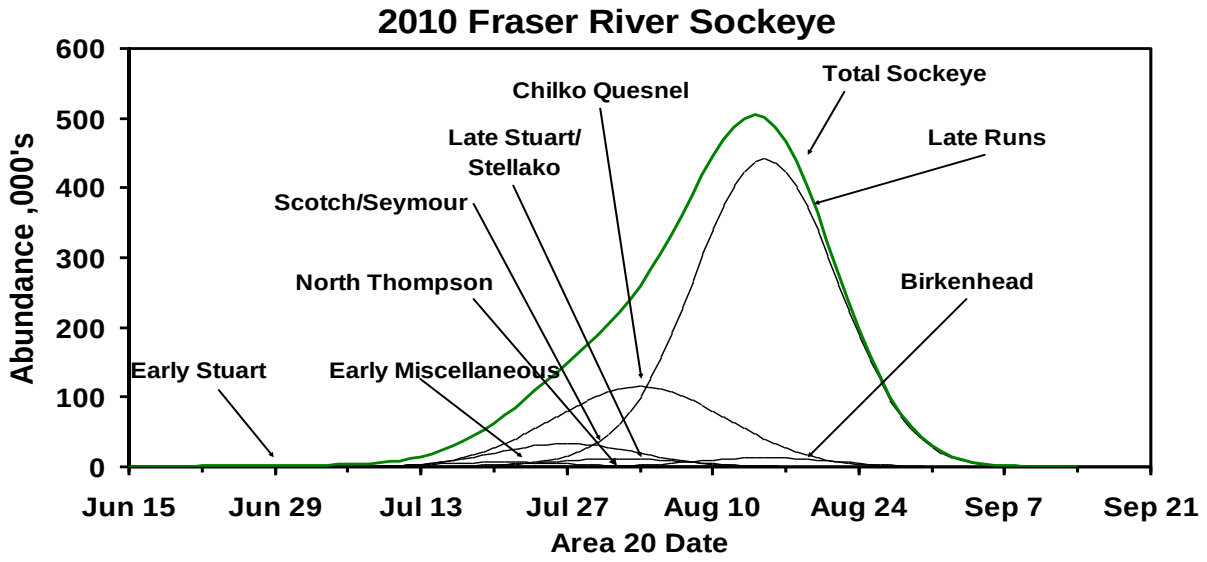
The timing estimates used for pre-season planning changed slightly after a review of the performance of the timing forecast relative to the actual migration timing. As the timing forecasts were found to be biased late, the Early Stuart and Chilko sockeye Area 20 dates were revised to July 1st and August 3rd. The FRPTC calculated expected run timings for the other stock groups based on their historic relationship to the August 3rd timing of Chilko sockeye. The following are the pre-season estimates of timing in Area 20 used for the bilaterally agreed upon pre-season model.

Table 2 Timing Estimates Used for Pre-Season Planning in Area 20

	2010 Area 20 Timing
Early Stuart	July 1
Early Summers	July 27
Summer-run	August 3
True Lates	August 15

The following figure graphically illustrates the relative run size forecasts and run timing overlaps expected in 2010.

Figure 1 Relative Run Size Forecasts and Run Timing Overlaps Expected in 2010



Environmental Conditions and Management Adjustments

Management Adjustments (MAs) reflect a quantity of fish that need to be added to the spawning escapement targets for the purpose of increasing the likelihood of achieving the spawning escapement targets. The general concept is that more fish are needed to be counted going past Mission than needed for spawning ground escapement and anticipated catch above Mission, to account for a historic discrepancy between the number of fish counted at Mission in-season (minus the actual catch above Mission) and the number of fish counted on the spawning grounds. This discrepancy may be due to a number of factors, including (but not limited to): critically high temperatures and/or discharge in the Fraser River, bias in estimates at Mission hydroacoustics and/or spawning ground escapement estimates, biased catch estimates, unreported catch, delayed mortality associated with escapes or releases from fishing gear, natural mortality, and/or predation. While all of these factors are included in the difference between estimates, the inputs used to estimate MAs are temperature and discharge for Early Stuarts, Early Summer and Summer-run sockeye and the 50% migration timing at Mission for Late-run sockeye.

For the Early Stuart, Early Summer-run and Summer-run sockeye, MA estimates can be updated in-season for management purposes as river conditions and peak timing information is acquired. The pre-season MA expressed as a percentage of the spawning escapement goal and the number of sockeye this represents for 2010 pre-season run sizes are outlined below.

Table 3 MA Estimates used for Pre-Season Planning 2010

	Pre-season Run Size	MA (%)	MA
Early Stuarts	41,000	40%	16,400
Early Summers	783,000	62%	194,300
Summers	2,612,000	3%	31,300
True Lates	8,003,000	35%	1,120,400

2010 Escapement Plan

The *Fraser River Sockeye Spawning Initiative* has been a multi-year collaborative planning process to develop a long-term escapement strategy. The annual escapement strategy seeks a balance between long-term objectives and short-term practical considerations, and combines technical analyses with qualitative judgment. A plan is developed every year and is vetted through consultative processes prior to the fishing season. The annual allowable exploitation rate for each run timing aggregate is adjusted based on run size and environmental conditions. The table below is the pre-season escapement plan for 2010 as reflected in the final IFMP. Note that the management adjustments in Table 3 have been modified subsequent to the release of the IFMP by the Panel based on additional pre-season environmental forecasts.

Table 4 2010 Fraser River Sockeye Escapement Plan – Pre-Season Run Estimates

Stock Group	Run Size Estimate of forecasted stocks	Run Size Reference Points		Total Mortality Rate Guidelines	Total Allowable Mortality at Run Size	Escapement Target at Run Size	Management Adjustment (a)		Exploitation Rate after MA (b)
Early Stuart	41	-	156	0%	0%	41	63%	26	0%
		156	390	0 - 60%					
		390		60%					
Early Summer		-	270	0%					
		270	674	0 - 60%					
	783	674		60%	60%	313	51%	160	40%
Summer		-	1,000	0%					
		1,000	2,500	0 - 60%					
	2,612	2,500		60%	60%	1,045	7%	73	57%
Lates (incl. Birkenhead)		-	1,220	0%					
		1,220	3,050	0 - 60%					
	8,003	3,050		60%	60%	3,201	66%	2113	34%
Cultus	9								30%
Sockeye Totals	11,439					4,600		2,372	
	Est. Return								

a) Management adjustments (MAs) are added to the escapement targets to correct for the actual differences between Mission and upstream abundance estimates over all years. This approach makes no prior assumption about environmental conditions because we don't yet know whether conditions will be favourable or unfavourable in 2010. We ex that the MAs will be revised to take into account an environmental conditions during the inseason management period.

b) A fixed ER floor of up to a maximum of 10% for all stock groups is in place to allow for the harvest of co-migrating stocks and or species in cases when the total allowable mortality n management adjustment results in an exploitation rate of less than 10%. Test fishing impacts will be included as part of the 10% maximum ER floor. The 10% fixed ER floor is to allow for fisheries targeted on more abundant co-migrating stocks and not intended for directed harvest opportunities on that run timing group nor is it intended to be an addition ER limit based on the escapement plan TAM rules.

In-Season Assessment

Determining the in-season run size in 2010 was challenging given significantly larger indications of run size to all four stock groups based on in-season assessment information versus pre-season information. However test fisheries and the Mission hydroacoustics provided good indications of the significant changes from pre-season forecasts. Early Stuart run size estimates were highly uncertain due to the

uncertainty around expansion lines. The relatively low abundance of the Early Stuart stock group compared to larger stock groupings, results in highly variable test fishery catches which contributes to the uncertainty in expansion lines. A new run size assessment model which assumed uncertainty in the marine test fishery data was used in 2010, which was an improvement over the 2009 model which assumed that both the marine and in-river test fishery data were known. A further change to the model is planned to be assessed by the FRPTC in the post-season and would allow for uncertainty in both the marine and in-river test fisheries.

Early Summer and Summer-run run size estimates were challenging to determine in-season due to the protracted migration profile of the Early Summer run and the skewed profile of the Summers, which made it difficult to identify the peak of the runs. Determining the peak timing of the Summer-run (as well as run size) was especially important when considering commercial and recreational fishing opportunities.

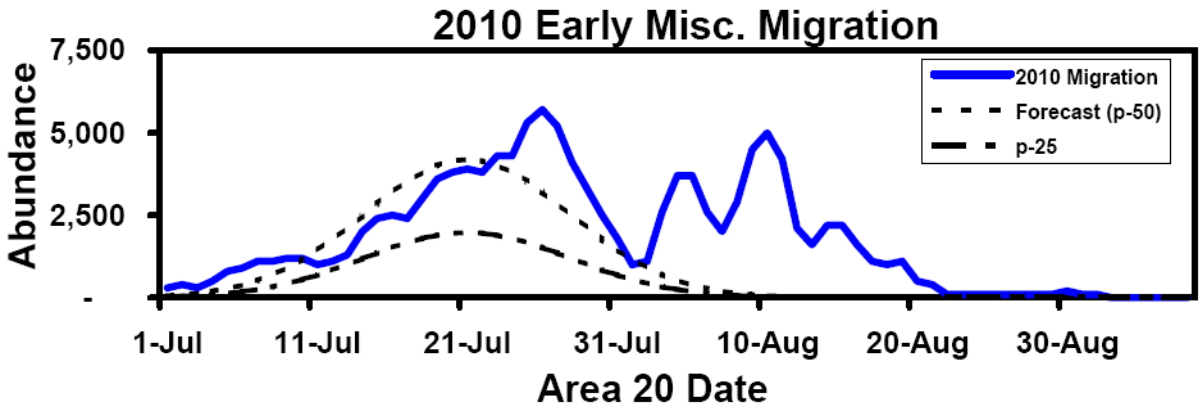
Record test fishery catches in Johnstone Strait (gillnet and purse seines) as well as the Gulf troll added to uncertainty in run size estimations, as any conclusions drawn from these data points are necessary extrapolations from the existing dataset. The estimate of Late-run abundance was particularly influenced by the uncertainties associated with the large catches in the Johnstone Strait seine and Gulf troll test fisheries used to estimate the number of fish delaying in the Gulf off the Fraser River mouth. Since a component of the run delays prior to entering the river, the Mission hydroacoustics site cannot be used to provide feedback on the expansion lines being used in the marine purse seine test fisheries.

Pre-season, the high water temperatures forecasted for the Fraser River during the Early Summer-run and Summer-run migration heightened the concern of not meeting escapement objectives for some stock groups. However, in-season water temperatures that were forecast to increase sharply on several occasions did not materialize. The FRP re-evaluated the forecasted environmental conditions, the MA models being used, the condition of the fish migrating through the watershed, and the MAs throughout the season.

Migration and Timing

Determining the peak of the run is important for estimating run size and management adjustments. The following graphs illustrate the 2010 migration relative to the pre-season forecast of timing and abundance. The delay in the migration, plus the non-normally distributed migration profiles, made it difficult to estimate the peak of the runs in-season.

Figure 2 2010 Early Summer Sockeye Migration Graph



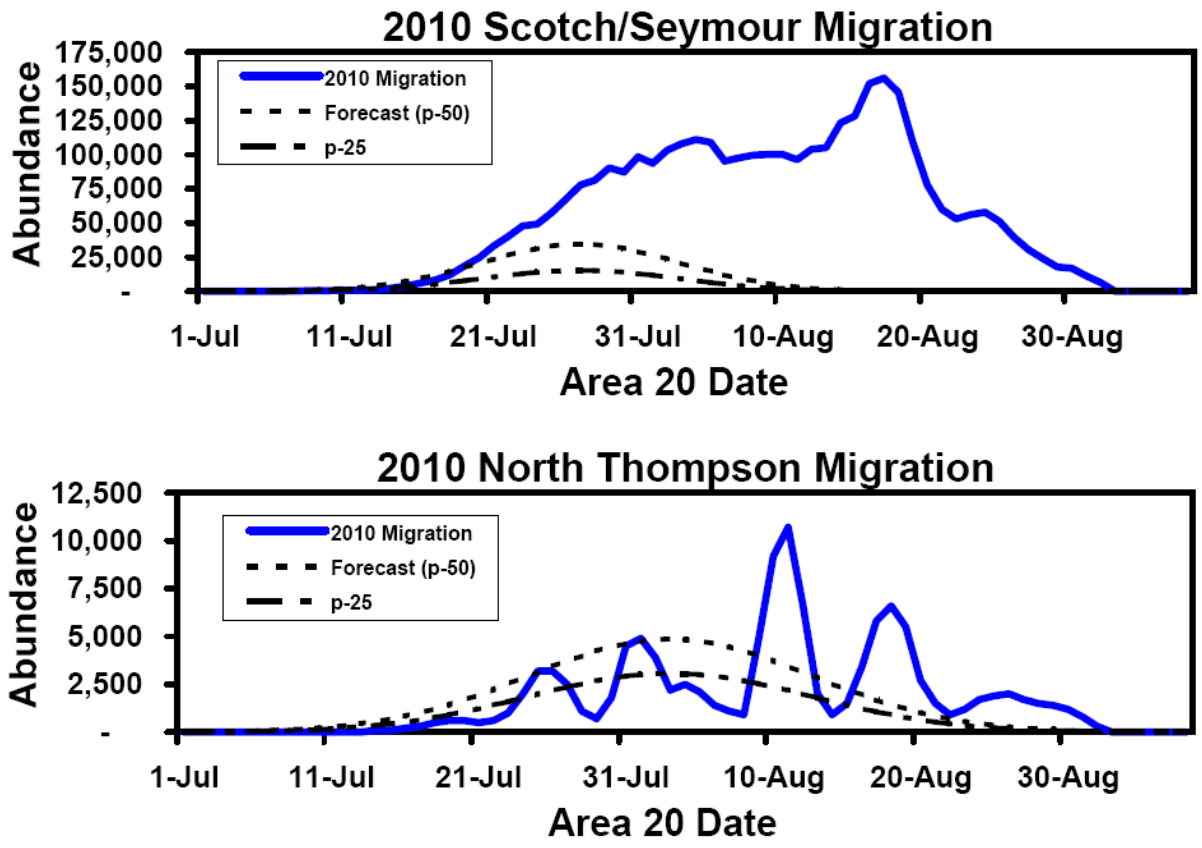


Figure 3 2010 Summer Run Sockeye Migration Graph

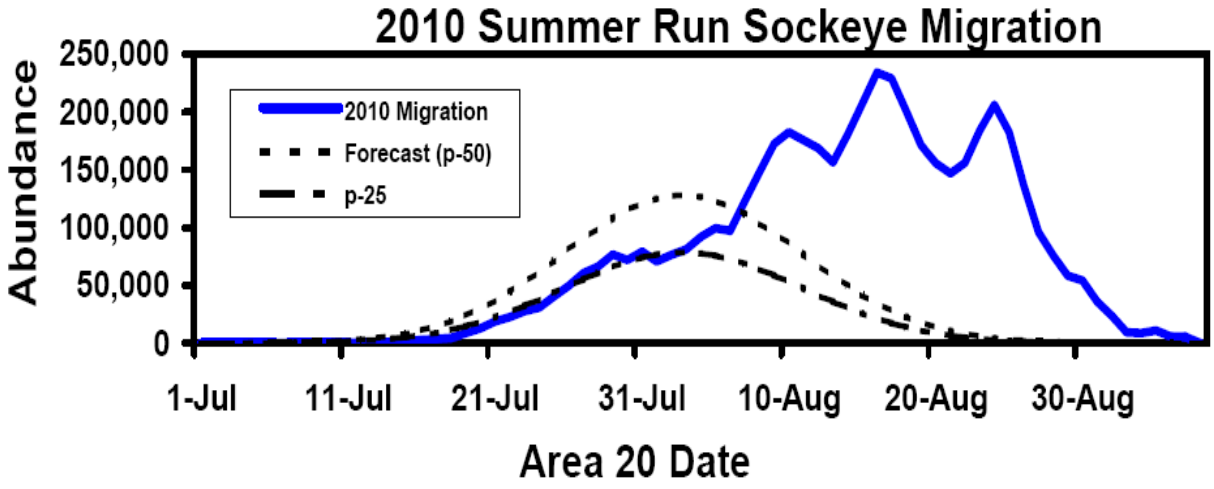
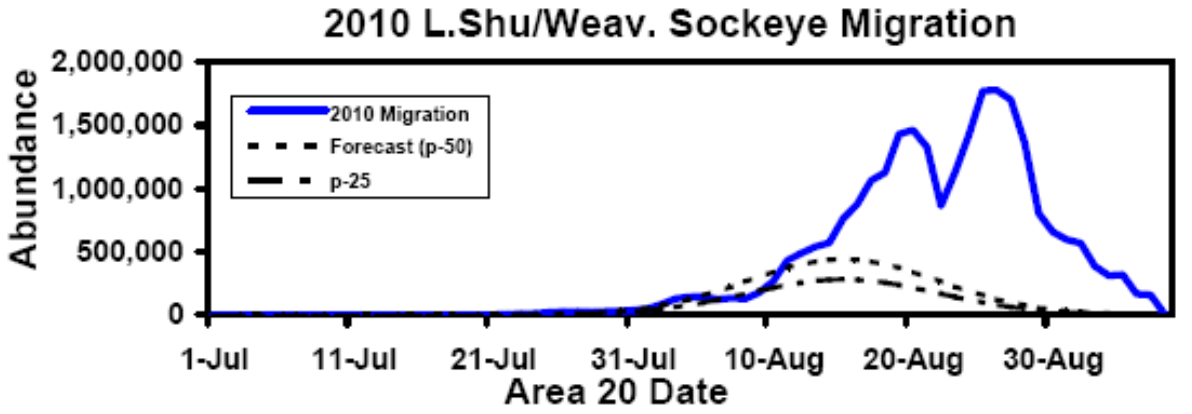


Figure 4 2010 Late Run Sockeye Migration Graph



The Area 20 migration dates (peak) changed considerably between the pre-season and the final in-season estimates. All of the aggregates exhibited significantly later migration timing to Area 20. The Late-run sockeye delayed in the Gulf and the final in-season timing estimate for Mission was much later than the pre-season.

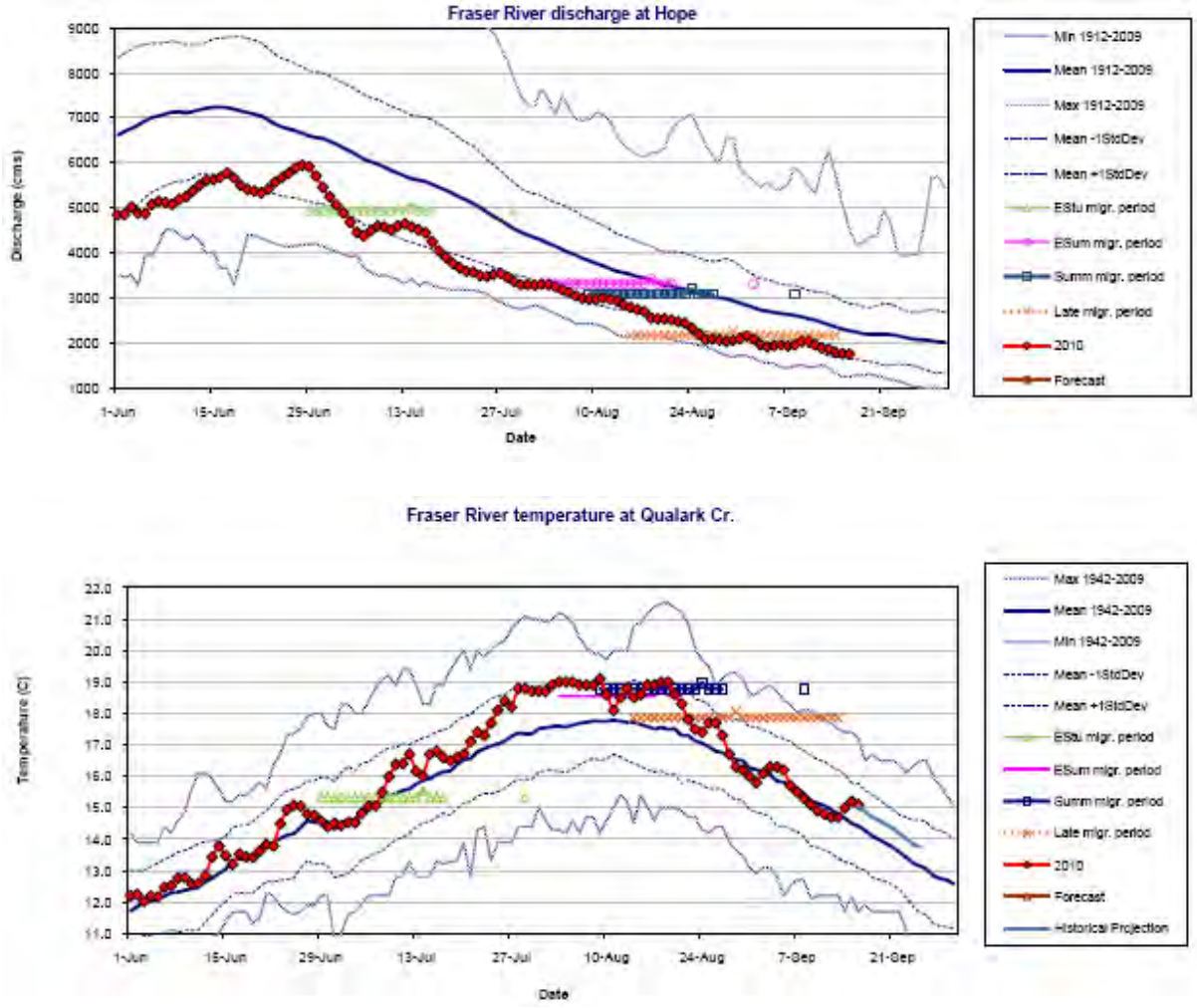
Table 5 Expected vs. Observed Age Contributions

	Area 20 Timing		Mission Timing	
	Pre-season	**Final In-season**	**Pre-season**	**Final In-season**
Early Stuart	July 1	July 5		
Early Summers	July 27	August 9		
Summer-run	August 3	August 15		
True Lates	August 15	August 22	September 6	September 12

Fraser River Environmental Condition and MA

High water temperatures can cause serious adverse effects on resident and migratory fish, including increased energy expenditure, reduced swimming performance, increased susceptibility to disease, reduced reproductive success, and mortality. In 2010, the Fraser River water temperature was above average for most of the sockeye migration while discharge was lower than average. Temperatures ranged between the long term mean water temperature (1942-2009) and 1 standard deviation above the long term mean for the Early Summer and Summer-run migrations. A significant concern in-season was extreme water temperatures (>21°C) were forecasted at times during the migration, but did not materialize. For the migration of Late-run sockeye, the temperatures decreased and were more in line with long term average for a majority of the migration. The figures below illustrate observed Fraser River temperatures at Qualark Creek and discharge at Hope as well as the corresponding estimated stock aggregate migration periods.

Figure 5 Fraser River Discharge at Hope and Temperature at Qualark Creek



Management Adjustment (MA) models use environmental conditions and run timing as inputs. The in-season MAs for Early Summer and Summer-run sockeye were very sensitive to the forecast river conditions and changes to run timing estimates. Forecasts which included sharp increases in river temperatures particularly affected Early Summer MAs.

After several forecasted temperature increases which did not actually occur, and reports from the migration route and the spawning grounds which showed no indications of fish in stress or signs of en-route mortality, the Panel began to examine alternative MA models. Due to the numerous stocks that make up the run timing aggregate, the migration profile of Early Summers is especially protracted. However, the MA models calculate a MA to use for the entire duration of the run, i.e. we do not have stock-specific MAs. To account for some of the difference which is likely to occur between stocks, the Panel adopted the use of an MA model that was based on the DBEs observed in Scotch-Seymour dominant and sub-dominant years (2006 & 2007 cycles). The fit of this model as described by the r^2 value was better than the model based on all years of data.

Late-run Delay

Prior to 1995 a three to six week delay in Late-run migration into the Fraser River was a regular occurrence. Since 1995, Late-run sockeye have been observed entering the Fraser River with little or no delay (in most years). The lack of delay has been a precursor to large differences between estimates in most years, and was associated with elevated levels of pre-spawn mortality, especially in some of the earlier years. 2009 saw the Late run revert to a delay in the gulf more similar to historic patterns which was a positive development for these stocks.

On Adams dominant and subdominant years, some degree of delay is expected. Pre-season planning was based on an Area 20 peak date of August 15th, and an in-river 50% migration date of September 6th. To assess the numbers of delaying fish, the Gulf Troll was included in the 2010 test fishing plan.

The Gulf Troll test fishery CPUE in 2010 was well above the highest ever recorded which occurred during the mid August to mid September gulf troll test fishing period. As previously mentioned, extrapolating outside of the previously observed data results in a high degree of uncertainty with respect to the calculations of delay. Based on in-season assessment information from the gulf troll test fishery, approach area test fisheries, and Mission hydroacoustic estimates; the peak estimate of late run sockeye holding off the Fraser River mouth was 16 million sockeye.

The final in-season estimate of Late Run timing is August 22nd in Area 20 and September 12th at Mission, which is a 21 day delay (including travel time). It should be noted that there are some preliminary indications that the run size for Late-run sockeye will likely decrease in the post-season. This will change the timing estimates, and might affect the delay estimate as well.

Run Size

As the season progressed the FRP considered technical advice provided by the Pacific Salmon Commission and Fraser River Panel Technical Committee members and bilaterally adopted run sizes that reflected in-season assessment information. The following table highlights a timeline of run size changes that were adopted by the FRP.

Table 6 Timeline of Run Size changes Adopted by FRP in 2010

	Preseason	Jul 09	Jul 16	Jul 27	Jul 30	Aug 6	Aug 13
E.Stuart	41,000	**110,000**	**90,000**	**105,000**	105,000	105,000	105,000
E. Sum	783,300	783,300	783,300	783,300	**950,000**	**1,600,000**	**2,000,000**
Summer	2,612,000	2,612,000	2,612,000	2,612,000	2,612,000	2,612,000	**2,600,000**
Late	8,003,000	8,003,000	8,003,000	8,003,000	**8,208,000**	8,208,000	**8,508,000**

	Aug 15	Aug 17	Aug 20	Aug 24	Aug 27	Aug 31	Sep 7
E. Stuart	105,000	105,000	105,000	105,000	105,000	105,000	105,000
E. Sum	**2,400,000**	**2,600,000**	**2,900,000**	**3,200,000**	**3,700,000**	3,700,000	**3,800,000**
Summer	**3,000,000**	**3,300,000**	**4,000,000**	**4,500,000**	**4,800,000**	4,800,000	**5,200,000**
Late	8,508,000	8,508,000	**12,141,000**	**17,241,000**	**21,441,000**	**25,441,000**	25,441,000

Note: Bold values indicate a change

With the exception of Early Stuart sockeye, all of the aggregates experienced increases in the in-season run size estimates sufficient to create TAC for all sectors. The Early Stuart stock group return was also above forecast levels but not at a level to provide directed harvest opportunities. Considering the four week moving window closure to protect Early Stuart and Early Miscellaneous sockeye in Canada, the pre-season forecast of 783,000 Early Summer sockeye, and the pre-season pMA of 0.62, much of the Early Summer-run sockeye harvest was expected to occur incidentally while targeting fisheries on the Summer-run and Late-run sockeye. After the July 30 increase to the Early Summer-run in-season run size, test catches remained strong, and fisheries directed on Early Summer-run and Summer-run sockeye were planned for the first week in August. Run size increases through the season for Early Summers, Summers, and Lates coupled with lower management adjustments allowed fisheries to continue into September.

The run size estimates based on the October 6, 2010 Panel meeting were much higher than the pre-season forecasts for each of the management aggregates (see the Table below). The in-season estimates were larger than the p90 for the Early Stuart, Early Summer-run, and Late-run sockeye. The in-season estimate for Summer-run sockeye was greater than the p75 forecast.

Table 7 Pre-Season Forecasts vs. Final In-Season Estimates

Run	Pre-Season Forecast (recent productivity)			Final In-Season Estimate (Sept 7)
	50% Probability	75% Probability	90% Probability	
Early Stuart	41,000	66,000	101,000	105,000
Early Summer	783,000	1,601,000	3,047,000	3,800,000
Summer	2,612,000	4,343,000	6,984,000	5,200,000
Late	8,003,000	12,305,000	19,695,000	25,441,000
Total	**11,439,000**	**18,315,000**	**29,827,000**	**34,560,000**

The 2010 in-season estimates for each aggregate were greater than the p50 long-term average productivity forecast for the Early Summer-run, Summer-run, and Late-run timing groups (see table below). However, when compared to the long-term average productivity forecast, only the Late-run sockeye were greater than the 90% probability forecast.

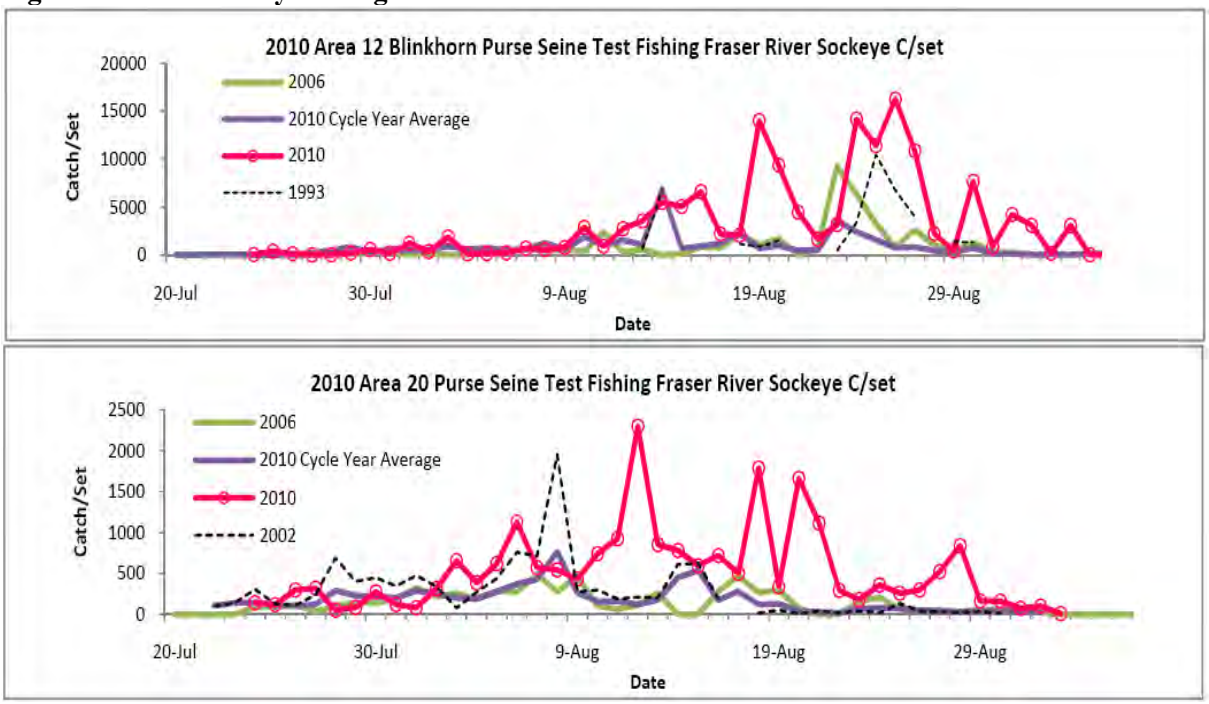
Table 8 Long-term Average Productivity Pre-season Forecasts vs. Final In-Season Estimates

Run	Pre-Season Forecast (long-term productivity)			Final In-Season Estimate (Sept 7)
	50% Probability	75% Probability	90% Probability	
Early Stuart	135,000	213,000	315,000	105,000
Early Summer	1,518,000	3,544,000	7,993,000	3,800,000
Summer	3,972,000	6,981,000	11,875,000	5,200,000
Late	8,364,000	12,803,000	20,741,000	25,441,000
Total	**13,989,000**	**23,541,000**	**40,924,000**	**34,560,000**

Diversion Rate

The diversion rate of sockeye through Johnstone Strait was much higher than forecast and was estimated to be ~72% (versus the 32% forecast). The diversion rate has a significant impact on harvest opportunities for domestic and international in-season fishery planning. The figure below describes 2010 test-fishery CPUE compared to historical CPUE in both approach areas over time. Some of the test catches in Johnstone Strait were the largest on record.

Figure 6 Test Fishery Average Catches in Area 12 and Area 20



Fisheries

There were considerable directed sockeye harvest opportunities for First Nations (FSC), commercial (including First Nations demonstration and economic opportunities), and recreational sockeye retention fisheries. Initially, sockeye harvest opportunities were restricted for all harvest groups based on the requirement for a four week moving window closure to protect Early Stuart sockeye and the early-timed Early Miscellaneous component of the Early Summer-run stock group. This moving window closure in the marine areas was lifted as of July 22 for First Nations harvesting and FSC harvest opportunity dates were identified as these stocks moved up river.

First Nations

The majority of First Nation FSC harvesting occurred from late July to early September with significant catches in most areas in relation to target harvest levels.

Commercial

Commercial fisheries occurred from early August to mid-September. Area B Seine and Area H troll fisheries were managed as individual transferable quota (ITQ) fisheries. Area D and E Gillnet fisheries were both managed as competitive, derby-style fisheries. Commercial fisheries occurred in Johnstone Strait, Juan de Fuca Strait, Strait of Georgia, and in the lower Fraser River.

First Nations economic opportunity and demonstration fisheries occurred at various locations in the Fraser watershed in 2010.

Recreational

Fraser sockeye recreational harvest opportunities were available from early August to the end of the sockeye return with the exception of in-river restrictions due to coho constraints.

The table below outlines final in-season estimates of Fraser River sockeye catch in Canada and the US. Not included in the table is by-catch mortality associated with releases of sockeye in FSC, commercial, and recreational fisheries directed at other species.

Table 9 Preliminary Post-season Estimates of Fraser River Sockeye Catch in Canada & Final In-season Estimates of Fraser River Sockeye Catch in the US

Total Fraser Sockeye Caught *	**13,609,000**
Test fisheries (incl. Albion and Qualark)	80,000
Canadian Catch	**11,585,000**
Canadian First Nation FSC fisheries- Marine	306,000
Canadian First Nation FSC fisheries- Fraser	540,000
Canadian commercial fisheries (includes commercial selective & FN economic)	10,450,000
Canadian recreational fisheries	289,000**
United States Catch	**1,970,000**
U.S. non-Treaty Indian fisheries	740,000
U.S. Treaty Indian fisheries	1,220,000
U.S. Treaty Indian ceremonial fisheries	10,000

* Catch as of Oct 28, 2010 with recreational fisheries updated Dec 10, 2010

** Not yet corrected for stock ID. Does not yet include estimates from the recreational fisheries in the Chilliwack/Vedder River, Stave River or Nicomen Slough.

Total Allowable Catch

The TAC for Fraser sockeye was calculated pre-season using the information that was available at the time: run size forecasts, escapement goals, management adjustment forecasts, and estimates of test fishing catches. In-season, fisheries are planned using in-season information and are not conducted based on pre-season forecasts.

There was a US payback of 4,300 Fraser sockeye in 2010.

In 2010 planning, the Early Summer-run TAC was planned to be caught incidentally during fisheries targeting the Summer-run and Late-run timing groups. As the season progressed the Early Summer-run TAC increased, and fisheries were opened to direct harvest on both Early Summer, Summer and Late-run sockeye. The following table shows the pre-season and final in-season international TAC and catch by aggregate.

Table 10 Final In-Season Estimates of Fraser River Sockeye Catch in Canada and US, based on last FRP in-season meeting on September 17, 2010

	Pre-season total TAC*	Final In-season total TAC*	Final In-season Catch
Early Stuart	0	0	6,000
Early Summer	260,720	1,710,800	1,225,000
Summer-run	1,522,760	2,789,500	2,310,000
Lates	3,659,880	11,673,860	9,548,000
Total	**5,443,360**	**16,174,160**	**13,088,000**

* TAC in this table includes the Canadian Aboriginal Fisheries Exemption amount of 400,000 fish.

The following table outlines the final in-season TAC and catch for each country as of October 28, 2010. Note the table does not include release mortalities associated with fisheries directed at other species.

Table 11 Final In-Season TAC and Preliminary Post-season Catch as of October 28, 2010. Recreational fisheries catch numbers updated December 10th. FSC catch numbers updated January 6th.

	Early Stuart	Early Summer	Summer	Late	Total
Test Fisheries[a]	2,400	22,000	18,000	29,000	72,000
U.S. Catch					
Commercial	260	224,000	384,000	1,356,000	1,964,000
C&S	20	3,300	3,700	3,000	10,000
U.S. Total	280	227,000	387,000	1,359,000	1,974,000
U.S. TAC [b]	0	274,970	421,870	1,902,280	2,599,120
CDN Catch					
Commercial	650	735,000	1,575,000	8,140,000	10,450,000
Recreational [d]	0	41,000	60,000	188,000	289,000
Other [c]	60	1,900	1,900	2,800	6,600
FSC [e]	2,700	220,000	333,000	290,000	845,700
CDN Total	3,400	998,000	1,970,000	8,621,000	11,591,000
CDN TAC	0	1,435,830	2,367,630	9,771,580	13,575,040

[a] Panel approved test fisheries
[b] 16.5% TAC – payback (4,300)
[c] Other catch is sockeye captured in multi-species non-Panel approved test fisheries (Albion and Qualark)
[d] Not yet corrected for Fraser/non-Fraser stock ID in marine recreational catches. Does not yet include estimates from the recreational fisheries in the Chilliwack/Vedder River, Stave River or Nicomen Slough.
[e] Preliminary stock ID only.

Fraser Sockeye Exploitation Rates

The table below outlines potential exploitation rates based on 2010 TAM rules and pre-season and in-season information as well as the actual observed preliminary post-season estimate of exploitation rates by aggregate and for Cultus Lake sockeye.

Table 12 Potential Exploitation Rates

	Pre-season	In-season TAM+MA*	Prelim. Post-season
EStu	0%	0%	6%
ESum	34%	45%	33%
Sum	58%	54%	45%
Late	46%	46%	40%
Cultus	20-30%	30%**	37%

* In-season allowable exploitation rates are based on the final in-season run size, MA and the 2010 TAM rules.
** Based on a large return of Late-run sockeye and the expectation of meeting or exceeding Cultus rebuilding objectives, a decision was made in-season to increase the exploitation rate above 30%.

Post-Season

Sockeye Migration and Escapement Estimates

Fraser River water temperatures were above average for the majority of the sockeye migration, but did not become extreme or appear to create significant en-route mortality. Even though the Fraser River temperatures exceeded levels that are thought to have impacts on fish health and migration (>18.0 °C) for almost a month, conditions on the spawning grounds were generally reported as good. Early in the migration, there was some increased pre-spawn mortalities noted at the Nadina River which has been an issue for a number of years. Overall, stock assessment staff indicated that fish condition on the spawning grounds was good.

The table below outlines projected escapement information relative to the escapement goals at the final in-season run sizes. Due to the late timing and large abundance of Fraser sockeye in 2010, the summary of preliminary spawning ground assessments for Fraser sockeye will not be available at the usual time of January 2011, but will be presented to the FRP at a later meeting.

Table 13 Preliminary Escapement Information to Date

Management Group	Escapement Goal (at final in-season run size)	Potential Spawning Escapement Target [a]	Projected Escapement [b]
Early Stuart	105,000	98,920	91,590
Early Summer-run	1,520,000	2,559,480	1,881,970
Summer-run	2,080,000	2,852,480	2,480,420
Late-run	10,176,400	15,388,660	11,399,010
Total	**13,881,400**	**20,899,540**	**15,852,990**

[a] Potential spawning escapement = total run size minus catch-to-date.
[b] Projected Escapements = (run size- catch)*(1-projected DBE)

Payback

The U.S. share shall be adjusted annually for harvest overage and underage in accordance with annual guidance provided by the Commission. The U.S. had a small payback of 4,300 sockeye from 2009 that was addressed in 2010.

Southern BC Mainland Pinks and Fraser River Pinks

Fraser River Pink

Pink salmon return to the Fraser River in significant numbers on odd years only; therefore, in 2010 there was a negligible number of pink salmon that returned to the Fraser River.

Southern BC Mainland Pinks

The even-year return of pinks is typically the dominant cycle year for most Mainland Inlet pink salmon systems. Since 2004, even year returns have demonstrated a declining trend in abundance opposite of what has been occurring in the odd year pink populations for this area. Expectations for 2010 were highly uncertain due to extremely variable returns throughout the historic time series.

The objective for managing these stocks was to meet target escapement levels. If surpluses were identified, then fisheries could be conducted terminally. Due to the low abundance monitored in season, targeted pink fisheries were not conducted for Mainland Inlet pink salmon.

As in 2009, the assessment plan entailed extensive visual coverage of the key Area 12 Mainland Pink systems with a focus on improved escapement and smolt studies. Flights over the Phillips River in Area 13 were also conducted in 2010.

Pink catch and release information from all fisheries can be found in Table 28.

First Nations

First Nations fishing opportunities for pink salmon were not restricted; however, there was little to no directed pink harvest in terminal areas this year. There is normally very little effort on Mainland Inlet pinks in terminal areas due to the availability of fishing opportunities in other more desirable locations such as Johnstone Strait.

Recreational

Recreational effort on Mainland Inlet pink stocks in the terminal areas is traditionally very low. Pinks are open year round at 4 per day, minimum 30 cm in size. In 2010, there were no mainland pink catch estimates due to budgetary constraints but catches in this area are typically low. The recreational catch of pink salmon in Johnstone Strait on mixed pink stocks was estimated to be 5,115.

Non-Tidal Sport

There were no targeted pink fisheries in non-tidal waters on Mainland Inlet pink stocks.

Commercial

There were no targeted commercial pink fisheries on Mainland Inlet pink stocks. Retention of pink salmon was permitted during commercial sockeye and chum fisheries in Johnstone Strait. The total commercial catch of pink salmon in Johnstone Strait from mixed pink stocks is estimated as 196,321 pieces; this includes catch estimates from both commercial directed sockeye and chum fisheries.

Stock Status

A fairly cautious approach to the in-season management was employed for 2010 due to the high variability in the returns over the years and the declining trend in abundance of even-year stocks since 2004 in the northern portions of the area. In keeping with plans for this year, there were no directed commercial fisheries on Mainland Inlet pinks.

Assessments of the 2010 returns in the northern portions of the area (Statistical Area 12) demonstrated replacement of the depressed 2008 brood returns. The 2010 returns stabilized the declining even-year trend in abundance for those systems. Strong even-year returns to systems in the Southern Portion of the area (Statistical Area 13) continued.

Preliminary 2010 pink escapement estimates for some key systems in the Statistical Area 12 Mainland Inlets are: Kakweiken 51,000 (34,000 brood), Glendale 16,000 (15,000 brood), Ahnuhati 4,200 (11,000 brood), Kingcome (index clear tributaries) 1,300 (2,000 brood) and Wakeman (index clear tributaries) 2,100 (3,600 brood). Monitored returns in Area 13 for Phillips were 287,000 (126,000 brood). These estimates are subject to change pending further post-season analyses.

Southern BC AABM Chinook

Objectives and Overview

Chinook fisheries are managed by either an AABM (aggregate abundance-based management) or ISBM (individual stock-based management) regime. Allowable harvest impacts in AABM areas are determined by provisions in the Pacific Salmon Treaty (PST) and subject to domestic considerations, such as conservation and allocation. In Southern BC, all AABM chinook fisheries are located off the WCVI, including components of the recreational fishery, First Nations fisheries, and the WCVI Area G troll fishery.

For the period October 2009 through September 2010, the forecast chinook abundance index was 0.96 of the PST base period. Therefore, under treaty provisions, the maximum allowable catch was 143,700 chinook for WCVI AABM fisheries; which includes a 30% reduction consistent with the new treaty provisions that came into effect in January 2009.
Of this total, 60,000 was the pre-season expected catch for the offshore recreational and First Nations fisheries. The remaining 83,700 Chinook were allocated to the WCVI troll fishery.

AABM chinook catch and release information from all fisheries can be found in Table 29.

Table 14 Pre-Season and Post-Season Total Allowable and Preliminary Catch Estimates for October 2009-September 2010 WCVI AABM Chinook

	Pre-Season	Post-Season
WCVI AABM Abundance Index	0.96	under review
WCVI AABM Chinook TAC	143, 700	under review
AABM Recreational Catch	55,000	52,698
First Nations Catch	5,000	5,839
Area G Troll Catch	**83,700**[a]	79,123
Total AABM Catch		**137,660**

[a] The total Area G troll TAC is calculated as the difference between the WCVI AABM chinook TAC less offshore recreational catch and First Nations FSC catch.

Recreational

Fishing regulations in WCVI recreational AABM areas include mandatory use of barbless hooks to lower post-release mortality on sub-legal size chinook (less than 45 cm), and a daily limit of two chinook. Additional conservation measures include the '77 cm maximum size limit', imposed in those portions of Areas 124-127 that lie shoreward of a line drawn 1-mile seaward of the surfline. This area is commonly referred to as the 'Chinook corridor', and is in place to protect migrating WCVI origin chinook. In 2010, in the area seaward of the 'Chinook corridor' recreational harvesters were permitted to retain 2 chinook per day with a minimum size limit of 45. In the 'Chinook Corridor' adjacent to Areas 24, 25, 26, and 27, recreational harvesters were permitted to retain 2 chinook between 45 and 77 cm in length per day. In the Chinook Corridor adjacent to Areas 21 and 23, recreational harvesters were permitted to retain 2 chinook per day of which 1 maybe larger than 77 cm.

Catch in the WCVI recreational fishery is estimated through a creel survey, which collects effort (number of boat trips), and catch per unit effort (CPUE) data. Catch for any given species within a defined time-area stratum is estimated by multiplying effort by CPUE. Total effort is estimated through vessel counts, gathered through either aerial or on-water boat surveys of the fishing area. CPUE is estimated from interviews with anglers at specific landing sites and from trip logbooks and manifests submitted by lodges and guides through a voluntary monitoring program. Data regarding the daily activity profile of the fishery, fishing locations, and the proportion of guided versus un-guided effort are also gathered from angler interviews.

Total recreational catch and release in the 2010 WCVI AABM fishery was approximately 52,698 and 44,576 chinook, respectively, during the survey period (June-Sept). There was some additional catch during winter fisheries that occurs in near-shore areas. However, catch was very low in the winter period because inclement weather deters anglers. Overall, previous sampling has indicated that there is virtually no effort during this period.

Figure 7 Recreational WCVI Chinook AABM Catch and Effort, 1995-2009

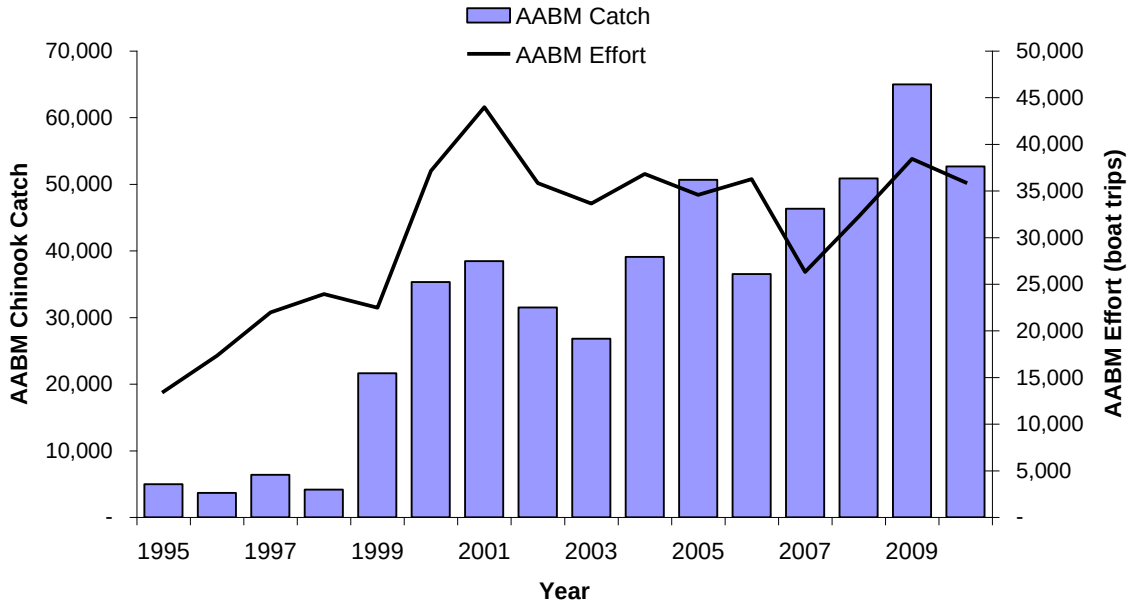


Table 15 Estimated WCVI Recreational AABM Effort, Chinook Catch, and Chinook Releases by PFMA, 2010

	Area	AABM Effort (Boat Trips)	AABM Chinook Catch	AABM Total Chinook Releases
Inshore	**Port Renfrew (21)**	350	314	14
	Alberni Inlet (23)	10,726	80	84
	Barkley Sound (23)	4,857	5,577	3,155
	Clayoquot (24)	449	-	75
	Nootka (25)	-	-	-
	Kyuquot (26)	-	-	-
	Quatsino (27)	515	499	266
Offshore	**Area 121**	918	3,306	1,371
	Area 123	6,946	21,761	15,618
	Area 124	4,179	8,566	5,091
	Area 125	1,485	2,391	1,001
	Area 126	1,590	4,094	14,263
	Area 127	3,580	6,110	3,639
WCVI	**Total**	35,595	52,698	44,576

First Nations

The 2010 First Nations AABM chinook catch was estimated to be 5,839.

Commercial

After the completion of the April 2010 CTC chinook model calibration, the AABM Canadian allowable harvest was 143,700. It was anticipated that the FSC harvest would be 5,000; and that the recreational catch would be 55,000, leaving 83,700 available to plan for commercial harvest by Area G troll.

For all troll fisheries, selective fishing practices were mandatory, including single barbless hooks and revival tanks for resuscitating non-retention species prior to release.

Since 1999, a major objective for the management of the WCVI troll fishery has been to distribute the catch throughout the fall-winter-spring-summer periods. This objective was continued in 2009/2010.

The August plug fishery was monitored to determine encounter rates of other species and estimate numbers of released chinook. Biological sampling was conducted for size distributions, and stock compositions (CWT, DNA and otolith samples).

Table 16 Post-Season Preliminary Monthly Catch Estimates for 2005/06 to 2009/10 WCVI AABM Chinook Troll Fisheries

	2009/2010	2008/2009	2007/2008	2006/2007	2005/2006
October	0	1,882	3,137	16,000	12,198
November	0	1,209	0	1,200	2,156
December	0	1,107	0	800	1,689
January	0	3,394	1,634	5,500	1,468
February	0	1,540	1,911	2,600	5,154
March	0	586	0	2,300	7,883
April	8553	3,616	1,717	5,200	20,561
May	31296	18,062	11,105	23,500	7,078
June	23652	12,165	15,944	25,000	20,807
July	0	0	0	0	0
August	11642*	9,630*	9,099*	0	886*
September	3980	0	45,157	6,000	24,098
Total	**79,123**	**53,191**	**89,704**	**88,100**	**103,978**

* Plug fishery

Southern BC ISBM Chinook

Objectives and Overview

In addition to the PST regime, Canada implemented management actions as required to ensure conservation of Canadian origin chinook and to meet domestic allocation requirements. These chinook fisheries were managed to harvest rates on an individual stock basis (ISBM).

Measures were taken in 2010 to protect WCVI, LGS, Spring 4_2 Upper Fraser River chinook stocks, and spring/summer-run 5_2 Fraser River chinook stocks. Specific management actions were taken to protect WCVI origin chinook in Canadian ocean fisheries (not including enhanced terminal areas), the harvest of which was restricted to an exploitation rate of 10%. Most Southern BC commercial fisheries were regulated so that impact on WCVI wild chinook stocks was minimized. Robertson Creek hatchery-origin chinook were harvested in the terminal area of Alberni Inlet by First Nations, recreational and commercial net fisheries.

LGS chinook stocks are experiencing a period of low productivity and management measures continued to be in place throughout 2010 to protect these stocks. As in recent years, recreational chinook non-retention areas and finfish closures were in place throughout the Strait of Georgia to reduce impacts at critical times and in key areas and commercial retention of chinook was not permitted in the Strait of Georgia and in Johnstone Strait.

In addition to these specific restrictions, in 2010 area and time closures were in place to protect returning Spring 4_2 Upper Fraser River chinook and spring/summer-run 5_2 chinook stocks during sport and commercial fisheries. There was a general requirement in all commercial fisheries to apply selective fishing techniques, including area and gear restrictions and the mandatory use of revival tanks. Catch monitoring included requirements for daily catch reporting, mandatory logbooks, hailing catches on a regular basis, and independent on-board observers on vessels when requested. Post-release mortality information for chinook included in ISBM management was determined from studies conducted in 2000-2001 and detailed in the Canadian Stock Assessment Secretariat, Research Document 99/128 (CSAS, Doc 99/128).

ISBM chinook catch and release information from all fisheries can be found in Table 29.

Recreational

West Coast Vancouver Island

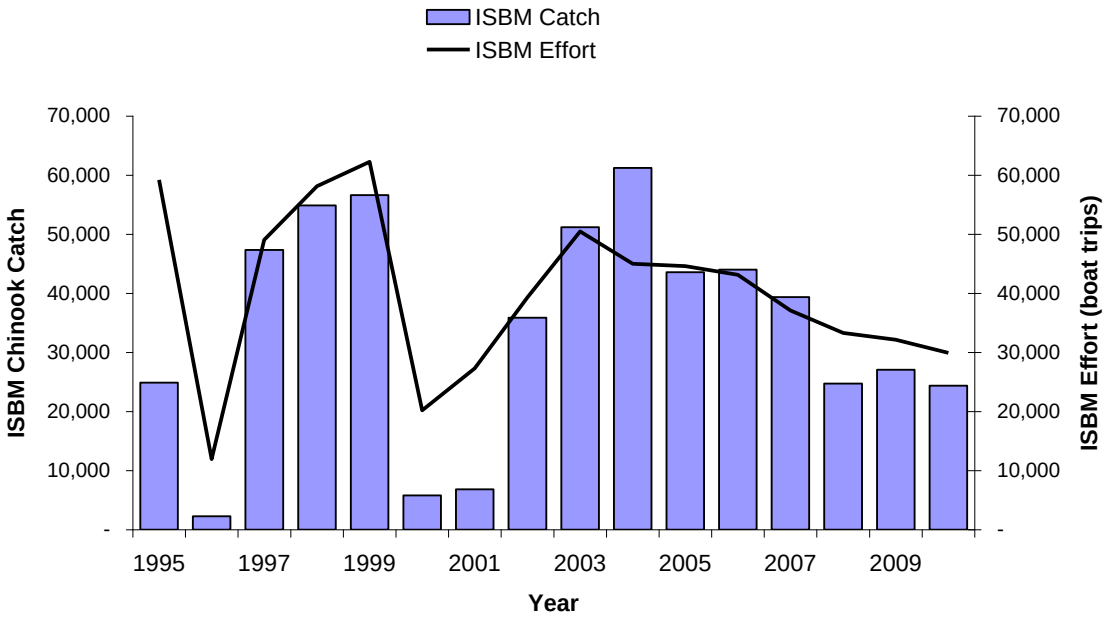
The WCVI ISBM chinook sport fishery was regulated using minimum/maximum size limits, possession limits and area closures to reduce impacts of the recreational fishery on natural (un-enhanced) WCVI chinook stocks. Daily limits were two chinook per day. Regulations in 2010 required chinook retained within the chinook corridor (one nautical mile seaward of the surfline) to exceed a minimum fork length of 45cm, and be smaller than the maximum size limit of 77cm. This restriction was in effect commencing July 15th for those waters north of Estevan Point and commencing August 1st for those waters south of Estevan Point. However, retention of chinook greater than 77cm was permitted in some terminal areas with a high percentage of returning hatchery origin fish. Area restrictions include areas "closed to salmon fishing" or "closed to all fin fishing", depending on the vulnerability of local stocks of concern. These closed areas continued in 2009.

Total recreational chinook catch for the 2010 WCVI ISBM fishery was approximately 24,346 fish, which is a decrease from the 2009 catch of 33,135 chinook. The 2010 effort was 29,938 boat trips which is a decrease from the 2009 effort level of 37, 447 trips.

Table 17 Estimated WCVI Recreational ISBM Effort, Chinook Catch and Release by PFMA, 2010

	Area	ISBM Effort (Boat Trips)	ISBM Chinook Catch	ISBM Total Chinook Releases
Inshore	**Port Renfrew (21)**	555	314	-
	Alberni Inlet (23)	5,301	1,097	37
	Barkley Sound (23)	10,968	8,773	2,526
	Clayoquot (24)	342	-	28
	Nootka (25)	9,208	10,867	6,187
	Kyuquot (26)	299	370	747
	Quatsino (27)	3,265	2,925	2,236
Offshore	**Area 121**	-	-	-
	Area 123	-	-	-
	Area 124	-	-	-
	Area 125	-	-	-
	Area 126	-	-	-
	Area 127	-	-	-
WCVI	**Total**	29,938	24,346	11,761

Figure 8 Recreational WCVI Chinook ISBM Catch and Effort, 1995-2010



Inside Areas: Strait of Georgia, Johnstone Strait, and Juan de Fuca Strait

For Johnstone Strait and the Strait of Georgia north of Cadboro Point, sport catch regulations included an annual limit of 15, a daily limit of two and a minimum size limit of 62 cm. For the Canadian portion of Juan de Fuca Strait south of Cadboro Point, the daily limit was two chinook over 45 cm and a seasonal limit of 20 chinook was in effect.

In those waters near Victoria between Cadboro Point and Sheringham Point (Areas 19-1 to 19-4 and Area 20-5), retention regulations were adjusted from March 1 to June 18 to minimize the harvest of wild, Spring and Summer (stream-type or yearling) chinook stocks of concern returning to the Fraser River. Recreational harvesters were permitted to retain two chinook per day which may be wild or hatchery marked between the size limit of 45cm and 67cm or hatchery marked only chinook over 67 cm in length. From June 19 to July 15 the daily limit remained at two chinook with only one chinook over 67 cm in length.

In addition a "chinook corridor" extending from Subareas 18-1 to 18-6, 18-9, 18-11, 19-5 and a portion of 29-4 and 20-5 that lies south from a point on the east side of Valdes Island and extending 57 degrees True for 5 nautical miles was also implemented in 2010. In this corridor the daily limit was two chinook with a minimum size of 62 cm of which only one over 67 cm from June 3 to July 15.

Fraser River and tributaries

Fraser River Spring 4_2 Chinook stocks of concern entering the Fraser River in Subareas 29-6, 29-7, 29-9 and 29-10 required additional management measures. Starting May 1 to July 15 the daily limit for chinook was zero. The daily limit was increased to two wild or hatchery marked fish between 62 cm and 77 cm from July 16 to 29. From July 30 until December 31, the daily limit for wild or hatchery marked chinook salmon is two (2) with a minimum length of 62 cm.

In the tidal (Subareas 29-11 to 29-17) and the non tidal areas (Region 2) of the Fraser River, the daily limit for chinook was zero from May 1 to July 15th. From July 16 to 29 the daily limit was one (1) wild or hatchery marked chinook, between 30 cm and 77 cm. From July 30 to August 31 the daily limit for wild or hatchery marked chinook salmon was four (4) with only one over 50 cm. From September 1 to December 31, the daily limit for wild or hatchery marked chinook salmon was four (4) with only one over 62 cm.

In addition, there were several tributaries to the Fraser River in which Chinook retention was authorized including:

- Allouette River, daily limit of one (1) chinook from July 1 to March 31.
- The Chehalis River, daily limit of four (4) with only one over 50 cm from June 1 until August 10 and again from September 16 until December 31, a daily limit of four (4) chinook with only one over 62cm.
- The Chilliwack/Vedder River, daily limit of four (4) with only one over 62 cm from July 1 until December 31
- The Harrison River, daily limit of four (4) with only one over 62 cm from September 1 until December 31

In 2010 marine recreational fisheries were monitored by creel surveys in three main areas; 1) Juan de Fuca including Victoria (south of Cadboro Point) and Juan de Fuca Strait through PFMA 20-1; 2) Strait of Georgia including Areas 14 through 18, that portion of Area 19 north of Cadboro Point, 28 and 29; and 3) Johnstone Strait including Areas 11 to 13. Monitoring of the Strait of Georgia sport fishery (April to October) and Juan de Fuca Strait sport fishery (January to December) has been fairly consistent from year to year using an access point (landing site) survey for collecting catch, CPUE, and biological information combined with an aerial survey for effort counts. The Johnstone Strait creel survey commenced in Area 13 in June and continued through until end of September; and from June through August to include Areas 11 and 12.

Overall, effort in the Strait of Georgia decreased by about 9% from 2009 to 2010. The corresponding catch increased by 62 chinook. As part of these creel surveys, encounter rate information was also collected for legal and sub-legal chinook and coho (Table 18)

Table 18 Preliminary Catch and Effort Estimates for Southern BC Inside Recreational ISBM Fisheries in 2010.

Fishing Area	Survey Period	Chinook Kept	Chinook Released	Effort (Boat Trips)
Strait of Georgia	May - Sep	5,785	9,602	35,010
Johnstone Strait	Jun - Aug	18,123	14,026	34,190
Juan de Fuca Strait	Mar - Sep	14,573	4,094	34,870
Fraser River [1]	Jul - Oct	9,433	1,784	n/a
TOTAL		**47,914**	**29,506**	**104,070**

[1] subject to change; Fraser River recreational assessments ongoing

First Nations Fisheries

WCVI FSC and Economic Opportunity Fisheries

No agreement was reached in 2010 with the Hupacasath and Tseshaht First Nations for an economic opportunity fishery targeting Somass chinook (Area 23). Hupacasath and Tseshaht First Nations and Barkley Sound / Alberni Inlet WCVI First Nation's catch reports indicate a combined ISBM FSC chinook harvest of 2,000. Outside WCVI First Nations ISBM catch is estimated at 70 for a total WCVI ISBM catch of 2,070.

Strait of Georgia FSC Fisheries

Data are still being compiled on various First Nations catches in the Strait of Georgia; however, preliminary catch is estimated at 40 chinook. There were no economic opportunity fisheries.

Fraser River FSC, Economic Opportunity and Demonstration Fisheries

FSC fisheries, as well as economic opportunity fisheries and demonstration fisheries took place in the Fraser River in 2010 harvesting ISBM chinook in the both the upper and lower reaches of the Fraser River. Approximately 2,641 chinook were harvested by First Nations in the upper river including FSC (1,885) and demonstration (756) fisheries. Approximately 16,121 chinook were harvested in the lower river including FSC (11,693), economic opportunity (4,276) and demonstration (152) fisheries. Total chinook harvest in all of these fisheries is estimated at 18,762.

Commercial Fisheries

In 2010 commercial gill-net fisheries in Tlupana Inlet (Nootka Sound) targeted ISBM chinook. There were no directed commercial gill net or seine fisheries in Alberni Inlet or Barclay Sound.

Area B Seine

In 2010, no seine fisheries occurred on WCVI ISBM chinook. Abundance of Robertson Creek hatchery chinook was low and no commercial fisheries were planned on this stock for 2010.

Area D gill net

In 2010, gill-net fisheries occurred in Tlupana Inlet. These fisheries targeted chinook returns to Conuma River hatchery. On August 16, 17 and 18 there were Area D gillnet openings in Tlupana Inlet. The total chinook catch in that fishery was 1,735. Maximum effort was 14 vessels per day.

The total WCVI commercial net ISBM harvest was 1,735 chinook.

Stock Status

Fraser River and Area Chinook

Interior Fraser

Spring chinook returns to the Fraser continue to be of concern. Returns to the Spring 1.3 (stream-type or yearling) aggregate were mixed, and mostly below parental escapements. While final estimates are not yet available, aggregate, returns were approximately 80% of the parental brood. Returns to the Spring 1.2

aggregate were also mixed, with most populations failing to achieve parental escapements, while Nicola slightly exceeded brood-year returns.

Yearling (stream-type) summer chinook returns were also modest and on average, were roughly as abundant as the parent brood year escapements. Estimated Nechako escapements (7208) were over twice the parental brood, however Chilko (6345) and Quesnel (2319) averaged about 75% of parental escapements, while Clearwater (1102) was very poor, and only 31% of the parental brood. In contrast, the late South Thompson ocean-type aggregate was relatively strong again, and while performance of escapements also varied considerably, in aggregate, levels were roughly equivalent to those of the parental brood. South Thompson declined from brood (76,500), whereas Lower Adams (9,960) and Lower Shuswap (56,000) both exceeded parental escapements.

Lower Fraser River

Spring Run: Lower Fraser Spring chinook returns were also mixed. Returns to Birkenhead River (1,520) was similar to the parental escapements and substantially improved over 2009 (625). Escapement data for the upper Pitt River (Blue Creek) is unavailable at this time.

Summer-run: Summer-run chinook returns to Maria Slough were assessed visually in 2010. The escapement of ~620 is almost double that observed in the parental brood year (314). Information for other summer populations is not available at this time.

Fall-run: Annual lower Fraser River fall-run chinook stock group escapements are, on average, large (>100,000). The major contributor and principal focus of assessment of this stock group is chinook returning to the Harrison River, and Harrison River transplants to the Chilliwack River. For both the Harrison and Chilliwack Rivers, the field study portions of the escapement assessments are complete; however, analyses are ongoing. Extreme weather events and fluctuating water levels in these systems make in-season assessments difficult. Preliminary escapement estimates are not yet available.

Howe Sound/Squamish River

No information is available at this time.

Burrard Inlet

No information is available at this time.

Boundary Bay

No information is available at this time.

Strait of Georgia Chinook

Fall Stocks

Total returns to Strait of Georgia streams north of Nanaimo, virtually all of which are enhanced, have been stable for the last seven to ten years (Puntledge and Englishman) or eighteen years (Big Qualicum and Little Qualicum). In general 2010 chinook escapements were higher in the northern part of the Strait than the last 10 years and lower in the southern part of the Strait than the last 10 years.

On the mainland side of the northern Strait of Georgia, Sliammon and Lang hatcheries continue to have variable returns, however, in the last two year returns to Lang have been stronger than in previous years. There are a few very small wild populations remaining in the Theodosia and Skwakwa rivers, and those rivers entering Jervis Inlet, where assessment data are poor or not available. Historically, a large proportion of the chinook stock aggregate originating from rivers north of Nanaimo migrates into central and northern BC and Alaska. Exploitation rates on this stock aggregate have gradually been reduced over the last 15 years, thus the stable trend in annual returns to rivers over this period suggests a reduction in marine survival.

In the southern Strait of Georgia, returns to the Nanaimo River have been generally stable since 1995 at slightly higher levels than those recorded back to 1975. The area of most concern is further south, where chinook stocks returning to the Chemainus, Cowichan, and Goldstream Rivers have experienced continued declines. Unlike the central and northern Strait stocks, these southern populations historically rear within the Strait of Georgia. However, there appears to be an increasing proportion rearing off the west coast of Vancouver Island.

In particular, Cowichan River chinook (a wild chinook indicator stock) has been in decline since 1995-1996. The status of this population continues to be a stock of concern. Exploitation rates on Cowichan chinook were historically high (averaging 80-90%), declined to a low of 34% on the 1995 brood year, and then have steadily increased to 75% on the 2000 and 2001 brood years. Various harvest restrictions have been put into effect over the last 20 years to reduce exploitation on Strait of Georgia chinook. Additional conservation measures were introduced in 2005 to reduce the harvest of Cowichan chinook by the Strait of Georgia sport and WCVI troll fisheries. First Nations harvest of Cowichan chinook has been substantially reduced in recent years. The declining returns to various southern Strait of Georgia rivers are attributed to high exploitation rates, a drastic decline in marine survival, and in some cases, freshwater habitat issues.

In 2010 there was an unexpected increase in the number of chinook returning to the Cowichan River. A preliminary estimate of the freshwater entry is 2,000 adult and 1,400 jack chinook. Of these approximately 370 adults and 50 jacks were used for brood and about 1,200 adults and 1,100 jacks were estimated to spawn naturally. The number of Chinook caught in local FSC fisheries has not been reported yet. The high number of age 2 jack chinook in 2010 indicates that the 2011 escapement should be similar to this year.

Spring/Summer Stocks

Of the three early runs in the Strait of Georgia, assessment data are available for Puntledge and Nanaimo; the Cowichan summer run still exists but it is small and quantitative data are not available for that stock. Efforts to recover Puntledge Summers to viable levels have resulted in improved returns to the river since 1999. The 2006 and 2007 natural spawning escapements range from 200 - 500 adults (not including brood capture), which is down from the record high in 2005 of approximately 2,500 adults, but substantially higher than escapements recorded in the previous decades. The preliminary estimate for 2010 escapement is approximately 1,285 adults (including 480 brood removals) which is similar to the previous year. Of concern is the exploitation rate which climbed sharply from a low of approximately 30% in 2001 to 55-60% in 2003-2004. Monitoring of Nanaimo spring and summer chinook escapement has occurred less frequently. This year's escapement is estimated to be around 400 Chinook adults and 100 jacks which is about average for the last 15 years.

West Coast Vancouver Island Chinook

The status of WCVI origin chinook has remained low for several years. Those populations that are not enhanced have remained well below target or declined since major El Nino events in the mid 1990s. Populations in the SWVI area (e.g. Area 24 and southward) tend to be lower status than those populations in NWVI.

2010 salmon escapement estimates from extensively surveyed WCVI streams are preliminary. Observations indicate escapement to NWVI systems were about recent year averages whereas SWVI systems were well below average. In particular, escapements to Clayoquot Sound (Area 24) remain very low. In two un-enhanced systems in Clayoquot Sound (Megin and Bedwell-Ursus) less than 100 spawners were observed. There was some improvement to the Nahmint River (Area 23); probably resulting from enhancement efforts in the 2006 brood year.

For WCVI hatchery stocks, the terminal return is defined as total catch (First Nation, recreational and commercial) in the near approach areas of the hatchery plus escapement (brood collection plus natural spawners). In these approach areas, catch is dominated by the hatchery stock (e.g. >95%), therefore, higher exploitation rates are permitted than in times and areas dominated by naturally produced WCVI chinook stocks.

The preliminary total terminal return of Stamp River/Robertson Creek hatchery chinook was approximately 40,000 adults, similar to the pre-season forecast of 43,000. The preliminary escapement through Stamp Falls was 25,000 adult chinook (expected to increase slightly as data are reviewed). The total terminal return to the Conuma River hatchery system was about 30,000. The total terminal return to the Nitinat River hatchery system was about 6,000. (All data are still being reviewed.)

Johnstone Strait/Mainland Inlet Chinook

Currently only two systems are monitored consistently in Areas 12 and 13. The Nimpkish River is assessed using standardized swim surveys and stream walks by hatchery staff and an intensive mark-recapture program is carried out by Quinsam Hatchery to estimate escapement on the Campbell/Quinsam system. Other systems are covered using intermittent visual surveys.

Nimpkish River

Preliminary observations from swim surveys indicate a continued low abundance of Chinook to the Nimpkish Watershed, similar to recent years. At this time, the hatchery is in the process of obtaining their brood stock. Final estimates are not available at this time.

Campbell/Quinsam System

River levels increased in the Quinsam during the last week of October and remained higher than normal for the duration of the later fall. Early removal of the floating fence was required, and coupled with decreased Chinook abundance both mark-recapture and brood stock collection programs were hampered. Quinsam Hatchery's Chinook brood target was not achieved, which will affect the Elk Falls Channel in stream incubators, but not core production targets at the facility. Females were large this year, with higher fecundities which may increase the eyed egg inventory. Chinook are also holding and spawning lower in the Quinsam River, possibly attracted to new natural depositions of gravel occurring from large flood events in the fall and winter of 2009/10. Preliminary Chinook estimates indicate a return of approximately 4,320 to the Campbell/Quinsam system, the lowest return since 1997 and below the

historical average for this key stream program. Abundance decline is most likely attributed to the effects of the poor marine conditions of 2007 on the normally strong age-4 component of this run. Increases in the proportion of spawners on the Campbell has occurred in recent years with increased utilization of upper river areas; results of enhancement and restoration efforts.

Southern BC Coho

Objectives and Overview

In 2010 the abundance forecast indicated that the status of Interior Fraser River (including Thompson River) coho remained critically low. The lower Fraser, Georgia Basin (east and west), and the Johnstone Strait coho management units were all forecast as either critically low or low status.

In 2010, Interior Fraser coho were a primary concern when implementing fisheries. Under the Abundance Based Management provisions in the Pacific Salmon Treaty, the US was limited to a maximum 10% exploitation on Interior Fraser coho. In Canada, the management objective for these coho was to limit the total mortality to a ceiling of 3% across all Canadian fisheries. The total exploitation on Interior Fraser coho was therefore limited to a maximum of 13%.

To ensure this limit was not exceeded in Canadian fisheries, retention of wild "unmarked" coho was not permitted in all recreational and commercial fisheries operating in areas of southern BC where Interior Fraser coho were known to be prevalent. Wild coho retention was permitted in some terminal areas along the west coast Vancouver Island (WCVI), in the Mainland Inlets, and in a small portion of upper Johnstone Strait, and Queen Charlotte Strait.

Table 19 Preliminary coho estimates of the recreational, First Nations (FSC, economic opportunity and ESSR), and commercial fisheries for Southern BC in 2010

	Kept	Released
Recreational	21,531	31,236
First Nations	39,269	1,401
Commercial	2,042	22,960
Total	**62,842**	**55,597**

Coho catch and release information from all fisheries can be found in Table 31.

Recreational

Sport fisheries can be categorized as occurring in mixed stock areas where specific coho stocks (such as Interior Fraser coho) could not be avoided and terminal areas where local stocks dominate the catch. The table below outlines the areas in Southern BC where these mixed stock fisheries occurred and the general regulations pertaining to them.

Table 20 Southern BC coho fishery regulations in 2010

Mixed stock fishing area	Daily Limit (marked or unmarked)	Size Limit	Coho Season
WCVI offshore areas 121-127 and areas 21 and 26	2 marked	30 cm.	Jun 1 – Aug 31
WCVI offshore areas 121-127 and areas 21 and 26	4 marked	30 cm.	Sept 1 – Dec 31
WCVI inshore area 23,24,25 and 27	2	30 cm.	Jun 1 – Aug 31
WCVI inshore area 23,25,and 27	4	30 cm.	Sept 1 – Dec 31
WCVI inshore area 24	4, 2 may be wild	30cm	Sept 1 – Dec 31
Juan de Fuca: areas 19-20	2 marked	30 cm.	Jun 1 – Dec 31
Strait of Georgia: areas 13-19, 28, portions of 29, excluding some terminal areas and times.	2 marked	30 cm.	June 1 – Dec 31
Johnstone Strait – Queen Charlotte Strait: all areas	2 marked	30 cm.	June 1 – Dec 31

The table below outlines coho catch and release information for recreational coho fisheries in Southern BC. The WCVI coho fisheries had a boundary in place distinguishing coho catch in the mixed-stock fishery (outside the coho boundary) and catch in the terminal area (inside the coho boundary).

Table 21 Recreational coho catch and effort estimates for Southern BC in 2010

Area	Kept	Released	Effort (Boat Trips)
WCVI – Outside Coho Boundary	6,637	12,680	
WCVI – Inside Coho Boundary	8,119	3,059	79,750*
Strait of Georgia (Jun – Sep)	1,465	3,900	35,010
Fraser River [1]	106	658	NA
Juan de Fuca (Jan – Sep)	1,157	2,014	42,450
Johnstone Strait	4,047	8,925	34,190
TOTALS	**21,531**	**31,236**	**172,950**

[1] subject to change; Fraser River recreational assessments ongoing

* Combined effort data for WCVI inside and WCVI outside coho.

Mixed Stock Areas

In 2010, hatchery selective mark fisheries (SMF) fisheries in southern BC allowed hatchery coho retention starting June 1st in most areas.

Release of wild "unmarked" coho was required in all sport fisheries operating in areas of southern BC where Interior Fraser River coho were known to be prevalent, including the mixed stock areas of the WCVI (Statistical Areas 21-27, 121-127), Strait of Juan de Fuca (Statistical Areas 19-20), Strait of Georgia (Areas 14-19, 28, 29), and the majority of Johnstone Strait and Queen Charlotte Strait (Statistical Areas 11, 12 and 13). Some wild "unmarked" retention opportunities were provided in terminal areas of WCVI and Areas 11,

12 and 13 with catch limit, time and area constraints (Details in Pacific Region Integrated Fisheries Management Plan, Salmon Southern B.C. 2010). In addition, the use of barbless hooks was mandatory in all these areas.

West Coast Vancouver Island

In offshore and rearing areas off the WCVI, SMF regulations are in effect in order to protect weak coho stocks of concern, such as those originating from the Interior Fraser River. The daily limit is 2 marked coho (i.e. hatchery-origin coho with an adipose clip). For 2010, total catch in offshore areas was estimated at 6,637 kept and 12,680 released.

Inside Areas: Strait of Georgia, Juan de Fuca Strait, and Johnstone Strait

Recreational catch monitoring occurs year-round in portions of the Strait of Georgia but operates mainly from May-October. Coho catch, release, and mark rates are derived from two main sources; creel surveys and guide logbooks. The total coho catch in Strait of Georgia mixed stock and terminal areas was approximately –Strait of Georgia– 1,465 kept and 3,900 released, , Juan de Fuca Strait– 1,157 kept and 2,014 released, Johnstone Strait– 4,047 kept and 8,925 released.

Terminal Fishing Areas

West Coast Vancouver Island

In WCVI terminal fishing areas, retention of adipose clipped hatchery origin coho was permitted as well as retention of wild "unmarked" coho in some portions of inshore areas where WCVI origin stocks dominate (portions of Port San Juan (Area 20), Alberni Inlet and portions of Barkley Sound (Area 23), portions of Clayoquot Sound (Area 24), portions of Nootka Sound and Esperanza Inlet (Area 25), and portions of Quatsino Sound (Area 27). Where retention of wild coho was permitted, the seasonal daily limit was 2 coho after June 1st with the exception of portions of Alberni Inlet, Tlupana Inlet and Nitinat Lake (Tidal) where the daily limit was increased to 4 coho after August 1st. In 2010, the total coho catch from the inshore WCVI terminal area was approximately 8,119 kept and 3,059 released.

Strait of Georgia

Terminal coho SMF were implemented in most areas in the Strait of Georgia in 2010 where impacts on other species or stocks were not a concern. In some of these areas special management actions, including changes in daily limits or size limits, were implemented depending on the situation.

Non-Tidal Recreational Fisheries

Strait of Georgia

During 2010 there were limited non-tidal openings throughout the Strait of Georgia. Directed coho opportunities were permitted in the Big and Little Qualicum River and in the Cowichan River.

Johnstone Strait

In Johnstone Strait, non-tidal openings for coho were available on:

- Big Qualicum River from October 27th of March 31st for three (3) per day, one which could be over 35 cm.
- Campbell/Quinsam River from October 1st to December 31st for four (4) coho/day, two (2) of which could be hatchery marked over 35 cm.
- Cluxewe River from January 1st to December 31st for two (2) per day, hatchery marked only.
- Nahwitti River from January 1st to December 31st for one (1) per day.
- Nitnat River from October 15th to December 31st for two (2) per day.
- Quatse River from June 15th to March 31st for two (2) per day, hatchery marked only.

The Qualicum River was originally opened for Coho retention (four (4) per day, two (2) over 35 cm.) from June 16th to December 31st but was closed to Coho retention on September 18th due to expected low returns, however it was re-opened October 27th (only the Big Qualicum River, not the Little Qualicum River which remained closed) when returns were deemed to be adequate for a recreational fishery (see above).

West Coast Vancouver Island

Somass/Stamp

During 2010 there was a non-tidal opening for the Somass/Stamp Rivers (Area 23) from August 25, 2010 to December 31, 2010. The daily limit was four salmon per day. Anglers were allowed to retain two coho (marked or unmarked) and two chinook (of which only one may be greater than 77cm in length). The Somass/Stamp Rivers were not monitored by creel survey during 2010.

Nitinat

During 2010 there were two non-tidal openings for the Nitinat River (Area 22) from August 25, 2010 to September 30, 2010. The daily limit was two Chinook salmon per day of which only one may be greater than 77 cm in length. The fishery closed from October 1 until October 14. It re-opened from October 15 until December 31. This 2 week closure provided protection to chinook salmon during the peak spawning period. After the closure, the daily limit for salmon was 4; anglers were allowed to retain two coho (marked or unmarked) and two chum salmon. The Nitinat River was not monitored by creel survey during 2010.

Conuma

During 2010 there was a non-tidal opening for the Conuma River (Area 25) from August 25, 2010 to December 31, 2010. The daily limit was four salmon per day. The Conuma River was not monitored by creel survey during 2010. Anglers were allowed to retain two coho (marked or unmarked) and two chinook (of which only one may be greater than 77cm in length).

Fraser River and Tributaries

During 2010 the retention of 2 hatchery marked coho per day was authorized in the lower Fraser River up to Sawmill Creek. Due to the migration timing of Interior Fraser coho the openings were scheduled to occur once the majority of this coho population was through the area. A description of the areas in the Fraser River which were open to the retention of hatchery marked coho follows with the corresponding opening dates.

From the CPR Bridge at Mission, BC upstream to a line drawn between two triangular white boundary signs located on opposite sides of the Fraser River approximately 3 km upstream of the confluence with the Harrison River (downstream of Jesperson's Bar). Open from October 12th to December 31st.

From a line drawn between two triangular white boundary signs located on opposite sides of the Fraser River approximately 3 km upstream of the confluence with the Harrison River (downstream of Jesperson's Bar) upstream to the Highway #1 bridge at Hope. Open from October 12th to December 31st.

From the Highway #1 bridge at Hope to Sawmill Creek. Open from October 18th until December 31st.

There are no directed coho openings in the Fraser River or tributaries upstream of Sawmill Creek.

In addition, the following tributaries to the Fraser River allowing a daily retention of one (1) hatchery marked coho were open from October 1st to December 31st: Alouette River, Coquitlam River, Serpentine River, and Nicomekl River.

The following tributaries to the Fraser River allow a daily retention of four (4) hatchery marked coho from July 1, 2010 to March 31, 2011: Chilliwack River and Chehalis River.

The following tributaries to the Fraser River allow a daily retention of four (4) hatchery marked coho, with only two (2) over 35cm from January 1st to December 31st: Nicomen Slough, Norrish Creek and Stave River.

First Nations Fisheries

Somass Economic Opportunity Fishery

Tseshaht and Hupacasath First Nations did not have an economic opportunity fishery for chinook, coho and chum in 2010. There were directed FSC fisheries on both coho and chum salmon in upper Alberni Inlet from mid-September through October. The total coho catch in these fisheries was 1,937.

The remainder of the WCVI First Nations in fisheries statistical Areas 21 to 26 had not reported coho catch at the time of this report.

Lower Fraser

Total FSC, EO and ESSR catch in 2010 for the Lower Fraser River was 39,269 coho, the majority of which was caught in ESSR fisheries (30,183).

Strait of Georgia

Data are still being compiled on various First Nations catches in the Strait of Georgia; however, the total preliminary catch is estimated to be 2,200 all of which was caught in FSC fisheries. There were no economic opportunity fisheries.

Commercial Fisheries

In 2010, Southern BC commercial fisheries were generally regulated so that impacts on coho, and especially Interior Fraser coho stocks, were minimized. Terminal opportunities to retain coho by-catch

during directed chinook and chum fisheries were available to Area B seine, Area D gill net and Area G Troll.

WCVI Terminal Area Coho

In 2010, commercial gill-net and seine fisheries occurred in Alberni Inlet while only gill-net fisheries occurred in Tlupana Inlet. These fisheries when targeting sockeye or hatchery chinook returns encounter and retain coho by-catch. In 2010 the total coho by-catch in commercial sockeye and chinook net fisheries on the WCVI was 80 retained and 40 released.

In years of chum abundance, coho by-catch is also retained in targeted chum gill-net fisheries on the WCVI in Fisheries Statistical Areas 23, 24 and 25. In 2010 the total coho by-catch in directed chum fisheries in Areas 23 and 25 was 682.

Area G troll fisheries were permitted to retain incidentally caught SHM coho in October 2009 and in any fisheries that would occur until January 2010 and from the middle of September until the end of September 2010. For the 2009/10 AABM chinook fishing periods, the estimated total coho retained was 458 and releases during this period were estimated at approx. 2,847.

Stock Status

Upper Fraser

Field programs to estimate escapements are still underway, and only very preliminary results are available for some systems. Early returns to the Interior Fraser River indicate an improvement over 2009 returns and are likely at levels similar to the 2007 parent brood escapements. Very preliminary data indicate returns to the entire Interior Fraser River may range between 40,000 and 80,000; however, preliminary estimates are not yet available, and near final estimates will not be available until late January or early February, as many field studies are not yet completed.

Lower Fraser

Field programs to estimate escapements are still underway, and only very preliminary results are available for some systems. Early returns to the Interior Fraser River indicate an improvement over 2009 returns and are likely at levels similar to the 2007 parent brood escapements. Very preliminary data indicate returns to the entire Interior Fraser River may range between 40,000 and 80,000; however, preliminary estimates are not yet available, and near final estimates will not be available until late January or early February, as many field studies are not yet completed.

Lower Fraser River

Escapement studies are currently underway, and many populations have not reached peak spawning at the time of writing. Preliminary escapement estimates for the surveyed systems should be available by late February, 2011.

A hatchery coho indicator stock is provided by Inch Creek Hatchery. Adult escapement is assessed annually and marine survival and exploitation rates are calculated, these estimates are not yet available. Adult coho visual surveys are conducted for a number of systems within the lower Fraser River sub-area as part of multi-species assessments; however estimates are not yet available as the field programs will not be complete until late January or early February.

Howe Sound/Squamish River

Assessments for Howe Sound and Squamish River are incomplete at this time. Staff at the DFO Tenderfoot Hatchery will be taking brood stock until February, 2011.

Burrard Inlet

An assessment of the returns to DFO Capilano Hatchery is not yet complete. The 2010 abundance and status of this stock group is not known at this time.

Boundary Bay

Community-run SEP projects contribute significantly to coho returns to this sub-area. The 2010 data will not be available until late February 2011.

Strait of Georgia

The observed 2009 marine survivals for hatchery Coho were higher than the previous year (0.4% - 1.3% hatchery) and much higher for wild Coho (2.8% – 3.8%) These levels are approximately at replacement levels. The forecast models predicted continuing low levels of marine survival in 2009, 0.4% - 0.8% for hatchery stocks and 1.7% - 4.8% for wild stocks. This regime of low marine survivals has been observed since the early 1990s.

Hatchery Stocks

The preliminary 2010 coho escapement estimates of monitored hatcheries show a continuation of increasing escapements from the low returns in recent years. Escapements to northern Strait of Georgia stocks (Puntledge, Qualicum, Lang) are average to higher over the short term. Escapements to southern Strait of Georgia stocks (Nanaimo, Goldstream) are below the short term average but improving over the last couple of years. These stocks are slowly increasing over the brood year escapements.

Wild Stocks

There are two wild indicators in the Strait of Georgia, at Black Creek and Myrtle Creek.

Myrtle Creek

The 2010 Myrtle Creek project is ongoing and results are not available for another month. The escapement is expected to be similar to 2009 (13 adults, which is similar to previous years). A spawning habitat project was started this year to augment the limited spawning habitat in this creek and will continue through 2011. The 2010 forecast of marine survival is 4.8%

Black Creek

The 2010 Black Creek Adult project is close to completion; fence counts have concluded and dead-pitch is ongoing. The preliminary escapement looks to be greater than 2009 with a fence count of a little over 3,500 adult coho (2nd highest escapement since 2000). The 2010 escapement looks to be part of a continuing trend of increased escapements over the past couple of years. The preliminary 2010 forecast of marine survival is 4.62%.

West Coast Vancouver Island

There are two indicator stocks in WCVI, Robertson Creek Hatchery (RCH) and Carnation Creek. Both are located in DFO Statistical Area 23. In 2010, preliminary escapement to Robertson Creek Hatchery is estimated at about 21,000; somewhat higher than expected but still below recent year averages. Escapement to the Carnation Creek indicator system is under review. Preliminary estimates of escapement to other WCVI systems suggest escapement at about recent year averages. However, the overall abundance of WCVI coho was low given the relatively limited harvest of these populations relative to historic periods. Therefore, the status of WCVI coho remains low to moderate at best.

Johnstone Strait and Mainland Inlet

The Keogh River plays an important role as the wild coho indicator stock for the Upper Johnstone Strait Area. Smolt production in 2009 was around 78,000, significantly higher than the long term average of 58,000. Preliminary indications from the resulting adult escapement in 2010 is that marine survival has improved relative to the last few years but not at the same magnitude as the strong 2009 returns. Smolt production from the Keogh in 2010 of approximately 61,000 was slightly higher than the long term average.

The marine survival indicator for Area 13 is the Quinsam River Hatchery. The preliminary estimate of approximately 6,900 adults returning to the Quinsam River indicates that the 2010 return is lower than 2009, although better than 2008 and 2007. Adult body size this year is large with high fecundity.

Preliminary extensive escapement reports for Coho are also indicating abundances lower than 2009, but average to steady returns in other Johnstone Strait and the Mainland Inlet indicator systems. At this time it is still too early to provide an indication of stock status.

Johnstone Strait Chum

Objectives and Overview

The Johnstone Strait chum fisheries primarily target chum that spawn in Johnstone Strait, Strait of Georgia, and Fraser River areas. In order to improve the management of Johnstone Strait chum fisheries and to ensure sufficient escapements, a 20% fixed exploitation rate strategy was implemented in 2002 for Study Area Chum in Johnstone Strait. This year constituted the 8th year of the fixed exploitation rate harvest strategy. Of the 20% exploitation rate, 16% is allocated to the commercial sector; the remaining 4% is set aside for the First Nations and recreational harvesters, and to provide a buffer to the commercial exploitation. Since the implementation of this management strategy, annual fisheries have been planned well in advance of the chum return.

For commercial fisheries, the pre-season fishing schedule was developed based on expectation of effort, exploitation levels by gear group, and historical run timing (peak estimated as October 9th). The fishing schedule was developed to achieve the commercial allocation sharing guidelines of 77% for seine, 17% for gillnet and 6% for troll. In-season adjustments to the fishing plan are made in-season if warranted.

Based on the Pacific Salmon Treaty chum salmon agreement, commercial chum fisheries in Johnstone Strait will be suspended when an abundance estimate of less than 1 million chum salmon migrating through Johnstone Strait is identified.

In 2010, the Area B (seine) and Area D (gill net) were competitive derby fisheries.

The Area H (troll) fleet was managed using an effort based ITQ demonstration fishery for the third year (2008 - 2010). A total number of 325 boat-days were modeled to correspond to the troll share of the harvest rate described above, and two time periods were defined to spread the catch over a 37 day period. Each Area H licence holder was assigned 3 boat-days in period 1 and 2 boat-days in period 2. Boat-days from each period could be transferred to other licence holders within each period but not between periods. A maximum of one third of the total number of boat days in period 1 could be carried over to fishing period 2, provided that day was not fished. Subareas 13-6 and 13-7 (Deepwater Bay area) were closed to commercial fishing on weekends and holidays.

Chum catch and release information from all fisheries can be found in Table 32.

First Nations

First Nations fisheries for chum were not restricted. The preliminary estimated catch by First Nations in the Johnstone Strait area is estimated at 1,500 chum salmon.

Marine Recreational

The marine recreational daily limits for chum are 4 per day and a possession limit of 8. The total recreational catch in Johnstone Strait, Areas 11, 12 and 13, was estimated at 905 chum. The peak of the effort coincided with the annual Brown's Bay chum derby which took place on the weekend of October 23rd and 24th. The total catch during the derby was 113 chum. This year there was no creel survey in the month of October where the majority of the chum salmon fishing effort occurs in Area 13.

Non-Tidal Recreational

There were no directed chum fisheries in non-tidal waters in the Johnstone Strait area.

Commercial

Seine, gillnet and troll fisheries were conducted in Johnstone Strait between September 27th and October 8th. On October 7th, modelled assessments of the test fishing and fishery catches to that date indicated a run size of less than 1 million chum salmon migrating through Johnstone Strait. Consequently all commercial chum salmon fisheries were suspended for the season. The total commercial chum catch from Johnstone Strait during chum directed fisheries is estimated at 47,511 pieces. The total chum catch from all commercial fisheries that took place in 2010, including retention of chum during sockeye directed fisheries, is estimated at 61,141 pieces.

A description of each fishery is provided below:

There was a general requirement to apply selective fishing techniques, including area and gear restrictions and the mandatory use of revival tanks in all commercial fisheries. Catch monitoring included requirements for catch reporting and mandatory logbooks.

Area B Seine

In 2010, there was one commercial seine opening for chum salmon in portions of Areas 12 and 13. The opening took place on October 4th for 12 hrs; chum catch for this opening is estimated at 33,166 pieces.

Area D Gillnet

In 2010, there was one three day commercial gillnet opening for chum salmon in portions of Areas 12 and 13. The opening took place from 1600h October 6th to 0900h October 8th; chum catch for this opening is estimated at 14,087 pieces.

Area H Troll

In 2010 there was one commercial troll fishing period. The effort-based troll ITQ fishery opened on September 27th and closed on October 8th, although it was closed for a 24 hr period on October 4th during the commercial seine opening. In total, 23 boat days were fished with a total chum catch of 258 pieces.

Table 22 Johntone Strait Commercial Catch By Date and Gear Type

Fishery Date	Gear type	Effort	Catch
Oct 4	B - SN	76	33,166
Oct 6 to Oct 8	D- GN	110	14,087
Sept 27 to Oct 8	H-TR	23	258

Table 23 Johnstone Strait Fisheries (Area 12 and 13)

Gear Type	Total Catch	% of catch	J.S. Allocation Plan
Area B	33,166	69.8%	63%
Area D	14,087	29.7%	19%
Area H	258	0.5%	6%
Total Catch:	**47,511**		

Nimpkish River

At the time of this report chum assessments on the Nimpkish River had just begun. Conditions for monitoring chum returns have improved during the late portions of November. Chum return estimates to the Nimpkish River are incomplete at this time and appear to be low but better than recent years. There were no targeted Nimpkish chum fisheries. Nimpkish River Hatchery will continue to capture broodstock for the enhancement program.

Stock Status

Mixed Stocks

The main component of the Study Area chum return was expected to be the Fraser River stocks, with both Fraser and non-Fraser components of the return typically dominated by 4 year old fish which out-migrated to the ocean in 2007. It was quite apparent that other salmon species that also out-migrated in 2007 encountered poor productivity and reduced survivals (pinks and coho returns in 2008, and Fraser

sockeye returns in 2009). The pre-season expectation for Study Area chum suggested below average returns to the area.

The Johnstone Strait test-fishery provided timing and abundance information of the 2010 return which is important for assessing the performance of the 20% fixed harvest strategy implemented in the Johnstone Strait fisheries. It also provided an index of abundance that was used to determine the likelihood of whether the abundance of returning chum is over the 1.0 million critical abundance level required to continue with commercial openings. Extremely low catch per unit effort in the test fishery was confirmed by the extremely low catch in the first planned Purse Seine opening in the beginning of October. The indices of abundance were reviewed and it was determined that the returning abundance was likely lower than the critical threshold required for continuation of commercial fisheries. All subsequent commercial openings in Johnstone Strait were suspended. Age composition derived from the test-fishery samples demonstrated a very low contribution of the typically dominant 4-year old brood component. This is more evidence of the poor survival conditions encountered by the 2007 out-migration component of this return. Preliminary information on escapements and catches to date suggest returns were well below average for Inside Study Area chum stocks. In-season information is still being collected and analyzed in regards to total stock size.

Terminal Returns

Most summer run chum returns in Area 12 were low, likely impacted by the reduced survival encountered by the smolts that out-migrated in 2007.

It is still too early to assess the status of fall run chum in the Johnstone Strait Area. Preliminary information indicates returns are below average for a variety of systems within the area. Initial observations on the Nimpkish River, assessment indicate low abundance of returning chum but better than the poor returns observed in recent years. The assessment of the Nimpkish system will continue into late December.

Fraser River Chum

Objectives and Overview

The escapement objective for Fraser River chum is 800,000. Conservation measures for co-migrating stocks of concern delays in-river chum fisheries from the peak of the run (mid-October) to the end of the run (late October – early November). With the exception of the 2000 return year, chum escapements to the Fraser have been estimated to be above the escapement objective for return years 1998 to 2008. The 2009 escapement estimate was below the escapement goal. Assessments of the 2010 escapement are ongoing.

Fraser River chum salmon spawning locations are predominately located in the Fraser Valley downsteam of Hope, BC; no spawning locations have been identified upstream of Hells Gate. Small numbers of short fishery openings have prevented adverse impacts on local chum populations.

Chum catch and release information from all fisheries can be found in Table 32.

General Overview of Fisheries

Fraser River chum are typically harvested in Johnstone Strait, in the Strait of Georgia, in Juan de Fuca Strait, in US waters of 7 and 7A, as well as in the Fraser River.

Fraser River chum returns coincide with Interior Fraser coho and Interior Fraser steelhead runs. Therefore, commercial Gillnet Chum fisheries in the Fraser River are severely limited by conservation concerns for Interior Fraser (including Thompson River) coho and Interior Fraser steelhead.

First Nations

FSC gill-net fisheries commenced October 8th (below Mission) and October 11th (above Mission) following closures to protect co-migrating Interior Fraser coho. The estimated catch from all fisheries below Sawmill Creek to December 3rd is 13,440. There were no economic opportunity fisheries in 2010. ESSR harvests are ongoing for 2010. As of December 3rd there have been 15,187 chum reported harvested through ESSR fisheries.

Recreational

In 2010, the major Fraser River watershed recreational salmon fisheries impacting chum salmon were assessed, including significant salmon fisheries occurring in the lower Fraser River mainstem and the Chilliwack River (a tributary to the Fraser River in the lower Fraser Valley). Two minor recreational fisheries that occurred on the Stave River and the Nicomen Slough/Norrish Creek drainage were also assessed (both are tributaries to the Fraser River in the lower Fraser Valley). The Stave River fishery was last assessed in 2001. A third minor recreational fishery occurring on the Harrison River was assessed in 2009 but was not assessed in 2010.

Although significant restrictions on chum retention were put in place throughout the Fraser watershed in 2010, assessments still took place in many areas due to angling pressure on other salmon species.

The lower Fraser River mainstem recreational fishery was open to the retention of chum salmon from July 16th to October 21st (daily limit of 2). Although Fraser chum do not normally enter the Fraser in early summer, the later opening in 2010 relative to 2009 was the result of management measures to protect and conserve Fraser River spring and summer Chinook stocks of concern. The closure was earlier this year due to the poor returns of Fraser chum. In 2010, this mainstem fishery was assessed from July 16th to October 15th; preliminary estimates of 1,549 chum were kept and 6,242 released. The Chilliwack River recreational fishery was open to the retention of chum salmon from July 1st to October 15th. The early closure was a result of expected poor returns due to poor overall Fraser returns in combination with severe flooding that occurred in the Chilliwack in 2006. The Chilliwack River fishery was assessed from September 15th to November 15th in 2010; preliminary estimates are not yet available.

The Harrison River, Stave River and Nicomen Slough recreational fisheries were originally open to the retention of chum salmon year round. However, due to the poor returns in the Fraser River, there was no retention of chum permitted after October 24th. In 2010, the assessment of the Stave River fishery began on Sep.15th. The planned termination of this recreational catch assessment is December 15th; catch estimates are currently not available. Although historically not directed at chum, the Nicomen Slough/Norrish Creek fishery was assessed from October 8th to November 30th in 2010. Catch estimates are currently not available.

In total, for assessed recreational fisheries occurring in the Fraser River in 2010, preliminary estimates of 1,549 chum were kept and and 6,242 chum were released. These Fraser River catch estimates will increase upon the completion of the Chilliwack, Stave and Nicomen/Norrish assessments.

Commercial

Fraser River Chum test fishing began at Albion on September 3rd and was conducted every alternate day until October 21st when Chinook test fishing was terminated and chum test fishing then continued on a daily basis. Chum catches in the 6.75" chum test net from September 1st to November 23rd, representing 58 test fishing days, totalled 6,845 chum.

Commercial fisheries in the lower Fraser River were closed from September 7th to October 8th (below Mission) and September 9th to October 11th (Mission to Hope) to protect Interior Fraser coho. Further restrictions on commercial fisheries were in place until late October to protect Interior Fraser steelhead. Due to poor Fraser chum returns, no Area E (gill net) commercial opening took place in Area 29 during the 2010 fishing season.

Stock Status

The terminal run-size to the Fraser River (at Albion) is estimated in-season using a Bayesian model (CSAS Res.Doc. 2000/159, Gazey and Palermo) and Albion test fishing catch per unit effort data (CPUE). In 2010, a terminal run-size of 779,000 was estimated using Albion CPUE data to November 10th.

Fraser River chum return to many spawning locations in the lower Fraser River. Spawning escapement to five of the largest chum producing populations and to a small number of lesser producing populations is assessed annually. Projects assessing the escapements to these systems in 2010 are ongoing and estimates are currently not available.

While there have been substantial returns in recent years (e.g. 2004) concern has been raised over the recent timing of the run; the late run component appears to be truncated compared to historical run distribution. In the past, chum returned to the Fraser River and its tributaries well into December. The run is now predominately over by mid-late November. Estimated escapement for Fraser River Chum over the last 10 years has trended downwards. In 2009, the preliminary escapement estimate shows escapement dropping well below 1 million for the first time since 2000. Whether these observations are the result of fishing practices, habitat changes to the spawning areas that were used by late returning fish (e.g. mainstem spawning areas), freshwater production changes, marine environment affects or other currently unidentified factors, is unknown.

Strait of Georgia Chum

Strait of Georgia chum fisheries consist of terminal opportunities for chum returning to their natal spawning streams. Many of the potential terminal fishing areas have enhancement facilities and/or spawning channels associated with the rivers. Terminal fishery strategies consist of monitoring and assessing stocks (escapement and returning abundance) with the objective of ensuring adequate escapement and providing harvest opportunities where possible. Stock assessments may include test fisheries, escapement enumeration, and over flights. In some areas where stocks receive considerable enhancement or where stocks have above average productivity, limited fishing may occur prior to major escapement occurring.

Area 14

This fishery is directed at the enhanced stocks of three systems: Puntledge, Qualicum and Little Qualicum Rivers. The Qualicum River is often referred to as the 'big' Qualicum River, to better distinguish it from the Little Qualicum River. Chum returning to this area have been enhanced since the late 1960s and terminal fisheries have occurred in October and November since the 1970s. The returning Area 14 chum abundance is forecasted pre-season using brood escapement, average survival and age composition. In-season run strength is assessed from any early catches, visual observations at river estuaries and by escapement counts to the three river systems. The escapement goals for the three river systems are 60,000 for Puntledge River, 130,000 for Little Qualicum River, and 100,000 for Qualicum River, adding up to an overall escapement goal of 290,000 chum not including enhancement facility requirements (about 10,000 chum bringing the total escapement goal to 300,000).

This fishery has a specific harvest strategy, implemented since 1981. The strategy consists of limited early harvest prior to escapement occurring. The allowable early chum harvest is calculated from 65% of the predicted surplus (terminal return run size minus escapement (300,000) and buffer 100,000. The buffer safeguards against errors in forecast stock abundance. The surplus within the 100,000 buffer and remaining 35% of the surplus may be harvested provided that escapement targets have been achieved. Since 2002, Puntledge River stock returns have been above average resulting in terminal fisheries focusing on this slightly earlier timed stock. This fishery did not occur in 2010 due to low escapement levels.

Area 16

This fishery targets wild chum stocks returning to river systems in the Jervis Inlet area. The main systems are Tzoonie, Deserted and Skwawka Rivers. The overall escapement goal for Jervis Inlet streams is 110,000. These terminal fisheries occur when the individual or combined escapement goals have been assured. Fishing opportunities do not occur on a regular basis. There were no fisheries in Area 16 in 2010.

Area 17

This fishery is a terminal fishery targeting Nanaimo River stocks. The Nanaimo River chum stocks are supplemented by the Nanaimo River Hatchery (supplementation is on a sliding scale), where increased enhancement occurs during poor escapement years. Escapements fluctuate annually and fishery openings are planned in-season based on escapement estimates. The overall escapement goal for the Nanaimo River is 60,000. There were no fisheries in Area 17 in 2010.

Area 18

This fishery is directed primarily at Cowichan River stocks, however, Goldstream chum are also harvested. Fishery openings in mid to late November are limited to Satellite Channel in order to minimize impacts on the earlier timed Goldstream stocks. Chemainus River stocks could also be impacted if the fisheries are earlier in November, but likely to a lesser extent.

Fishery openings are planned in-season based on escapement estimates from a DIDSON counter and information from a test fishery. Management is also guided by advice from the Cowichan Fisheries Roundtable (the Roundtable) and the Mid Vancouver Island (MVI) Chum Subcommittee. The overall escapement goal for the Cowichan River is currently 160,000 Chum counted by the DIDSON counter. There were no fisheries in Area 18 in 2010.

Area 19

This fishery is directed primarily at Goldstream River stocks although some Cowichan River Chum are also harvested. Fishery openings set for mid to late November are limited to the portion of Saanich Inlet (Sub area 19-8) which is outside or to the north of Squally Reach. This area restriction is implemented to minimize impact on Goldstream chinook and coho stocks.

Fisheries are planned in-season based on escapement estimates and a test fishery. Area 19 falls under the same management regime as Area 18. The overall escapement goal for the Goldstream River is 15,000. There were no fisheries in Area 19 in 2010.

Chum catch and release information from all fisheries can be found in Table 32.

First Nations

The preliminary estimated catch by First Nations in the Strait of Georgia is estimated to be approximately 326 chum; additional catch data are currently being compiled.

Recreational

The recreational creel survey extends from the marine area of Discovery Passage, (outside of Campbell River) to Saanich Inlet. The majority of recreational effort directed at chum salmon occurs in the Discovery Passage area. The total creel catch estimate for the recreational fleet in the Strait of Georgia area is approximately 100 chum, most of which were caught in Area 13 (reported in the tables as Johnstone Strait) during the month of October.

Tidal recreational fisheries are subject to the normal daily and possession limits (daily limit four per day/possession eight) and are open throughout the area.

Occasionally recreational in-river fisheries occur where surpluses or target escapements will be met. These fisheries occur almost exclusively where enhancement facilities are present.

Commercial

Strait of Georgia chum are managed as a component of "mixed-stock harvest strategy" chum for Johnstone Strait and the northern Strait of Georgia. Fishing opportunities are guided by commercial allocation targets for chum salmon in the south coast. Management is guided by advice from the MVI Chum Subcommittee.

There were no commercial fisheries in the Strait of Georgia for seine, gillnet or troll in 2010.

Stock Status

A below average chum return to the Strait of Georgia was forecast for 2010. The forecast was based on below average brood year escapements (primarily 2006) and anticipated average to below average survival. Historically however, chum returns have been highly variable relative to brood year escapements. Conditions for returning chum migration and spawning were good with water flows ample for most of the season. Spawning escapements continue to be monitored and are currently being compiled. To date, returns have been below forecast and below target (Table 24).

Two marine test-fisheries were conducted, one off the Cowichan River and the other adjacent to the Goldstream River. The Cowichan seine test-fishery commenced on October 25th and continued until November 29th for a total of 6 fishing days. Test catches totaled approximately 300 chum and 10 coho. The Goldstream River (Saanich Inlet) seine test-fishery commenced on October 26th and continued until November 30th for a total of 6 days. Test catches totaled approximately 100 chum and 5 coho. Each test fishing day generally consists of six sets; all captured fish were released.

Spawning escapements continue to be monitored and are currently being compiled.

Table 24 Strait of Georgia Preliminary Spawning Escapements

Stock	Target Escapement	2010 forecast range	Preliminary 2010 Escapement
Mid Vancouver Island	300K	193K – 290K	65K
Nanaimo	63.5K	31.4 – 47.0K	24K
Cowichan	160K	167K – 250K	150K
Goldstream	15K	18.1 – 27.1K	4.5K

West Coast Vancouver Island Chum

Objectives and Overview

Commercial chum salmon fisheries occur from late September to early November in WCVI fishing areas in most years. The majority of chum fishing on WCVI takes place adjacent to Nitinat Lake (Area 21), and in Nootka Sound and Esperanza Inlet (Area 25). During the past few years there have been small fleet gillnet assessment fisheries in Barkley Sound and Clayoquot Sound. Commercial fisheries target wild chum stocks returning to local streams, and enhanced chum stocks from Nitinat and Conuma hatcheries.

With the exception of Nitinat and Tlupana Inlet where hatchery stocks dominate adult returns, WCVI chum fisheries are managed to a 20% harvest rate. Fishery managers consider run timing, fishing effort and fleet distribution when implementing in-season management measures. In-season management measures, such as limiting fishing effort to one or two days per week, are implemented to ensure that target harvest rate objectives are not exceeded.

Area D and Area E commercial gill-net fleets, and the Area B commercial seine fleet target WCVI chum. Seine opportunities generally occur once surplus to escapement and hatchery brood requirements have been identified (Nitinat and Conuma hatcheries).

There were no commercial seine fisheries on WCVI in 2010 due to very low abundance of most wild and hatchery stocks. Since 2004, there have been limited-fleet gillnet fisheries in Esperanza Inlet (Area 25) and Barkley Sound (Area 23). A limited-fleet assessment fishery was initiated for Clayoquot Sound (Area 24) in 2007. None of these fisheries operated in 2009 due to extremely low pre-season forecast chum abundance. In 2010 limited-fleet assessment fisheries were conducted in Barkley Sound, Nootka Sound and Esperanza Inlet, but not in Clayoquot Sound due to an observed low stock abundance.

First Nations Food, Social and Ceremonial (FSC) fisheries for chum salmon primarily occur in terminal areas. FSC fishing effort and catch information is not yet available for WCVI in 2010. An Excess Salmon to

Spawning Requirements (ESSR) fishery, operated by the Ditidaht First Nation, took place at Nitinat Lake targeting hatchery surplus production.

In-river recreational fisheries generally have low effort, but recently effort has increased in some terminal area rivers (i.e. Nitinat River). Directed effort and catch of chum in recreational marine fisheries off WCVI remains low.

Chum catch and release information from all fisheries can be found in Table 32.

First Nations

The Ditidaht First Nation conducts annual chum FSC fisheries and in years of higher chum abundance operates ESSR fisheries in Nitinat Lake and rack harvests at Nitinat hatchery. In 2010, the FSC chum harvest was 2,500. The hatchery ESSR chum total was 15,444 (mostly male chum surplus to broodstock) and the lake catch for ESSR chum was 6,163 (gill-net caught with a high male ratio). Total ESSR harvest in 2010 was 21,607 chum.

Tseshaht and Hupacasath First Nations did not have economic opportunity fisheries for sockeye, chinook, coho and chum in 2010. Combined FSC harvest was approximately 957 chum during directed FSC chum and coho fisheries in the Somass River and upper Alberni Inlet. Tseshaht and Hupacasath First Nations conducted chum catch monitoring and chum adult enumeration surveys in local river systems in 2010 under contract with DFO and reported findings to DFO Stock Assessment and Resource Management staff.

The total chum FSC harvest for WCVI First Nations at the time of writing was estimated at 9,216.

Recreational

The WCVI recreational fishery is open year-round with a limit of four (4) per day. WCVI recreational anglers kept approximately 58 chum during the 2010 WCVI sport fishery.

Commercial

Nitinat

There was no commercial fishery in 2010 due to low chum abundance. The pre-season forecast for Nitinat chum was 83,000. The return is estimated at approximately 100,000. This returning run-size was not sufficient to trigger any commercial fisheries. In previous years the Nitinat commercial chum fishery was the largest on the West Coast of Vancouver Island. This fishery targets returning Nitinat River hatchery stocks. The fishing period is generally October 1st to November 15th. The fishery is managed to achieve a minimum escapement target of 225,000 and maximum escapement target of 325,000 chum salmon. The commercial TAC is based on the pre-season forecast which is updated in-season with information from the Nitinat Lake test-fishery and escapement information.

This fishery has provided opportunities for both seine and gill net fleets. Gillnet and seine fishing opportunities are dependent on reaching established in-lake escapement milestones by specific dates. Fleet size has varied over the past 15 years, largely due to pre-season forecasts and fish value. The size of the gillnet fleet in the 1990's ranged as high as 240 vessels. From 2004 to 2008 the gillnet fleet size fluctuated between 30 and 90 vessels. The seine fleet size typically varies from 20 to 100 vessels.

The final chum return to Nitinat Lake was estimated at 100,000, determined through a combination of in-lake gillnet test fishing, Nitinat Hatchery broodstock collection events, and Nitinat River escapement surveys. No commercial harvest opportunity was provided at this run size. Weekly calls were held with industry representatives to provide updated information on stock assessment information. Weekly bulletins were issued by DFO Stock Assessment staff describing test-catch, river escapement, hatchery broodstock capture and egg-takes and revised run-size.

Barkley (Area 23), Clayoquot (Area 24) and Nootka/Esperanza (Area 25)

Commercial chum fisheries in Areas 23, 24 and 25 are typically managed using weekly in-season effort estimates. The harvest-rate approach is designed to achieve a harvest rate of 20% or less on all stocks in Nootka Sound and 10 to 15 % on Esperanza Inlet, Clayoquot Sound and Barkley Sound chum stocks. In Tlupana Inlet, where hatchery stocks are predominant, exploitation rates may be higher in years of higher abundance.

In 2010, the Department met with Area D Gillnet advisors to discuss options for gillnet assessment fishery openings on WCVI chum stocks considering low predicted abundance. Stock Assessment staff and contractors provided escapement counts for chum in Areas 23, 24 and 25.

The main objective of the gillnet assessment fishery strategy is to provide advance indication of chum salmon abundance that could initiate larger fleet fisheries in Nootka Sound and Tlupana Inlet. In 2010, gillnet assessment fisheries took place in Area 23 and 25 (see table below) but there was an insufficient abundance of chum in these areas to trigger full-fleet gillnet fisheries. Conuma River hatchery chum abundance was also insufficient to trigger a full-fleet gillnet fishery in Tlupana Inlet.

Table 25 2010 Commercial Chum and Coho Gillnet Fisheries Summary (Nootka Sound, Esperanza Inlet and Barkley Sound)

	Nootka Sound (Area 25)			Esperanza Inlet (Area 25)			Barkley Sound (Area 23)		
Fishing Date (2010)	**Effort (Vessels)**	**Chum Retained**	**Coho Retained**	**Effort (Vessels)**	**Chum Retained**	**Coho Retained**	**Effort (Vessels)**	**Chum Retained**	**Coho Retained**
Sep-28	4	2,256	150	2	876	34	4	567	72
Sep-29	4	2,383	143	2	724	37	4	200	40
Oct-05	4	526	21	2	1,074	25	2	50	1
Oct-06	4	603	20	2	732	20	2	20	0
Oct-12	4	791	44	2	1,066	10	1	83	1
Oct-13	4	725	30	2	568	8	1	11	0
Oct-19	4	85	10	2	317	6	1	0	0
Oct-20	1	10	1	1	312	2			
Oct-26	0	0	0	1	69	6			
Oct-27	0	0	0	1	5	0			
Total	**29**	**7,379**	**419**	**17**	**5,743**	**148**	**15**	**931**	**114**
Area 25 Total	**46**	**13,122**	**567**						
WCVI Total	**61**	**14,053**	**681**						

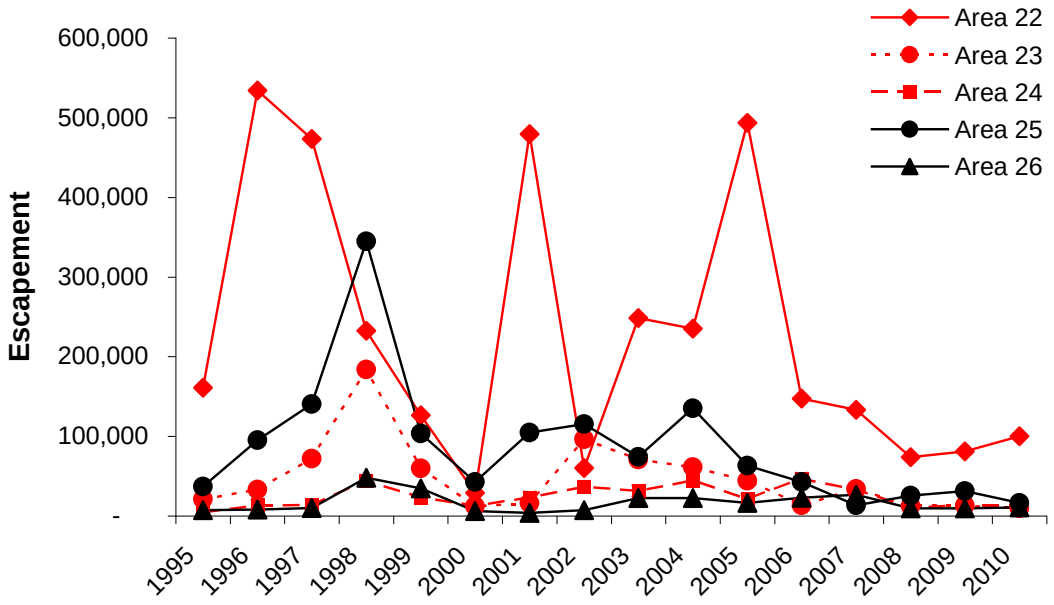
Stock Status

Productivity of chum populations in the WCVI conservation unit (CU) was average to above average from 2001 to 2006. Low returns from 2007 to 2009 reflect a decline in productivity most likely related to lower than average marine survival rates, particularly during the 2005 and 2006 sea entry years. Chum

returns in 2010 were similar to 2009 and were well below average. Overall, chum escapement to most natural systems in the WCVI CU was approximately 72% lower than the long term (1995-2009) average). Similarly, the Nitinat hatchery (Area 21/22) total return was estimated at about 100,000, which is well below the long term average of 225,500. Low returns in 2010 were influenced by poor returns of age 4 and 5 fish, resulting from poor survivals from the 2006 and 2007 sea entry years.

All 2010 salmon escapement estimates from extensively surveyed WCVI streams (summarized in the Figure 9) are preliminary and represent peak live plus dead counts.

Figure 9 Escapement of WCVI Chum Stocks, by PFMA and Return Year (1995-2010)



Note: Johnstone Strait includes Areas 11-13
WCVI includes Areas 21-27 and 121 to 127
Strait of Georgia includes 14-18 (and 19A which has zero catch) and Areas 28, 29 marine only.
Juan de Fuca includes Area 19 and 20

Table 26 Catches in Canadian Treaty Limit Fisheries, 1995 to 2010 (Preliminary).

Fisheries/ Stocks	Species	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995
Stikine River (all gears)	Sockeye Coho Chinook-lg Chinook-jk	50,543 4,952 1,787 1,174	48,049 5,061 2,330 714	33,614 2,398 7,860 1,067	59,237 47 10,576 1,735	101,209 72 15,776 2,078	85,890 276 18,997 2,177	84,866 275 3,857 2,574	58,784 190 1,396 1,052	17,294 82 1,362 578	25,600 233 1,480 103	27,468 301 3,086 628	38,055 181 2,916 1,264	43,803 726 2,164 423	65,559 401 4,483 286	74,281 1,404 2,471 421	53,467 3,418 1,646 860
Taku River (commercial gillnet)	Sockeye Coho Chinook-lg Chinook-jk	20,052 10,426 4,658 700	11,057 5,649 7,031 1,183	19,445 4,866 1,184 330	16,564 5,399 862 337	21,093 9,180 7,312 198	21,932 6,860 7,534 821	19,860 5,954 2,074 334	32,730 3,168 1,894 547	31,053 3,082 1,561 291	47,660 2,568 1,458 118	28,009 4,395 1,576 87	20,681 4,416 908 257	19,038 5,090 1,107 227	24,003 2,594 2,731 84	41,665 5,028 3,331 144	32,640 13,629 1,577 298
Areas 3 (1-4)* (commercial net)	Pink	30,686	404,460	8,330	1,740,270	228,378	878,552	402,459	667,103	876,631	473,318	127,000	2,162,280	61,000	329,000	987,000	2,613,000
Area 1 (commercial troll)	Pink	19,948	60,402	29,295	61,276	34,854	39,430	27,751	98,347	41,418	175,000	28,295	25,000	0	261,000	732,000	1,284,000
North Coast** (troll + sport)	Chinook	136,613 90,213+ 46,400	109,470 75,470+ 34,000	95,647 52,147+ 43,500	144,235 83,235 + 61,000	215,985 151,485 + 64,500	243,606 174,806 + 68,800	241,508 167,508 + 74,000	191,657 137,357 + 54,300	150,137 103,037 + 47,100	43,500	32,048	70,701	144,650	145,568	26,900	119,100
West Coast Vancouver Island (troll + sport + FN)	Chinook	137,660 79,123+ 52,698+ 5,839	125,488 53,191+ 68,775+ 3,381	143,81789,704+ 50,319+ 3794	139,150 87,921 + 46,229 + 5,000	145,970 103,978 + 36,992 + 5,000	195,791 143,614 + 52,177	210,875 168,837+ 42,038	179,706 152,677 + 27,029	165,824 134,308+ 31,516	102,266 78,302+ 23,964	89,139 64,216+ 24,923	28,540 6,906+ 21,634	10,855 6,678+ 4,177	59,796 53,396+ 6,400	3677 4+ 3,673	86,230 81,258+ 4,972
Fraser River Canadian Commercial Catch	Sockeye Pink	9,305,104 0	0 1,442,840	16,942 0	0 333,300	4,633,623 68,325	137,000 338,000	1,993,800 0	1,042,986 1,149,189	2,182,700 0	295,000 579,000	953,000 0	54,000 3,000	1,295,000 0	8,737,000 3,660,000	1,019,000 0	903,000 3,777,000
Fraser River U.S. Commercial Catch	Sockeye Pink	1,970,000 0	0 2,726,230	49,800 0	3,900 377,600	701,300 0	0 0	192,200 0	244,000 773,000	434,600 0	240,000 427,000	494,000	41,000 3,000	707,000 0	1,578,000 1,565,000	257,000 0	415,000 1,919,000
West Coast Vancouver Island (commercial troll)	Coho	458	0	369	1,424	2,399	5,989	0	0	0	0	0	0	0	0	761,000	1,345,000
Johnstone Strait (clockwork catch)***	Chum	62,510	510,708	298,931	494,944	800,363	787,226	1,089,100	1,026,029	700,000	236,000	161,000	41,411	1,820,000	104,593	101,971	269,000

*AREA 5-11 CATCHES INCLUDED PRIOR TO 1995 AND EXCLUDED FROM 1995-1998 INCLUSIVE. NOT PART OF 1999 ANNEX IV PROVISIONS.
** NORTH COAST CATCH EXCLUDES TERMINAL EXCLUSION CATCHES OF 6,000 ('91), 6,100 ('92), 7,400 ('93), 6,400 ('94), 1,702 ('95), 16,000 ('96), 5,943 ('97), and 2,182 in 1998. NO TERMINAL EXCLUSION IN THE 1999 AGREEMENT - COVERED UNDER THE AABM ARRANGEMENT; CENTRAL COAST AREAS NOT PART OF 1999 ANNEX IV PROVISIONS.
*** CANADIAN CATCH INCLUDES COMMERCIAL, FSC AND TEST-FISH CATCHES IN AREAS 11-13 FOR 1991-94 INCLUSIVE, AND IN AREAS 12-13 FOR 1995 TO 2004 INCLUSIVE. 2002-PRESENT, CATCHES FROM FISHERIES MANAGED TO FIXED HARVEST RATE OF 20%.
NOTE 1: WCVI CHINOOK CATCHES FROM 1995-1998 ARE REPORTED BY CALENDAR YEAR; CATCHES FROM 2008-1999 ARE REPORTED BY CHINOOK YEAR (OCT-SEPT).
NOTE 2: 1999 CATCHES ARE REPORTED ACCORDING TO FISHERIES/STOCKS UNDER THE 1999 ANNEX IV PROVISIONS.

Table 27 Preliminary 2010 South Coast Sockeye Catch by Fishery and Area

SOCKEYE - Preliminary Catch Estimates

Fishery	Gear	Fishery (Area)	Numbers		
			Non-Fraser Kept	Fraser Kept	All stocks Released
Commercial	Area G Troll *	WCVI AABM Chinook (23 - 27, 123 - 127)	0	0	116
	Area H Troll	Fraser Chum (29)	0	0	0
	Area H Troll	JST Chum (12,13)	0	0	1
	Area H Troll	Fraser Sockeye (12,13)	25	269,816	75
	Area H Troll	Fraser Sockeye (18, 29)	5	109,165	9
	Area B Seine	Barkley Sockeye (23)	495,495	0	30
	Area B Seine	JST Chum (12,13)	0	3	9
	Area B Seine	Fraser Sockeye (12,13)	747	4,527,741	49,587
	Area B Seine	Fraser Sockeye (20)	1,884	127,909	0
	Area B Seine	Fraser Sockeye (29)	20	1,148,704	13,750
	Area D Gillnet	Barkley Sockeye (23)	240,543	0	1
	Area D Gillnet	Barkley Chum (23)	0	0	0
	Area D Gillnet	Tlupana Chinook (25)	0	0	0
	Area D Gillnet	Nootka-Esperanza Chum	0	0	0
	Area D Gillnet	JST Chum (12,13)	0	0	2
	Area D Gillnet	JST Sockeye (11,12,13)	4057	1,001,626	153
	Area E Gillnet	Fraser Sockeye (29)	229	2,120,140	1
Total Commercial Catch			**743,005**	**9,305,104**	**63,734**
Recreational	Sport	Juan de Fuca (19,20)**	0	25,427	850
	Sport	Strait of Georgia (14-18,28,29)**	0	23,067	1,329
	Sport	Johnstone Strait (11-13)**	0	27,122	1,318
	Sport	WCVI - Outside (121-127)**	0	934	552
	Sport	WCVI - Inside (21-27)	79,317	0	6,244
	Sport	Fraser River	0	212,704	102,535
Total Recreational Catch			**79,317**	**289,254**	**112,828**
First Nations FSC		Johnstone Strait**	0	206,985	0
		Strait of Georgia	0	56,169	0
		WCVI	125,129	42,750	0
		Fraser River	0	539,637	1,838
Total First Nations FSC Catch			**125,129**	**845,541**	**1,838**
First Nations EO		Johnstone Strait	0	0	0
		Strait of Georgia			
		WCVI			
		Fraser River	0	1,131,683	205
Total First Nations EO Catch			**0**	**1,131,683**	**205**
TOTAL - ALL FISHERIES			**947,451**	**11,571,582**	**178,605**

*Oct'09-Sept'10

**Data not yet corrected for stock ID

Table 28 Preliminary 2010 South Coast Pink Catch by Fishery and Area

PINK - Preliminary Catch Estimates

Fishery	Gear	Fishery (Area)	Numbers	
			Kept	Released
Commercial	Area G Troll *	WCVI AABM Chinook (23 - 27, 123 - 127)	47	28
	Area H Troll	Fraser Chum (29)	0	0
	Area H Troll	JST Chum (12,13)	3	1
	Area H Troll	Fraser Sockeye (12,13)	3,758	2,246
	Area H Troll	Fraser Sockeye (18, 29)	19	8
	Area B Seine	Barkley Sockeye (23)	0	0
	Area B Seine	JST Chum (12,13)	913	17
	Area B Seine	Fraser Sockeye (12,13)	83,269	28
	Area B Seine	Fraser Sockeye (20)	158	8
	Area B Seine	Fraser Sockeye (29)	59	0
	Area D Gillnet	Barkley Sockeye (23)	4	4
	Area D Gillnet	Barkley Chum (23)	0	0
	Area D Gillnet	Tlupana Chinook (25)	0	0
	Area D Gillnet	Nootka-Esperanza Chum	0	0
	Area D Gillnet	JST Chum (12,13)	0	0
	Area D Gillnet	JST Sockeye (11,12,13)	108,378	2,339
	Area E Gillnet	Fraser Sockeye (29)	57	0
Total Commercial Catch			**196,665**	**4,679**
Recreational	Sport	Juan de Fuca (19,20)	401	111
	Sport	Strait of Georgia (14-18,28,29)	1,063	598
	Sport	Johnstone Strait (11-13)	5,115	2,476
	Sport	WCVI (21-27, 121-127)	2,186	350
	Sport	Fraser River	0	0
Total Recreational Catch			**8,765**	**3,535**
First Nations FSC		Johnstone Strait	7,500	0
		Strait of Georgia	0	0
		WCVI	1,625	
		Fraser River	3	0
Total First Nations FSC Catch			**9,128**	**0**
First Nations EO		Johnstone Strait		
		Strait of Georgia		
		WCVI		
		Fraser River	3	0
Total First Nations EO Catch			**3**	**0**
First Nations ESSR		Johnstone Strait	62,735	0
		Strait of Georgia	0	0
		WCVI		
		Fraser River	0	0
Total First Nations ESSR Catch			**62,735**	**0**
TOTAL - ALL FISHERIES			**277,296**	**8,214**

*Oct'09-Sept'10

Table 29 Preliminary 2010 South Coast AABM Chinook Catch by Fishery and Area

AABM Chinook - Preliminary Catch Estimates

PST Regime	Fishery	Month	Numbers	
			Kept	Released
WCVI-AABM	Area G Troll *	Oct-09	0	0
		Nov-09	0	0
		Dec-09	0	0
		Jan-10	0	0
		Feb-10	0	0
		Mar-10	0	0
		Apr-10	8,553	270
		May-10	31,296	1,349
		Jun-10	23,652	2,314
		Jul-10	0	0
		Aug-10	11,642	537
	**	Sep-10	3,980	797
Troll Total			**79,123**	**5,267**
Sport Total			**52,698**	**44,576**
First Nations	Johnstone Strait		0	0
First Nations	Strait of Georgia		0	0
First Nations	WCVI Offshore		5,839	0
First Nations	WCVI Inshore		0	0
First Nations	Fraser River		0	0
First Nations Total			**5,839**	**0**
All Total			**137,660**	**49,843**

*Oct'09-Sept'10

** includes release data from Sub-legal DNA sampling program

Table 30 Preliminary 2010 South Coast ISBM Chinook Catch by Fishery and Area

ISBM CHINOOK - Preliminary Catch Estimates

Fishery	Gear	Fishery (Area)	Numbers	
			Kept	Released
ISBM	Area G Troll *	WCVI AABM Chinook (23 - 27, 123 - 127)	0	0
	Area H Troll	Fraser Chum (29)	0	0
	Area H Troll	JST Chum (12,13)	0	2
	Area H Troll	Fraser Sockeye (12,13)	2	689
	Area H Troll	Fraser Sockeye (18, 29)	5	96
	Area B Seine	Barkley Sockeye (23)	0	276
	Area B Seine	JST Chum (12,13)	0	22
	Area B Seine	Fraser Sockeye (12,13)	84	2,714
	Area B Seine	Fraser Sockeye (20)	0	363
	Area B Seine	Fraser Sockeye (29)	3	85
	Area D Gillnet	Barkley Sockeye (23)	12	92
	Area D Gillnet	Barkley Chum (23)	0	2
	Area D Gillnet	Tlupana Chinook (25)	1,735	0
	Area D Gillnet	Nootka-Esperanza Chum	0	13
	Area D Gillnet	JST Chum (12,13)	0	9
	Area D Gillnet	JST Sockeye (11,12,13)	25	724
	Area E Gillnet	Fraser Sockeye (29)	6,385	63
Total Commercial Catch			**8,251**	**5,150**
Recreational	Sport	Juan de Fuca (19,20)	14,573	4,094
	Sport	Strait of Georgia (14-18,28,29)	5,785	9,602
	Sport	Johnstone Strait (11-13)	18,123	14,026
	Sport	WCVI (ISBM areas)	24,346	11,761
	Sport	Fraser River	9,433	1,784
Total Recreational Catch			**72,260**	**41,267**
First Nations FSC		Johnstone Strait	250	0
		Strait of Georgia	40	0
		WCVI	2,070	0
		Fraser River	13,578	30
Total First Nations FSC Catch			**15,938**	**30**
First Nations EO		Johnstone Strait		
		Strait of Georgia		
		WCVI		
		Fraser River	5,184	268
Total First Nations EO Catch			**5,184**	**268**
First Nations ESSR		Johnstone Strait		
		Strait of Georgia	0	0
		WCVI	5,415	0
		Fraser River	6,724	0
Total First Nations ESSR Catch			**12,139**	**0**
TOTAL - ALL FISHERIES			**113,772**	**46,715**

*Oct'09-Sept'10

Table 31 Preliminary 2010 South Coast Coho Catch by Fishery and Area

COHO - Preliminary Catch Estimates

Fishery	Gear	Fishery (Area)	Numbers	
			Kept	Released
Commercial	Area G Troll *	WCVI AABM Chinook (23 - 27, 123 - 127)	458	2,847
	Area H Troll	Fraser Chum (29)	0	0
	Area H Troll	JST Chum (12,13)	2	28
	Area H Troll	Fraser Sockeye (12,13)	215	983
	Area H Troll	Fraser Sockeye (18, 29)	0	61
	Area B Seine	Barkley Sockeye (23)	52	9
	Area B Seine	JST Chum (12,13)	0	643
	Area B Seine	Fraser Sockeye (12,13)	503	5,049
	Area B Seine	Fraser Sockeye (20)	5	229
	Area B Seine	Fraser Sockeye (29)	14	69
	Area D Gillnet	Barkley Sockeye (23)	28	31
	Area D Gillnet	Barkley Chum (23)	114	0
	Area D Gillnet	Tlupana Chinook (25)	0	0
	Area D Gillnet	Nootka-Esperanza Chum	568	0
	Area D Gillnet	JST Chum (12,13)	0	437
	Area D Gillnet	JST Sockeye (11,12,13)	32	11,781
	Area E Gillnet	Fraser Sockeye (29)	51	793
Total Commercial Catch			**2,042**	**22,960**
Recreational	Sport	Juan de Fuca (19,20)	1,157	2,014
	Sport	Strait of Georgia (14-18,28,29)	1,465	3,900
	Sport	Johnstone Strait (11-13)	4,047	8,925
	Sport	WCVI - Inshore (21-27)	8,119	3,059
	Sport	WCVI - Offshore (121-127)	6,637	12,680
	Sport	Fraser River	106	658
Total Recreational Catch			**21,531**	**31,236**
First Nations FSC		Johnstone Strait	300	0
		Strait of Georgia	2,200	0
		WCVI	5,991	0
		Fraser River	432	73
Total First Nations FSC Catch			**8,923**	**73**
First Nations EO		Johnstone Strait	0	0
		Strait of Georgia		
		WCVI		
		Fraser River	163	1,328
Total First Nations EO Catch			**163**	**1,328**
First Nations ESSR		Johnstone Strait		
		Strait of Georgia	0	0
		WCVI	3,737	0
		Fraser River	26,446	0
Total First Nations ESSR Catch			**30,183**	**0**
TOTAL - ALL FISHERIES			**62,842**	**55,597**

*Oct'09-Sept'10

Table 32 Preliminary 2010 South Coast Chum Catch by Fishery and Area

Chum - Preliminary Catch Estimates

Fishery	Gear	Fishery (Area)	Numbers	
			Kept	Released
Commercial	Area G Troll *	WCVI AABM Chinook (23 - 27, 123 - 127)	402	15
	Area H Troll	Fraser Chum (29)	3	0
	Area H Troll	JST Chum (12,13)	258	10
	Area H Troll	Fraser Sockeye (12,13)	131	11
	Area H Troll	Fraser Sockeye (18, 29)	2	0
	Area B Seine	Barkley Sockeye (23)	0	1
	Area B Seine	JST Chum (12,13)	33,166	0
	Area B Seine	Fraser Sockeye (12,13)	5,739	174
	Area B Seine	Fraser Sockeye (20)	2	27
	Area B Seine	Fraser Sockeye (29)	39	10
	Area D Gillnet	Barkley Sockeye (23)	1	1
	Area D Gillnet	Barkley Chum (23)	931	0
	Area D Gillnet	Tlupana Chinook (25)	0	1
	Area D Gillnet	Nootka-Esperanza Chum	13,122	0
	Area D Gillnet	JST Chum (12,13)	14,087	1
	Area D Gillnet	JST Sockeye (11,12,13)	7,760	158
	Area E Gillnet	Fraser Sockeye (29)	165	10
Total Commercial Catch			**75,808**	**419**
Recreational	Sport	Juan de Fuca (19,20)	10	8
	Sport	Strait of Georgia (14-18,28,29)	0	0
	Sport	Johnstone Strait (11-13)	905	11
	Sport	WCVI (21-27, 121-127)	58	0
	Sport	Fraser River	1,549	6,242
Total Recreational Catch			**2,522**	**6,261**
First Nations FSC		Johnstone Strait	1,500	0
		Strait of Georgia	326	0
		WCVI	9,216	0
		Fraser River	13,440	2
Total First Nations FSC Catch			**24,482**	**2**
First Nations EO		Johnstone Strait		
		Strait of Georgia		
		WCVI		
		Fraser River	162	51
Total First Nations EO Catch			**162**	**51**
First Nations ESSR		Johnstone Strait		
		Strait of Georgia	0	0
		WCVI	6,163	0
		Fraser River	15,187	0
Total First Nations ESSR Catch			**21,350**	**0**
TOTAL - ALL FISHERIES			**124,324**	**6,733**

*Oct'09-Sept'10

Table 33 Preliminary 2010 Southern BC Commercial Catch Totals by Gear and Area

Preliminary Commercial Totals, all species

Gear	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook Kept	Chinook Released **
Area G Troll *	WCVI AABM Chinook (23 - 27, 123 - 127)	0	116	458	2,847	47	28	402	15	79,123	5,267
Area H Troll	Fraser Chum (29)	0	0	0	0	0	0	3	0	0	0
Area H Troll	JST Chum (12,13)	0	1	2	28	3	1	258	10	0	2
Area H Troll	Fraser Sockeye (12,13)	269,841	75	215	983	3,758	2,246	131	11	2	689
Area H Troll	Fraser Sockeye (18, 29)	109,170	9	0	61	19	8	2	0	5	96
Area B Seine	Barkley Sockeye (23)	495,495	30	52	9	0	0	0	1	0	276
Area B Seine	JST Chum (12,13)	3	9	0	643	913	17	33,166	0	0	22
Area B Seine	Fraser Sockeye (12,13)	4,528,488	49,587	503	5,049	83,269	28	5,739	174	84	2,714
Area B Seine	Fraser Sockeye (20)	129,793	0	5	229	158	8	2	27	0	363
Area B Seine	Fraser Sockeye (29)	1,148,724	13,750	14	69	59	0	39	10	3	85
Area D Gillnet	Barkley Sockeye (23)	240,543	1	28	31	4	4	1	1	12	92
Area D Gillnet	Barkley Chum (23)	0	0	114	0	0	0	931	0	0	2
Area D Gillnet	Tlupana Chinook (25)	0	0	0	0	0	0	0	1	1,735	0
Area D Gillnet	Nootka-Esperanza Chum	0	0	568	0	0	0	13,122	0	0	13
Area D Gillnet	JST Chum (12,13)	0	2	0	437	0	0	14,087	1	0	9
Area D Gillnet	JST Sockeye (11,12,13)	1,005,683	153	32	11,781	108,378	2,339	7,760	158	25	724
Area E Gillnet	Fraser Sockeye (29)	2,120,369	1	51	793	57	0	165	10	6,385	63
TOTALS		**10,048,109**	**63,734**	**2,042**	**22,960**	**196,665**	**4,679**	**75,808**	**419**	**87,374**	**10,417**

*Oct'09-Sept'10

** includes jacks or sub-legals

Note: all data derived from In-Season manager Estimates unless otherwise noted

Table 34 2010 Southern BC Recreational Catch Totals by Area

Preliminary Recreational Totals, all species

Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook ISBM Kept	Chinook ISBM Released	Chinook AABM Kept	Chinook AABM Released
Juan de Fuca (Area19,20)	25,427	850	1,157	2,014	401	111	10	8	14,573	4,094	-	-
Strait of Georgia	23,067	1,329	1,465	3,900	1,063	598	0	0	5,785	9,602	-	-
Johnstone Strait 11,12,13	27,122	1,318	4,047	8,925	5,115	2,476	905	11	18,123	14,026	-	-
WCVI	80,251	6,796	14,756	15,739	2,186	350	58	0	24,346	11,761	52,698	44,576
Fraser River	212,704	102,535	106	658	0	0	1,549	6,242	9,433	1,784	-	-
Total	**368,571**	**112,828**	**21,531**	**31,236**	**8,765**	**3,535**	**2,522**	**6,261**	**72,260**	**41,267**	**52,698**	**44,576**

Table 35 2010 Southern BC First Nations Catch Estimates by Area

Preliminary First Nations Totals, all species

Fishery type	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook ISBM Kept	Chinook ISBM Released	Chinook AABM Kept	Chinook AABM Released
FSC	Johnstone Strait	206,985	0	300	0	7,500	0	1,500	0	250	0	0	0
ESSR	Johnstone Strait	-	-	-	-	62,735	0	-	-	-	-	-	-
FSC	Strait of Georgia	56,169	0	2,200	0	0	0	326	0	40	0	0	0
ESSR	Strait of Georgia	-	-	-	-	-	-	-	-	-	-	-	-
FSC	WCVI	167,879	0	5,991	0	1625	0	9,216	0	2,070	0	5839	0
EO	WCVI	-	-	-	-	-	-	-	-	-	-	-	-
ESSR	WCVI	0	0	3,737	0	0	0	6,163	0	5,415	0	0	0
FSC	Fraser River	539,637	1,838	432	73	3	0	13,440	2	13,578	30	0	0
EO	Fraser River	1,131,683	205	163	1,328	3	0	162	51	5,184	268	0	0
ESSR	Fraser River	10,181	0	26,446	0	0	0	15,187	0	6,724	0	0	0
	Total	**2,112,534**	**2,043**	**39,269**	**1,401**	**71,866**	**0**	**45,994**	**53**	**33,261**	**298**	**5,839**	**0**

Table 36 2010 South Coast Test Fishery Catches

Test-Fisheries	Sockeye retain	Sockeye release	Coho retain	Coho release	Pink retain	Pink release	Chum retain	Chum release	Chinook retain	Chinook release	GRAND TOTAL
Albion Chinook Gillnet	3,046	0	0	157	0	0	2,665	0	1,792	0	**7,660**
Albion Chum Gillnet	953	5	0	670	0	0	6,845	0	366	0	**8,839**
Area 12 Chum Seine	0	43	0	259	0	20	1,011	14,062	0	11	**15,406**
Naka Creek Sockeye Gillnet	2,899	2	12	48	1,650	0	14	0	2	3	**4,630**
Area 13 Sockeye Seine	6,077	443,345	0	46	0	15,736	0	113	0	161	**465,478**
Area 23 Sockeye Seine	1,998	50,071	0	25	0	0	0	0	0	8	**52,102**
Blinkhorn Sockeye Seine	4,981	864,772	0	549	49	15,038	0	413	3	342	**886,147**
Cowichan Chum Seine	0	0	0	12	0	0	104	113	0	0	**229**
Saanich Chum Sein	0	0	0	20	0	0	121	80	0	0	**221**
Nitinat Lake Chum Gillnet	0	0	4	150	0	0	4,384	0	15	1	**4,554**
Round Island Sockeye Gillnet	4,235	0	1	130	828	0	23	0	38	3	**5,258**
San Juan Sockeye Seine	6,930	121,131	0	1,163	0	506	0	57	0	469	**130,256**
San Juan Sockeye Gillnet	25,657	0	0	238	371	0	18	0	206	16	**26,506**
Whonnock Gillnet	6,952	1	0	376	1	0	1,224	0	878	3	**9,435**
Cottonwood Gillnet	5,785	0	0	55	0	0	28	0	60	0	**5,928**
Mission Gillnet	Did not operate in 2010										**0**
Qualark Gillnet	3,500	114	9	8		0	0	0	38	91	**3,760**
Area 29 Gulf Troll	1,266	5,075	0	1	0	1	0	0	0	3	**6,346**
Grand Total	**74,279**	**1,484,559**	**26**	**3,907**	**2,899**	**31,301**	**16,437**	**14,838**	**3,398**	**1,111**	**1,632,755**

C. 2010 POST-SEASON REPORT FOR UNITED STATES SALMON FISHERIES OF RELEVANCE TO THE PACIFIC SALMON COMMISSION

Northern Boundary Area Fisheries

District 104 Purse Seine Fishery

The 2009 Pacific Salmon Treaty (PST) Agreement calls for abundance based management of the District 104 purse seine fishery. The agreement allows the District 104 purse seine fishery to harvest 2.45 percent of the Annual Allowable Harvest (AAH) of Nass and Skeena sockeye prior to Alaska Department of Fish and Game (ADFG) statistical week 31 (referred to as the treaty period). The AAH is calculated as the total run of Nass and Skeena sockeye salmon minus either the escapement requirement of 1.1 million (200,000 Nass and 900,000 Skeena) or the actual inriver escapement, whichever is less.

The District 104 purse seine fishery opens the first Sunday in July; in 2010 the initial opening was July 4 (Week 28). The pre-Week 31 fishing plan for District 104 was based on the preseason Canadian DFO forecast returns of approximately 865,000 Nass and 665,000 Skeena sockeye salmon.

In the 2010treaty period (Alaska statistical weeks 28-30), 4,617 sockeye were harvested in the following: a 10-hour opening in Week 28; two 15-hour openings in Week 29; and one 15-hour opening in Week 30 (Table 37). Sockeye catch during the treaty period is the lowest in District 104 since the treaty was signed in 1985. A total of 21 purse seine vessels, the second lowest since 1985, fished in the district during the treaty period. In past years 60% to 80% of treaty-period sockeye have been of Nass and Skeena origin. Thus, we would anticipate that between 2,770 and 3,700 Nass and Skeena sockeye may have been harvested in the District 104 purse seine fishery during the treaty period. The final number of Nass and Skeena sockeye harvested, and the actual catch by stock, will not be available until catch, escapement, and stock composition estimates are finalized for the year.

Table 37 Catch and Effort in the Alaska District 104 Purse Seine Fishery, 2010

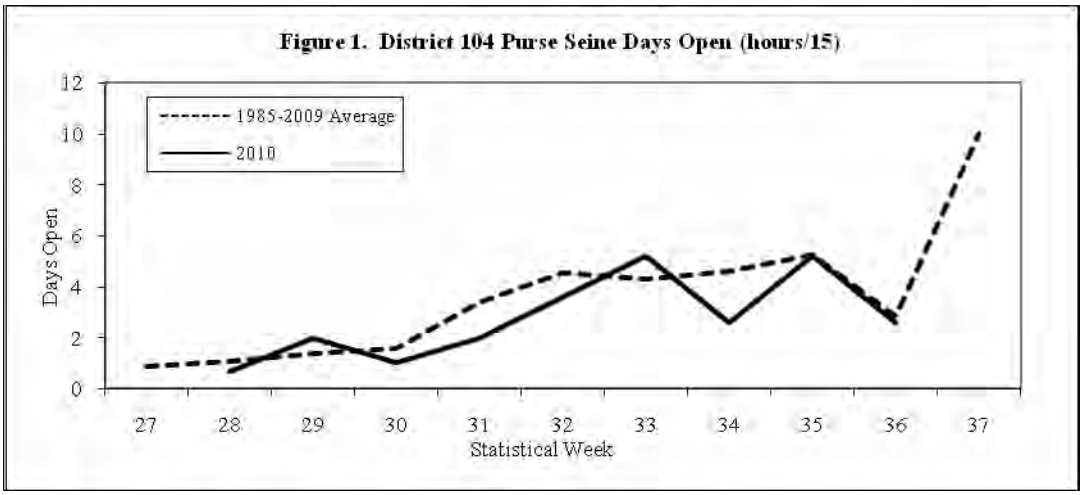
Week/ Opening	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
28 & 29	7/4 & 7/11	0	2,014	550	7,604	4,752	14	25
29B	7/15	0	1,112	42	2,493	1,603	5	15
30B	7/22	0	1,491	1,505	11,121	3,406	12	15
31	7/25	0	1,500	920	15,269	2,611	11	15
31B	7/29	0	1,510	949	38,693	2,834	11	15
32	8/1	0	1,039	1,243	53,012	3,198	9	15
32B	8/5	112	2,136	898	100,608	4,716	11	39
33	8/9	7	2,117	1,338	202,135	8,598	14	39
33B	8/13	9	1,300	991	241,869	7,918	22	39
34	8/17	3	811	817	147,224	5,209	15	39
34B	8/21	40	1,055	1,544	108,166	6,336	16	39
35	8/25	41	1,313	2,907	53,155	4,623	15	39
36	8/29	32	453	854	5,710	715	6	39
Weeks 28-30		0	4,617	2,484	21,218	9,761	21	55
Weeks 31-36		244	13,234	12,461	965,841	46,758	34	318
Total		244	17,851	14,945	987,059	56,519	42	373

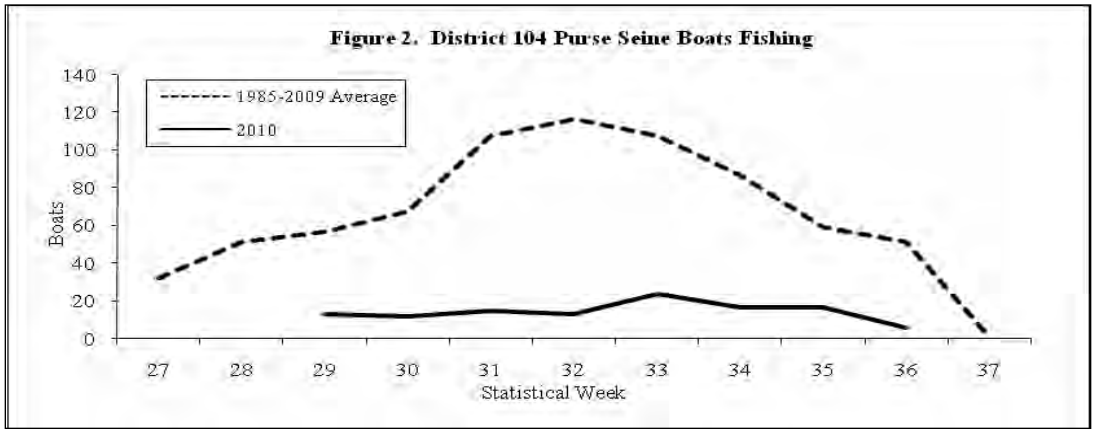
The average numbers of hours, boats and boat-days fished pre-Week 31 in District 104 since the Pacific Salmon Treaty was signed in 1985 are down 55%, 57% and 82% respectively compared to the 1980-1984 period (Table 38). The total pre-Week 31 Treaty-period sockeye harvest is also down 39% despite a 280% increase in the average sockeye catch-per-boat-day since 1984. The seine fleet moves freely between districts as various species are harvested, so seining opportunities elsewhere affect the effort and catch in District 104.

Table 38 Fishing Opportunity, Effort, and Sockeye Harvest Prior to Week 31 in the District 104 Purse Seine Fishery, 1980 to 2010

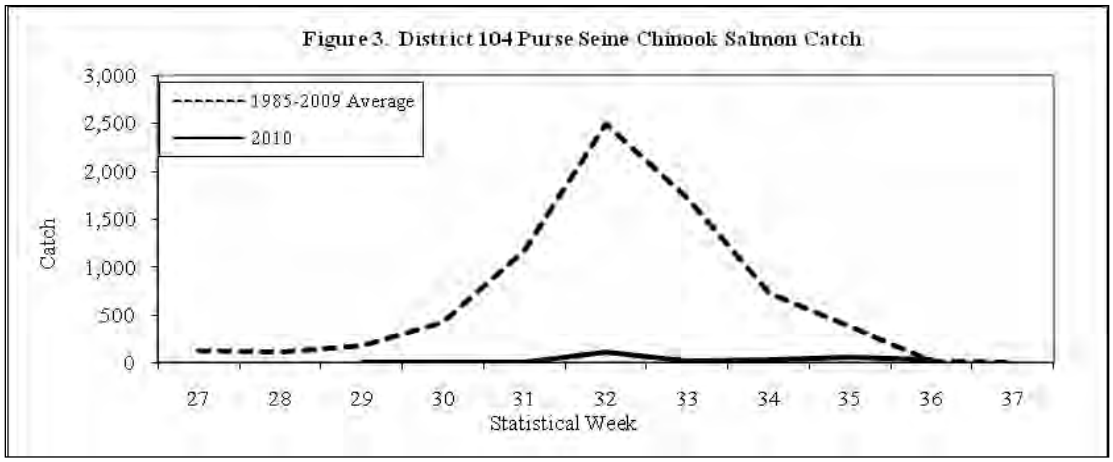
Year	Hours Fished	Boats Fishing	Fraction Days Fished (1d=15hrs)	Boat-Days Fished (Fraction Boats and Fraction Days)	Sockeye Harvest	Sockeye Catch per Boat-Day
1980	207	244	13.8	2,877	266,273	93
1981	132	212	8.8	1,108	185,188	167
1982	117	255	7.8	1,435	213,150	149
1983	108	241	7.2	1,211	170,306	141
1984	132	174	8.8	805	103,319	128
1985	84	141	5.6	502	100,590	200
1986	108	194	7.2	968	91,320	94
1987	90	134	6	457	72,385	158
1988	108	210	7.2	994	248,789	250
1989	84	135	5.6	438	157,566	360
1990	42	171	2.8	276	169,943	615
1991	41	134	2.7	243	98,583	406
1992	29	108	1.9	142	79,643	561
1993	45	171	3	343	163,189	476
1994	55	84	3.7	202	158,524	783
1995	58	109	3.9	218	71,376	328
1996	31	113	2.1	128	215,144	1,684
1997	56	159	3.7	409	572,942	1,402
1998	32	78	2.1	89	17,394	196
1999	30	38	2	44	7,664	174
2000	81	66	5.4	192	48,969	255
2001	50	95	3.3	182	203,090	1,115
2002	72	44	4.8	124	26,554	215
2003	52	40	3.5	97	84,742	875
2004	107	24	7.1	102	30,758	302
2005	68	38	4.5	93	35,690	382
2006	95	39	6.3	117	89,615	766
2007	50	68	3.3	136	112,135	824
2008	33	17	2.2	22	6,262	281
2009	72	38	4.8	95	15,971	168
2010	55	21	3.7	39	4,617	118
Avg. 80-84	139	225	9	1,487	187,647	136
Avg. 85-09	63	98	4	265	115,154	515
% Change	-55%	-57%	-55%	-82%	-39%	280%

In the 2010 season, the District 104 purse seine fishery harvested 987,059 pink salmon, 17,851 sockeye, 14,945 coho, 56,519 chum, and 244 Chinook salmon. Catches of all salmon species were well below average throughout the season. The number of boats fishing in the district continues to fall with a record low of 43 in 2010, down from over 200 fishing annually between 1980 and 1994. The number of days that the fishery was open was below the treaty period (1985-2009) average except in weeks 29 and 33 (Figure 1). The number of boats fishing was below average throughout the season (Figure 2).

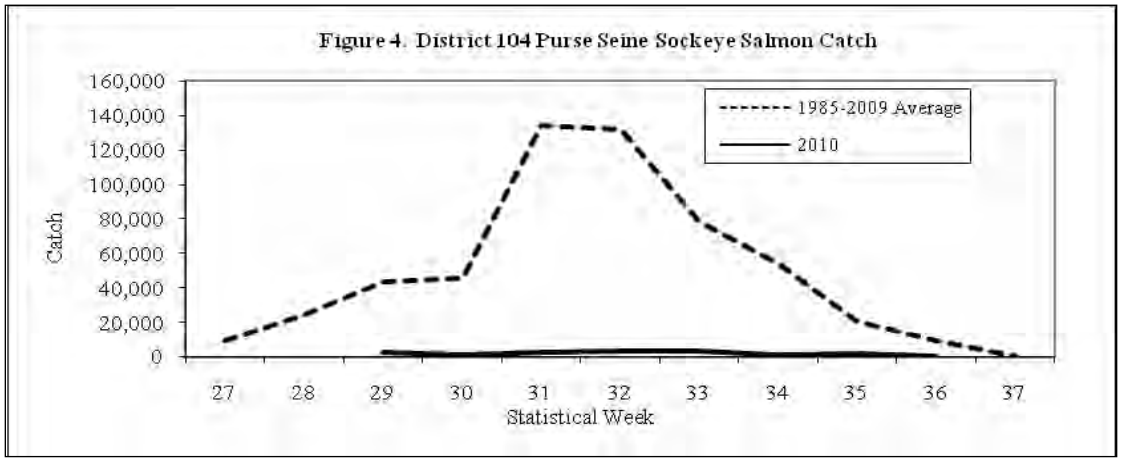




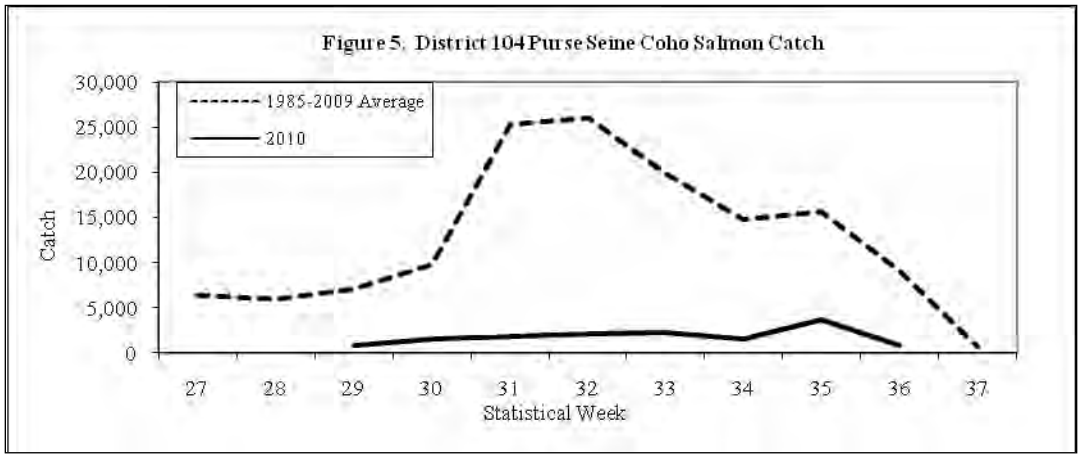
Chinook salmon catches in the District 104 purse seine fishery were below average in 2010. The 2010 District 104 purse seine non-retention period for Chinook salmon lasted from the beginning of the season until the second opening in week 32.

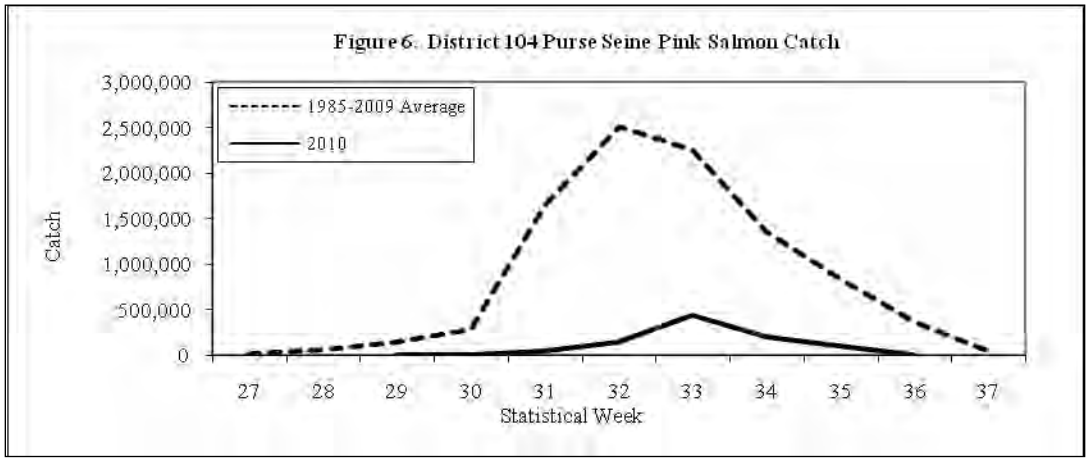


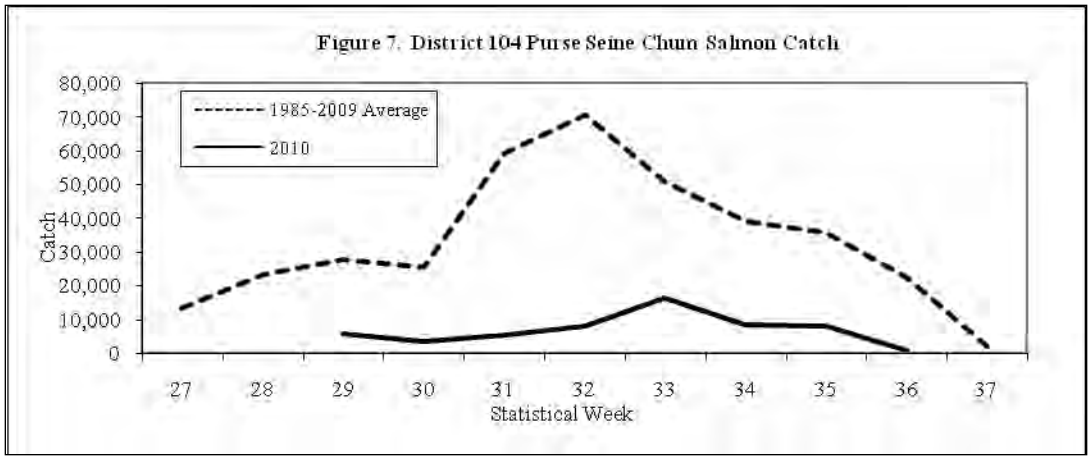
Sockeye salmon catches were far below average throughout the season (Figure 4). Both the treaty period (week 28-30) sockeye catch of 4,617 and the total catch of 17,851 were the lowest since the treaty was signed in 1985.



Catches of coho, pink, and chum salmon were also below average throughout the season (Figures 5-7).







District 101 Drift Gillnet Fishery

The 2009 PST agreement calls for abundance based management of the District 101 (Tree Point) drift gillnet fishery. The agreement specifies a harvest of 13.8 percent of the AAH of the Nass River sockeye run. For the 2010 season, DFO forecast a total return of 865, 000 Nass River sockeye salmon. The AAH is calculated as the total run of Nass sockeye salmon minus either the escapement requirement of 200,000 or the actual inriver escapement, whichever is less.

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June. During the early weeks of the fishery, management is based on the run strength of Alaska wild stock chum and sockeye salmon and on the run strength of the Nass River sockeye salmon. Beginning in the third week of July, when pink salmon stocks begin to enter the fishery in large numbers, management emphasis shifts by regulation to that species. By regulation, the District 101 Pink Salmon Management Plan sets gillnet fishing time in this district in relation to the District 101 purse seine fishing time when both fleets are concurrently harvesting the same pink salmon stocks.

A total of 62,651 sockeye salmon were harvested in the District 101 drift gillnet fishery in 2010 (Table 38). The sockeye harvest was 47% the 1985-2009 average of 134, 653 and the second lowest since the treaty was signed in 1985. The number of hours fished was above average. The total number of boats fishing during the 2010 season was 68, which is about half (58%) the 1985-2009 average of 117. The final number of Nass River sockeye harvested at Tree Point will not be available until catch, escapement, and stock composition estimates are finalized for the 2010 season.

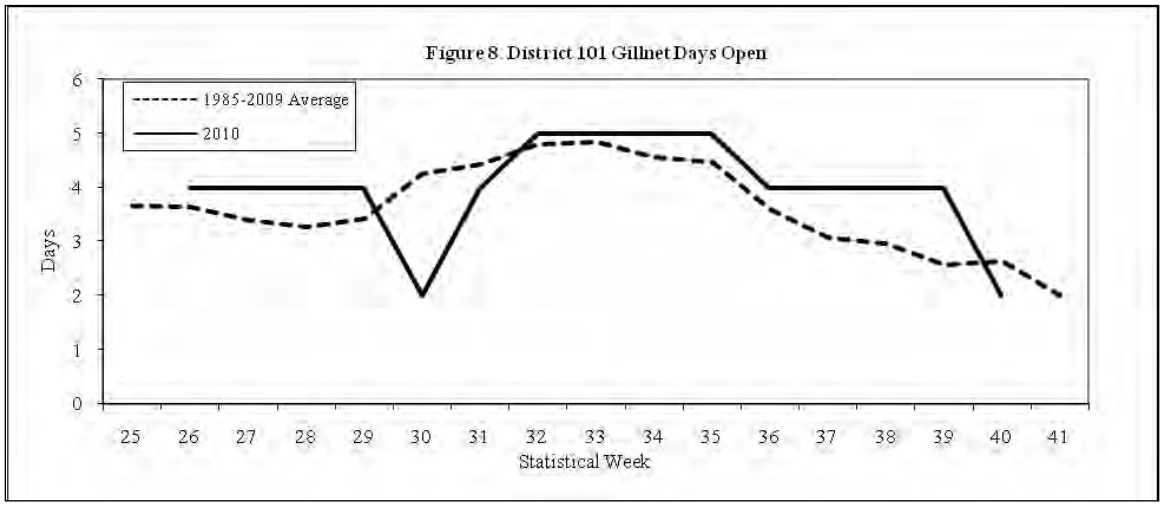
Table 39 Weekly catch and effort in the Alaska District 101 commercial drift gillnet fishery, 2010.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
26	20-Jun	540	4,610	1,364	10,343	26,634	53	96
27	27-Jun	365	11,751	1,675	9,759	50,316	53	96
28	4-Jul	243	8,756	1,294	26,675	84,400	50	96
29	11-Jul	89	4,051	942	23,241	39,065	46	96
30	18-Jul	29	4,723	854	34,256	31,242	47	48
31	25-Jul	36	7,911	2,598	92,637	32,703	46	96
32	1-Aug	43	9,373	4,152	101,909	11,570	47	120
33	8-Aug	16	7,014	3,153	92,945	6,055	44	120
34	15-Aug	14	2,489	3,083	99,957	6,257	34	120
35	22-Aug	9	1,280	5,324	55,370	7,828	34	120
36	29-Aug	12	463	9,705	19,125	11,975	40	96
37	5-Sep	7	196	18,773	3,094	11,092	43	96
38	12-Sep	14	30	24,135	193	4,741	40	96
39	19-Sep	11	4	9,971	6	1,105	33	96
40	26-Sep	0	0	840	0	77	4	48
Total		1,428	62,651	87,863	569,510	325,060	68	1,440
1985-2009 Avg.		1,475	134,653	44,850	524,152	304,268	117	1,341

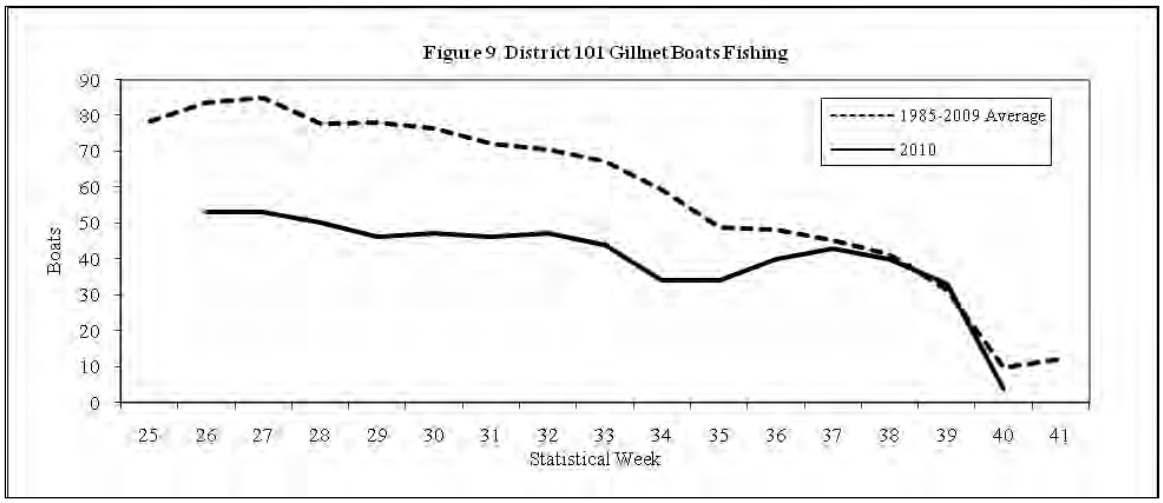
Table 40 Sockeye Harvest in the Alaska District 101 Gillnet Fishery, 1985 to 2010 and Comparison of Harvest and Effort (boats, hours, and boat-hours) between Statistical Weeks 26-35 when Sockeye Salmon are Most Abundant.

	Total	Catch and Effort between Weeks 26-35			
Year	Sockeye Harvest	Sockeye Harvest	Boats	Hours	Boat-Hours
1985	173,100	159,021	153	1,032	157,865
1986	145,699	143,286	198	960	190,044
1987	107,503	106,638	170	615	104,519
1988	116,115	115,888	187	756	141,338
1989	144,936	130,024	176	1,023	180,016
1990	85,691	78,131	150	840	125,969
1991	131,492	123,508	130	984	127,920
1992	244,649	243,878	118	1,080	127,416
1993	394,098	390,299	148	1,032	152,733
1994	100,377	98,725	142	984	139,700
1995	164,294	151,131	128	1,008	129,024
1996	212,403	175,569	129	1,104	142,408
1997	169,474	152,662	128	1,008	129,024
1998	160,506	159,307	124	1,044	129,454
1999	160,028	158,268	118	1,032	121,776
2000	94,651	94,399	95	912	86,640
2001	80,041	62,129	73	1,020	74,445
2002	120,353	106,360	68	1,008	68,544
2003	105,263	96,921	68	1,104	75,058
2004	142,357	141,395	61	1,104	67,332
2005	79,725	75,875	69	1,104	76,162
2006	62,770	53,048	45	840	37,791
2007	66,822	50,642	54	1,032	55,717
2008	34,113	30,672	47	936	43,983
2009	69,859	69,325	62	1,080	66,948
2010	62,651	61,958	66	1,008	66,515
Average 1985-2009	134,653	126,684	114	986	110,073

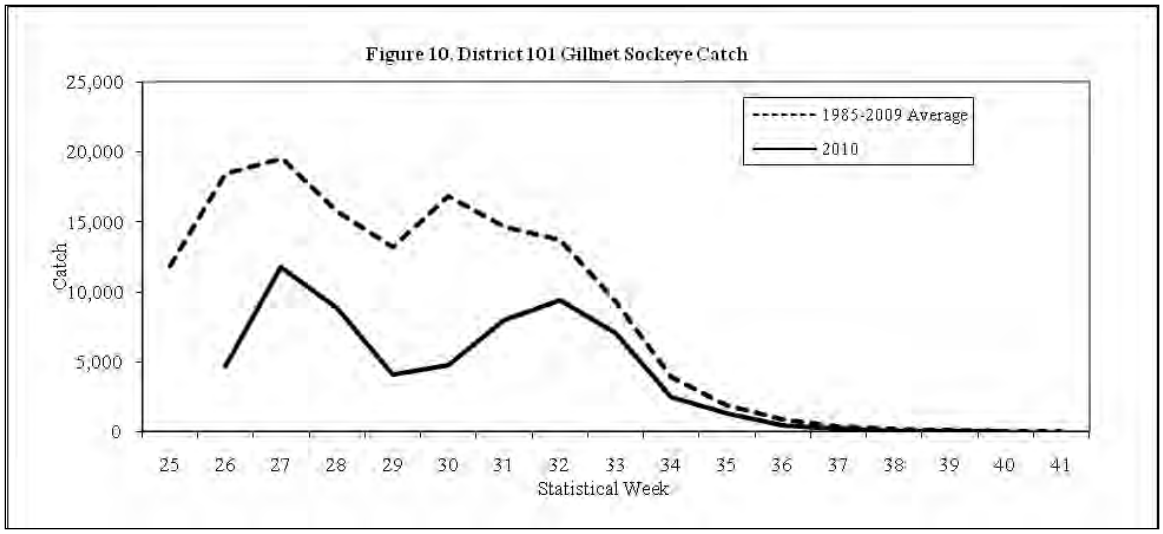
The District 101 gillnet fishery opened Sunday June 20 (Week 26). With the exception of Week 30 and 31, fishing time was slightly above average throughout the season (Figure 8).



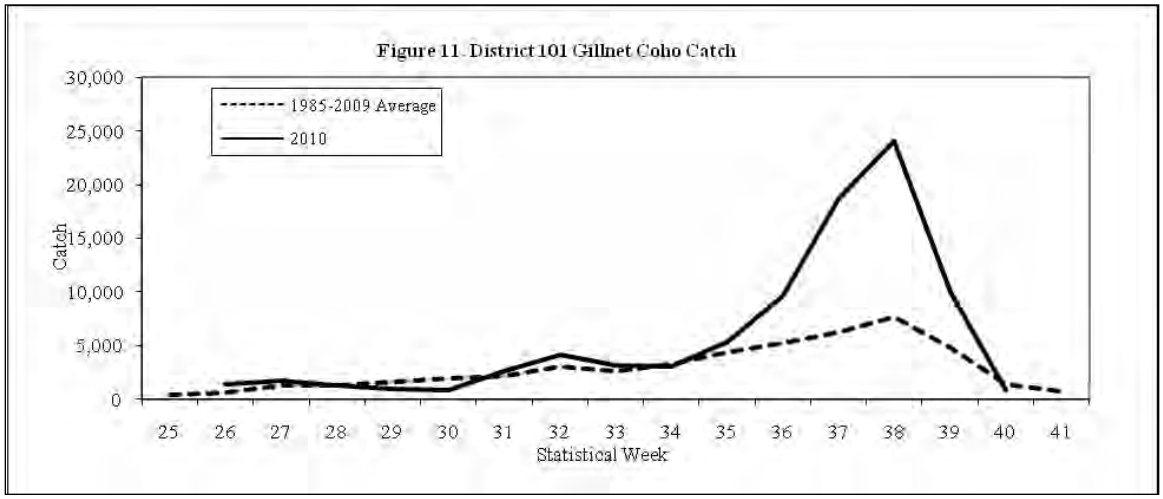
The number of boats fishing during weekly openings remained below average, particularly early in the season when sockeye are most abundant (Figure 9).



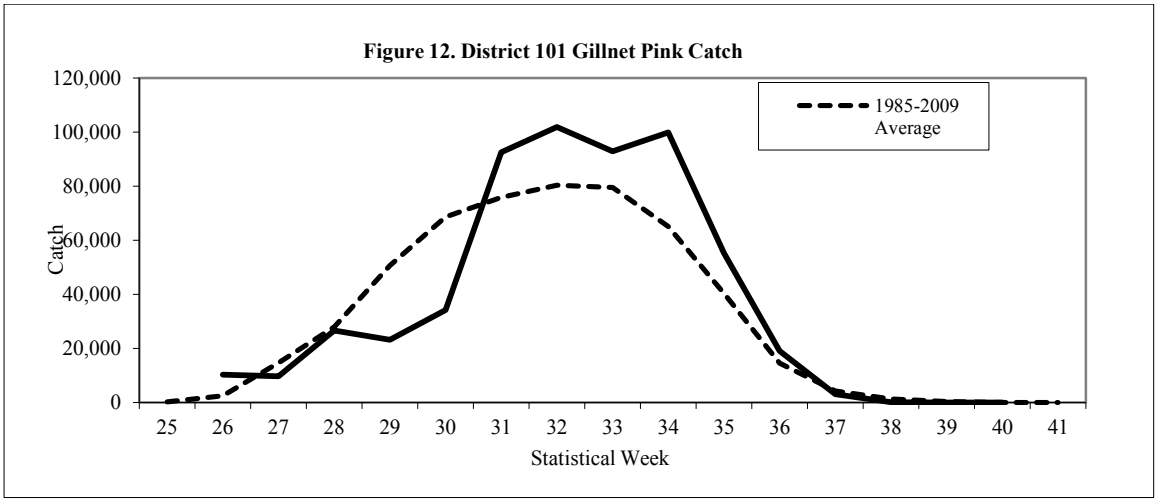
Catches of sockeye were below treaty period averages throughout the season (Figure 10). Total sockeye catch was the 2nd lowest in the 26 years since the treaty was signed. The sockeye harvest prior to the initiation of the Pink Salmon Management Plan in Week 30 was 29,168 fish, or about 47% of the total.



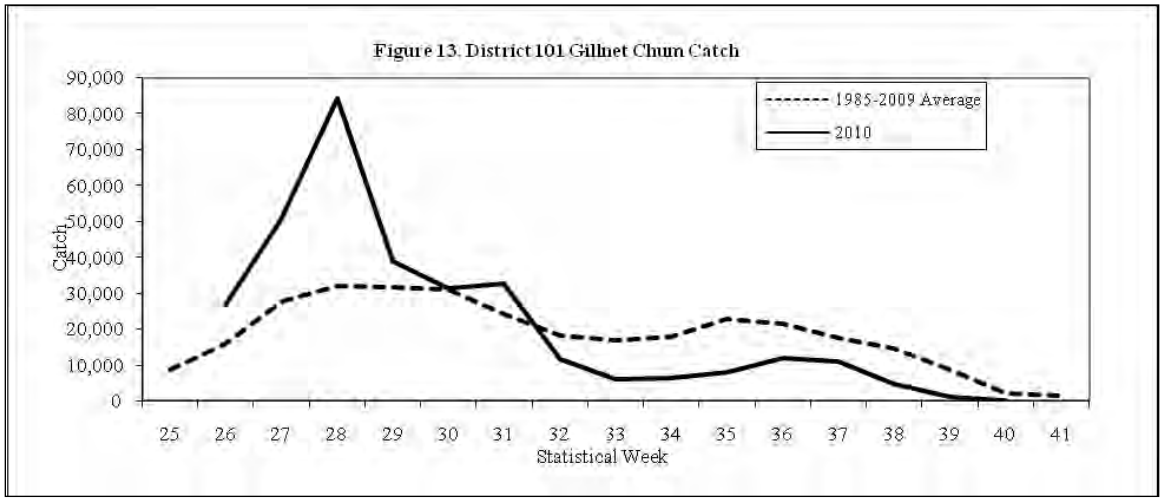
Coho catches were about average until late August when they rose significantly; about half of this late season catch was of Alaska hatchery origin (Figure 11).



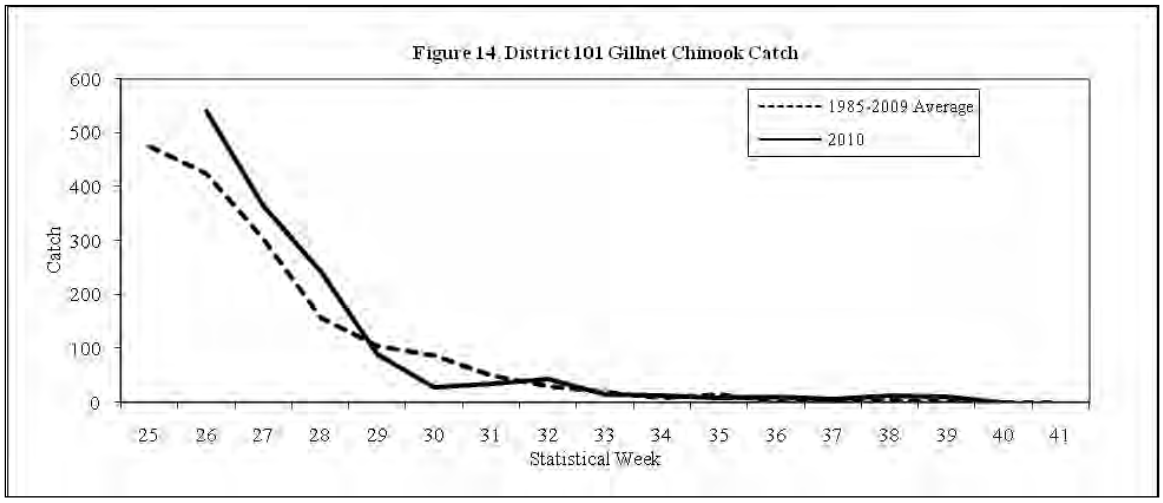
Pink salmon catches were below average early in the season but rose to above average as the season progressed (Figure 12).



Chum salmon catches were above average early in the season but fell below average in late July (Figure 13).



Chinook salmon catches were slightly above average early in the season (Figure 14).



Beginning on September 5 (week 37) the fishery was managed on the strength of wild stock fall chum and coho salmon returns. Fall coho catches were well above average in September; fall chum catches were below average, but otoliths indicated that there were few hatchery fish in the catch.

Pink, Sockeye, and Chum Salmon Escapements

The total 2010 Southeast Alaska pink salmon escapement index of 11.2 million index fish ranked 16th since 1960, but was below the recent 10-year average of 15.2 million. Biological escapement goals are in place for three sub-regions in Southeast Alaska and escapement goals were reached for all three sub-regions in 2010 (Table 41). On a finer scale, escapements met management targets for 11 of 15 districts in the region and for 38 of the 46 pink salmon stock groups in Southeast Alaska. The Southern Southeast sub-region includes all of the area from Sumner Strait south to Dixon Entrance (Districts 1–8). The pink salmon harvest of 13.7 million in the Southern Southeast sub-region was only 57% of the recent 10-year average, but the escapement index value of 5.9 million was well within the escapement goal range of 3.0 to 8.0 million index fish.

Table 41 2010 Southeast Alaska Pink Salmon Escapement Indices and Biological Escapement Goals by Sub-Region (in millions). The total is slightly larger than the sum of all three sub-regions due to rounding of numbers.

Sub-region	2010 Pink Salmon Index	Biological Escapement Goal[1] Lower Bound	Upper Bound
Southern Southeast	5.9	3.0	8.0
Northern Southeast Inside	3.2	2.5	6.0
Northern Southeast Outside	2.0	0.75	2.50
Total	11.2		

[1] Pink salmon escapement goals were recently adjusted as a result of updates and changes to the pink salmon escapement index.

Sockeye salmon returns throughout Southeast Alaska were generally strong in 2010. Escapement targets were met for 12 of the 13 sockeye salmon systems in Southeast Alaska with formal escapement goals. The Hugh Smith Lake adult sockeye salmon escapement was 15,600, which fell within the optimal escapement goal range of 8,000 to 18,000 adult sockeye salmon. McDonald Lake sockeye salmon were listed as a "stock of management concern" at the 2009 Board of Fisheries meeting and a new sustainable escapement goal of 55,000 to 120,000 sockeye salmon was adopted. Based on the expanded peak foot survey count, the escapement of sockeye salmon into McDonald Lake was estimated to be 72,500 fish in 2010, which was within the sustainable escapement goal range. Escapements at McDonald Lake have been below the revised escapement goal in five of the past seven years.

Escapement survey information for chum salmon index streams indicated that escapements of summer-run chum salmon through much of Southeast Alaska were relatively poor in 2010. In southern Southeast Alaska, runs are broken into summer and fall runs. The Southern Southeast chum salmon stock group is composed of an aggregate of 13 summer-run chum salmon streams on the inner islands and mainland of southern Southeast Alaska, from Sumner Strait south to Dixon entrance, with a sustainable escapement goal of 68,000 index spawners (based on the aggregate peak survey to all 13 streams). The index of 47,000 in 2010 was approximately 60% of the recent 10-year average and well below the escapement goal (Figure 15).

Fall chum salmon runs on Prince of Wales Island appeared to be relatively strong overall and the escapement goal was easily met in Cholmondeley Sound—the one area in southern Southeast Alaska with a formal escapement goal for fall chum salmon. Fall chum salmon runs are monitored in Cholmondeley Sound through aerial surveys at Disappearance and Lagoon creeks. The escapement index of 76,000 was well above the sustainable escapement goal range of 30,000 to 48,000 index spawners (based on the aggregate peak survey to both streams; Figure 16).

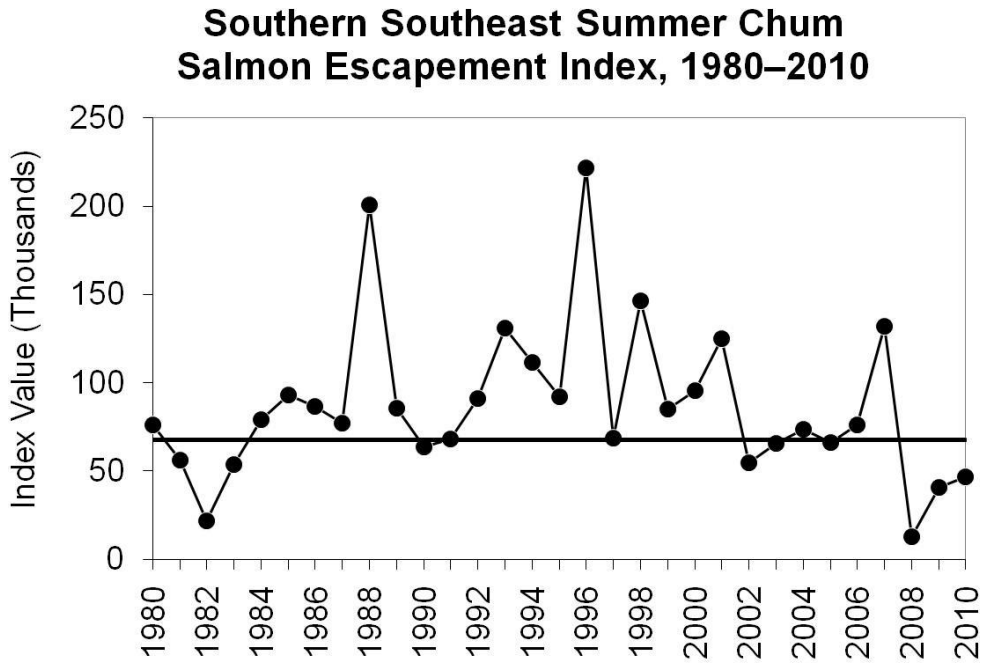


Figure 15. Observed escapement index value by year (solid circles) and the sustainable escapement goal threshold of 68,000 index spawners (horizontal line) for wild summer-run chum salmon in the Southern Southeast sub-region, 1980–2010.

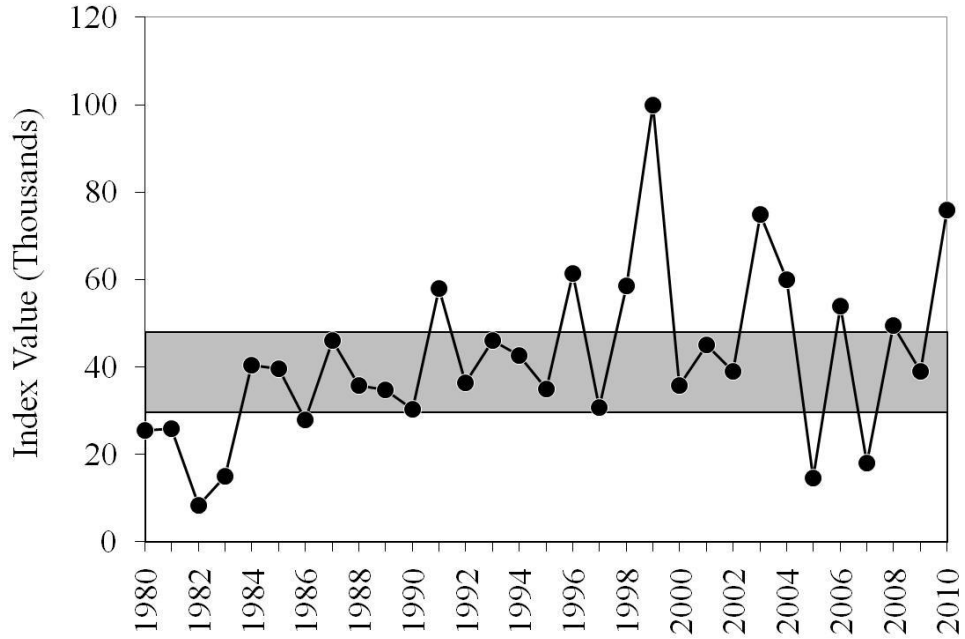


Figure 16. Observed escapement index value by year (solid circles) and the sustainable escapement goal range of 30,000 to 48,000 index spawners (shaded area) for Cholmondeley Sound fall-run chum salmon, 1980–2010.

Transboundary Area Fisheries

Stikine River Area Fisheries

The 2010 preseason forecast of 23,000, and all inseason estimates of the terminal run size of Stikine River Chinook salmon, were too low to allow a directed Chinook salmon fishery in District 108. The forecast, while above the midpoint of the escapement goal range of 21,000, was not large enough to allow for escapement, base level catches, assessment test fishery, and directed Chinook fisheries.

The 2010 Stikine River sockeye salmon return was expected to be near average. The preliminary forecast for total return to the Stikine River was 188,000 sockeye salmon including approximately 91,000 Tahltan (49%), 48,400 enhanced Tuya (26%), and 48,000 wild mainstem sockeye salmon (26%). Due to the near identical return timing of the Tahltan Lake and enhanced Tuya Lake stocks, any open fishing periods in District 108, and to a lesser extent District 106, were determined by the actual inseason abundance of the Tahltan Lake stock.

Districts 106 opened Monday June 14 for 48 hours. Below average numbers of sockeye and chum salmon were harvested while coho catches were well above average.

The initial opening of District 108 was delayed until Monday June 21 due to continued low forecasts for Stikine River Chinook salmon. In this opening, both district's sockeye catches were below average although they increased significantly in District 106 from the prior week. Coho catches were strong for early in the year and chum catches improved in District 106 but remained below average in both districts.

Both District 106 and 108 opened for 72 hours on Sunday June 27. Sockeye catches were about average in District 106 but below average in District 108. An additional 24-hour mid-week opening in District 108 occurred due to improved sockeye catches in District 106 and good sockeye harvest rates observed in District 108 for the those boats targeting sockeye. Chum salmon catches were below average, while coho salmon catches were above average in both districts. The initial inseason Stikine River sockeye salmon forecast produced on July 1 was 166,000 fish, which was lower than the preseason forecast of 188,000.

District 106 and 108 opened July 4 for 48 hours and both were extended for another 24 hours due to much improved harvest rates and a significant decrease in the number of boats fishing. Sockeye and coho catches were above average in District 106 Coho catches continued to be strong for early in the season while pink and chum catches were below average. The forecast of sockeye salmon produced on July 8 increased to 209,000; however, it was assumed the forecast was likely inflated due to optimal fishing conditions (low water) on the Stikine River.

Beginning with the July 11 opening, District 106 gillnet fishing was limited to 2 days a week to help conserve McDonald Lake sockeye; this reduced the catch of sockeye although the CPUE remained constant. Sockeye catches in District 108 also declined while coho catches remained steady and slightly above average. Due to the reduced effort in both Districts, strong catch rates in District 106, and harvestable surplus indicated by inseason forecasts, a 24-hour mid-week opening was scheduled in District 108. The final inseason forecast for Stikine Chinook salmon remained at 21,000 fish which was well below the run size needed for a U.S. Allowable Catch. The inseason forecast of Stikine River sockeye remained similar at 206,500 fish.

District 106 and 108 opened for 48 hours on July 18. Effort was below average in both districts. Sockeye harvest rates in District 106 continued to be good but dropped in District 108 from the prior week. Coho catches were about average while the harvest of pink and chum salmon increased, particularly in District 108. Near ideal Stikine inriver fishing conditions continued to provide mixed signals regarding the forecast

return of sockeye. The U.S. estimated harvest of Stikine River sockeye at this time was about 42,000 fish, well below the latest inseason forecast of U.S. Allowable Catch of 76,000 fish.

Both districts were open for 48 hours a week on July 25. In late July sockeye salmon catches, although declining as normal for this time of the year, remained better than average in District 106. The final inseason forecast of Stikine River sockeye was 213,400 fish, well above the preseason forecast of 188,000.

Management emphasis switched to pink salmon for the opening starting August 1 as the catches in the gillnet fisheries increased rapidly. Pink salmon catches in both District 106 and 108 were above average by early August and sockeye harvests remained above average in District 106. Some fishermen switched to gear targeting pink salmon due to high demand and price for this species. District 106 and 108 were both open for 72 hours beginning on August 8. The catch of sockeye salmon in District 106 rose slightly but continued to decline in District 108. Coho catches rose slightly in both districts. The catch of pink salmon in both districts continued to increase significantly, achieving a season peak of 16,700 in District 108. Chum catches in both districts fell. The numbers of boats fishing in both Districts were above average for the month of August. Indications from the Stikine River weirs at the end of August were that the Chinook escapement would likely be near the minimum goal and sockeye escapement would fall within the goal range.

Coho salmon management typically commences in late August or early September in both the District 106 and 108 gillnet fisheries. Prior to the switch to coho salmon management, the District 106 fishery harvested 121,898 coho salmon; approximately 54% of the total District 106 coho salmon catch. The fisheries were open for 72 hours a week from September through the end of the fishery on October 12 with exception of 2 weeks that were open for 48 hours. Fishing effort remained above average for most of the fall. The catch of coho and pink salmon were well above average in both districts. Below average catches of chum salmon continued in District 106 while few were caught in District 108. The catch of hatchery coho salmon was well above average. Inriver indications for coho salmon were that the return was about or slightly above average.

For the 2010 season, the number of gillnet vessels that fished in District 106 was above average while the number of days the fishery was open was slightly below average (Figures 17 and 18). The 2010 harvest in the District 106 commercial gillnet fishery included 1,223 Chinook, 112,443 sockeye, 225,562 coho, 309,891 pink, and 97,948 chum salmon (Table 42). District 106 harvests of Chinook and chum salmon were below the 2000-2009 average while harvest of sockeye, coho and pink were above average (Figures 19-23). The final inseason estimate of Stikine River sockeye salmon harvested in District 106 was 21,000 or approximately 19% of the harvest. Enhanced sockeye from local releases (mostly Neck and Lake and Burnett Inlet) contributed approximately 11,900 sockeye (10.5%) to the District 106 harvest. An estimated 750 Chinook salmon in the District 106 harvest (61%) were of Alaskan hatchery origin. An estimated 100,400 coho salmon in the District 106 harvest were of Alaskan hatchery origin, 45% of the total coho salmon harvest.

For the 2010 season, the number of gillnet vessels that fishing in District 108 was above average while the number of days the fishery was open was below average due to the lack of a directed Chinook fishery and below average fishing time for much of the directed sockeye fishery. Harvest in the fishery totaled 1,562 Chinook, 32,737 sockeye, 42,772 coho, 58,610 pink and 51,005 chum salmon. The seasonal catch of Chinook, sockeye and chum salmon were below the 2000-2009 average while the catch of coho and pink salmon were above average (Figures 24-30). The District 108 fishery harvested an estimated 28,323 Stikine River sockeye salmon, 87% of the District 108 sockeye salmon harvest. An estimated 41% (17,414 fish) of the District 108 coho salmon harvest was of Alaskan hatchery origin. The Alaska hatchery Chinook salmon contribution in District 108 was estimated at 1,085 fish, 70% of the total harvest. The estimated harvest of Stikine River Chinook was 520 fish (1,562 total U.S. harvest).

Table 42 Weekly Salmon Catch in the Alaskan District 106 Commercial Drift Gillnet Fisheries, 2010. Catches do not include Blind Slough terminal area harvests.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
25	14-Jun	244	2,220	6,395	95	351	73	2	146
26	21-Jun	120	6,566	13,927	310	3,414	65	3	195
27	27-Jun	280	11,193	22,210	1,779	7,530	88	3	264
28	4-Jul	145	17,713	13,285	3,234	9,816	48	3	144
29	11-Jul	135	15,348	8,810	2,848	10,335	55	2	110
30	18-Jul	51	16,454	6,017	9,055	13,496	58	2	116
31	25-Jul	94	16,528	6,620	24,979	10,184	64	2	128
32	1-Aug	40	9,105	9,338	55,448	7,272	78	2	156
33	8-Aug	4	9,199	12,153	70,083	5,835	105	3	315
34	15-Aug	48	5,494	12,255	91,512	6,233	88	3	264
35	22-Aug	11	1,649	10,888	34,921	3,858	80	3	240
36	29-Aug	12	605	19,935	11,089	7,088	85	3	255
37	5-Sep	22	317	32,304	3,683	8,611	103	3	309
38	12-Sep	4	35	32,711	339	2,898	97	3	291
39	19-Sep	6	7	12,870	516	847	69	2	138
40	26-Sep	3	0	3,362	0	68	16	3	48
41	3-Oct	2	0	2,115	0	109	13	3	39
42	10-Oct	Confidential information, less than 3 boats fishing.						2	
Total		1,223	112,433	225,562	309,891	97,948	180	47	3,161
2000-2009 Average		1,375	98,056	138,659	300,921	216,153	158	48	2,867
2010 as % of Average		89%	115%	163%	103%	45%	114%	98%	110%

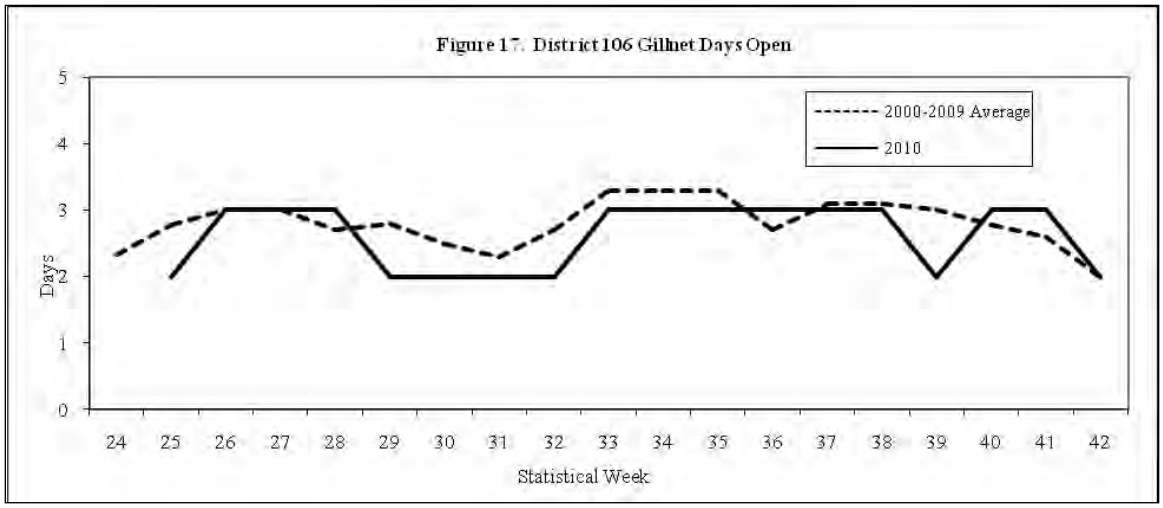


Figure 18. District 106 Gillnet Boats Fishing

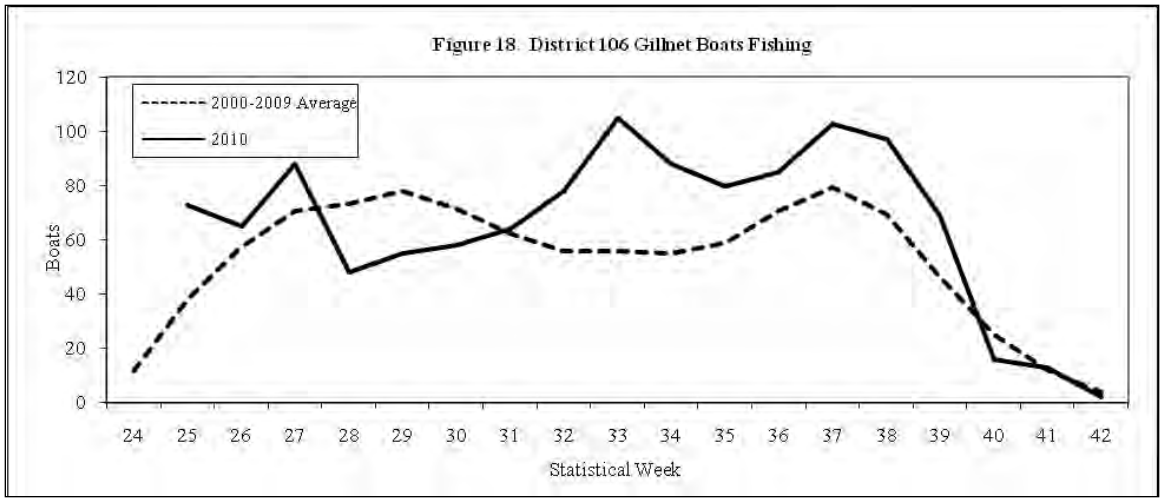


Figure 19. District 106 Gillnet Chinook Catch

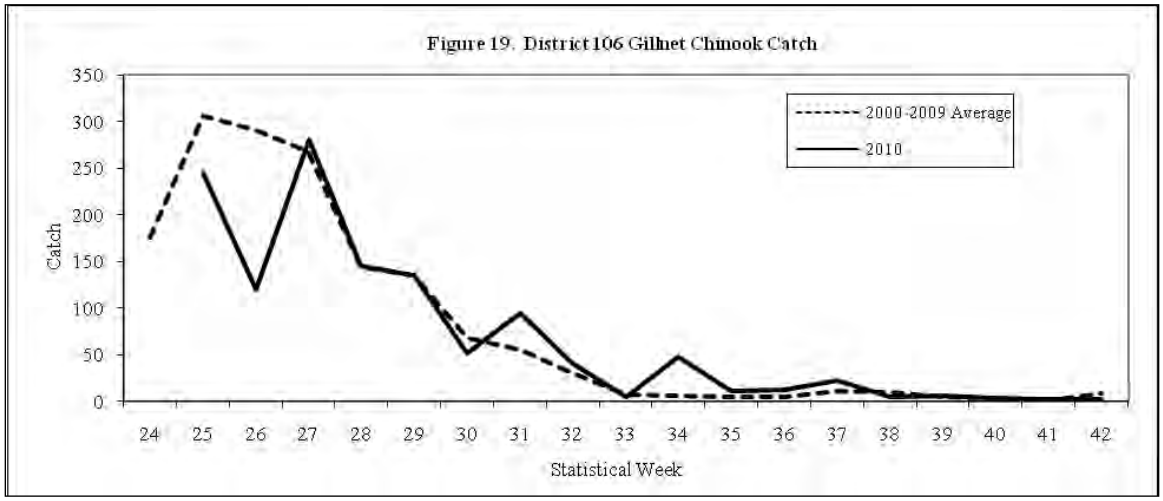


Figure 20. District 106 Gillnet Sockeye Catch

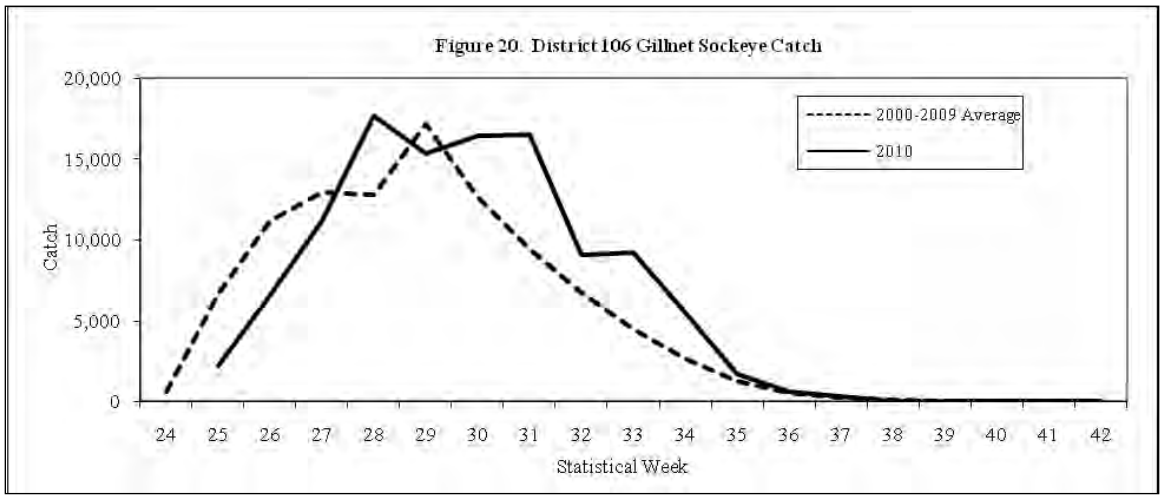


Figure 21. District 106 Gillnet Coho Catch

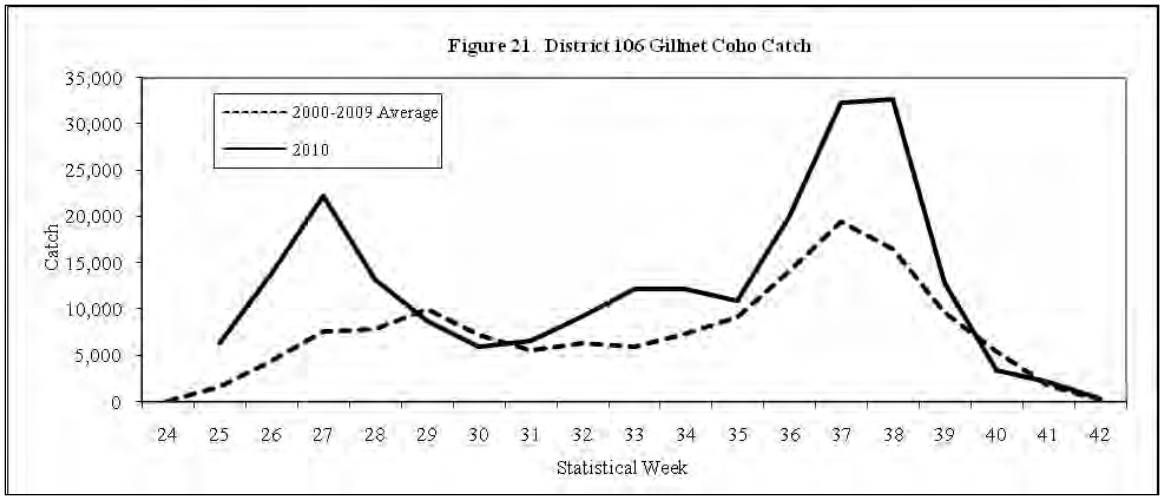


Figure 22. District 106 Gillnet Pink Catch

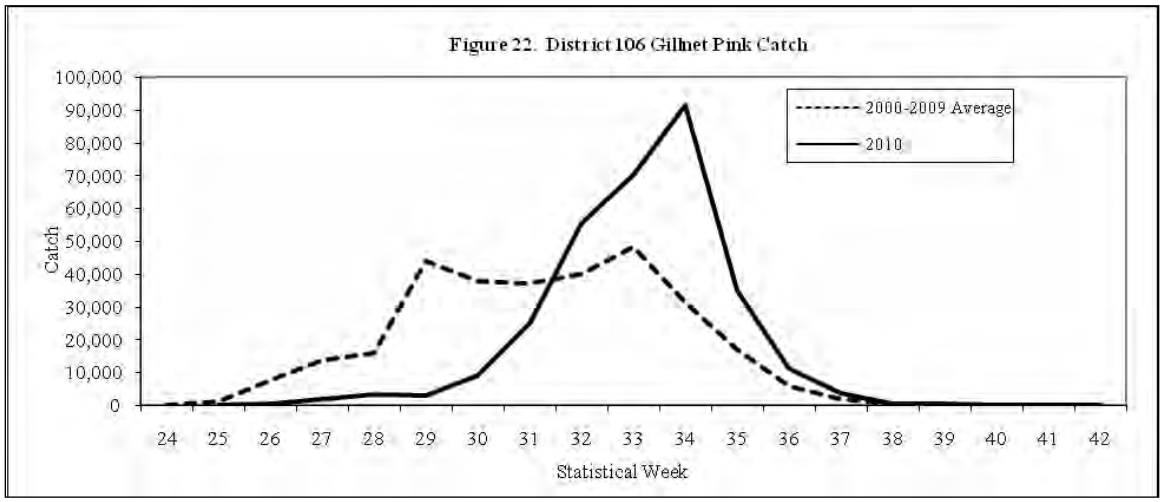


Figure 23. District 106 Gillnet Chum Catch

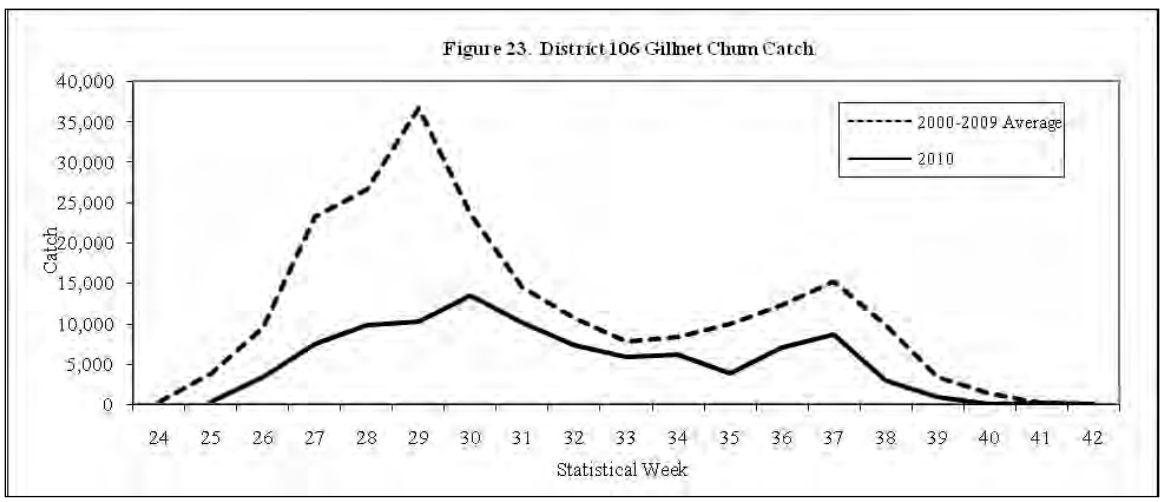


Table 43 Weekly Salmon Catch and Effort in the Alaskan District 108 Commercial Drift Gillnet Fishery, 2010. The permit days are adjusted for boats that fished only the midweek opening. All averages include the directed Stikine Chinook fisherine in 2004-2009.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
26	21-Jun	225	3,803	1,347	21	182	40	3	120
27	27-Jun	823	10,888	2,663	549	2,231	69	4	173
28	4-Jul	194	7,196	1,123	437	2,094	32	3	96
29	11-Jul	152	4,854	1,222	1,039	4,883	54	3	54
30	18-Jul	86	3,013	1,047	3,573	19,067	41	2	82
31	25-Jul	44	1,590	580	4,594	17,667	41	2	82
32	1-Aug	9	691	957	14,230	2,388	23	2	46
33	8-Aug	3	329	1,500	16,683	870	25	3	75
34	15-Aug	5	254	2,381	14,120	437	23	3	69
35	22-Aug	2	81	3,028	2,896	303	35	3	105
36	29-Aug	7	25	3,760	396	324	33	3	99
37	5-Sep	5	9	5,953	61	327	35	3	105
38	12-Sep	4	4	6,974	10	64	33	3	99
39	19-Sep	1	0	7,421	0	109	30	2	60
40	26-Sep	2	0	2,377	1	58	20	3	60
41	3-Oct	0	0	439	0	1	7	3	21
Total		1,562	32,737	42,772	58,610	51,005	146	45	1,346
2000-2009 Average		8,351	45,682	26,656	38,035	108,966	122	51	2,174
2010 as % of Average		19%	72%	160%	154%	47%	120%	88%	72%

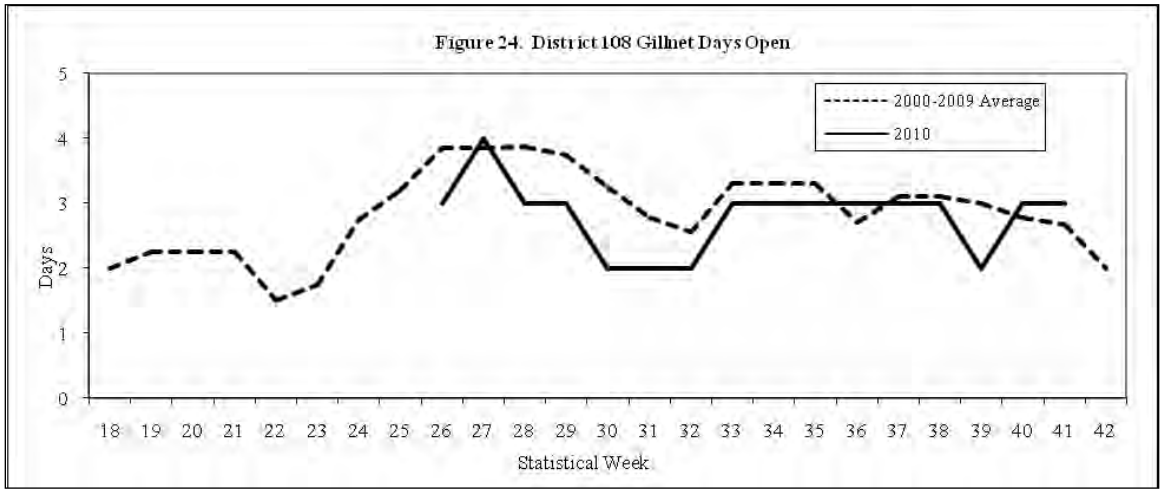


Figure 25. District 108 Gillnet Boats Fishing

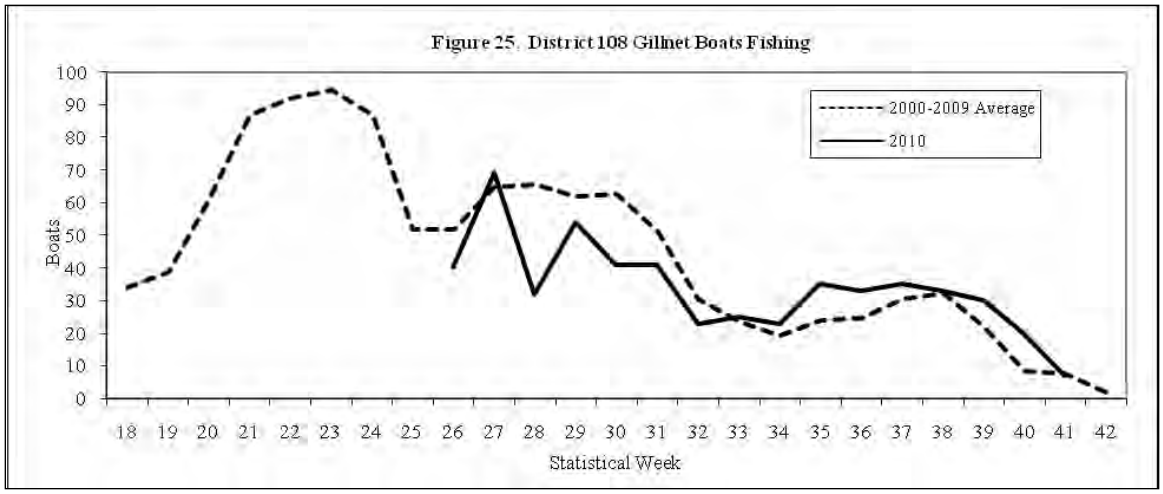


Figure 26. District 108 Gillnet Chinook Catch

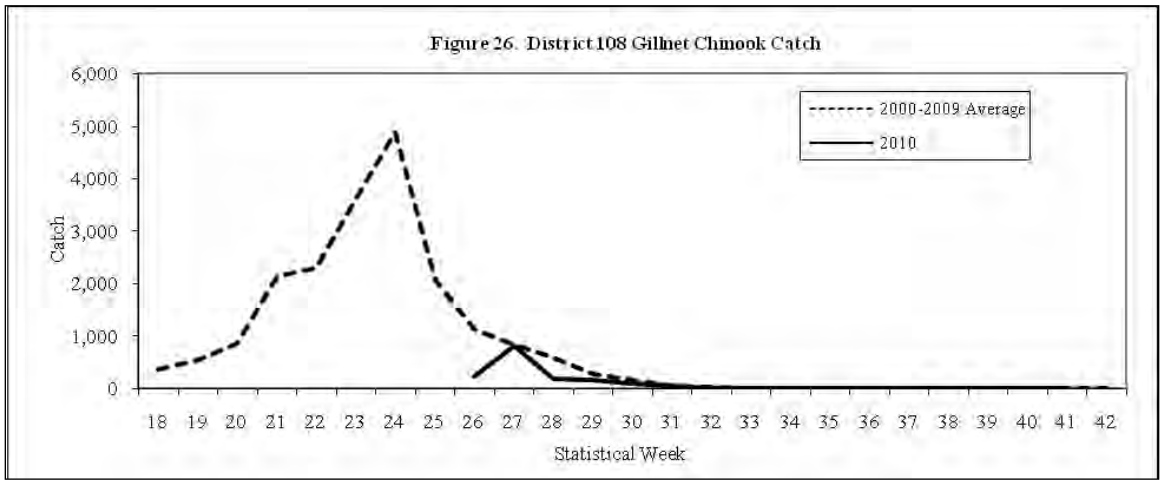
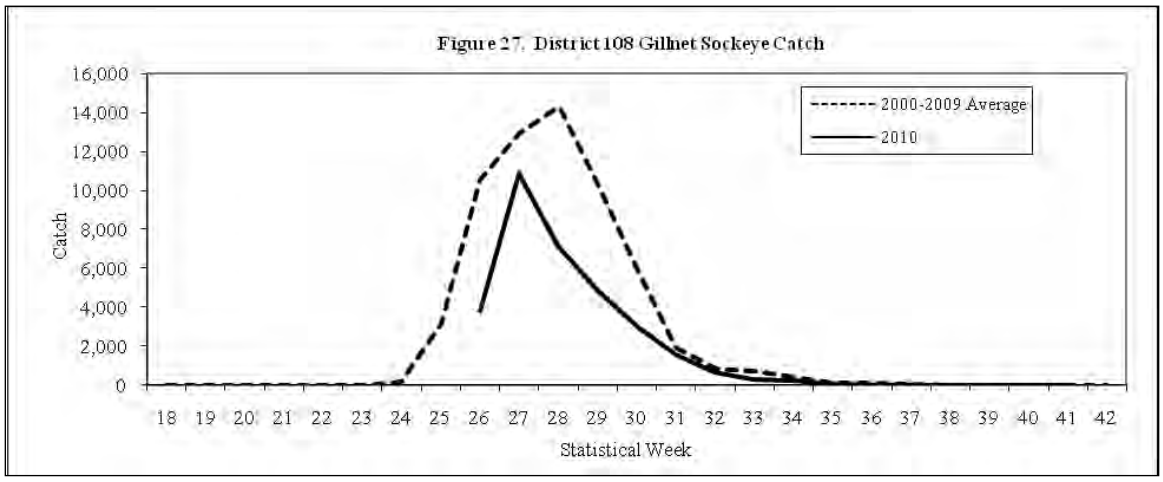


Figure 27. District 108 Gillnet Sockeye Catch



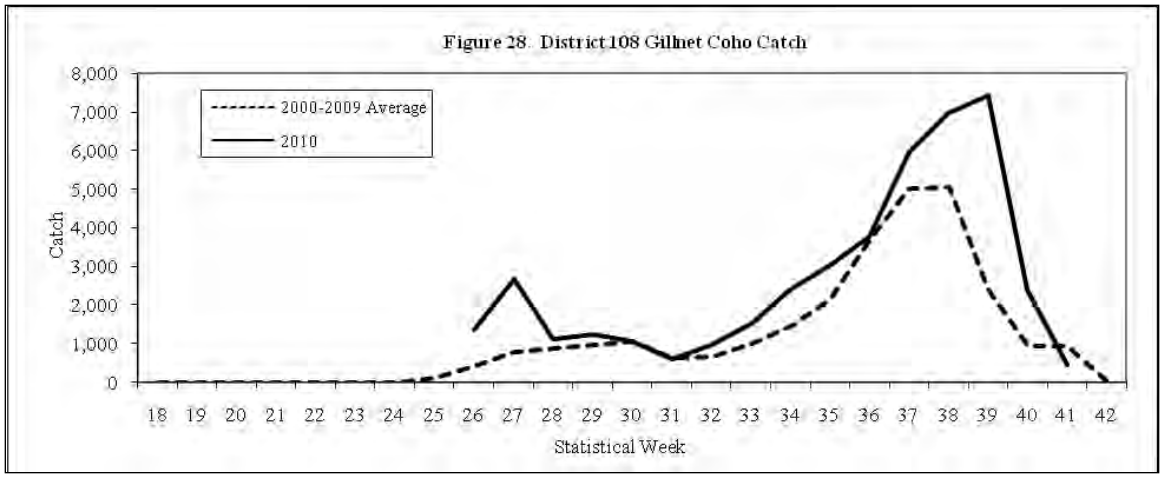


Figure 28. District 108 Gillnet Coho Catch
2000-2009 Average
2010
Catch
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
Statistical Week

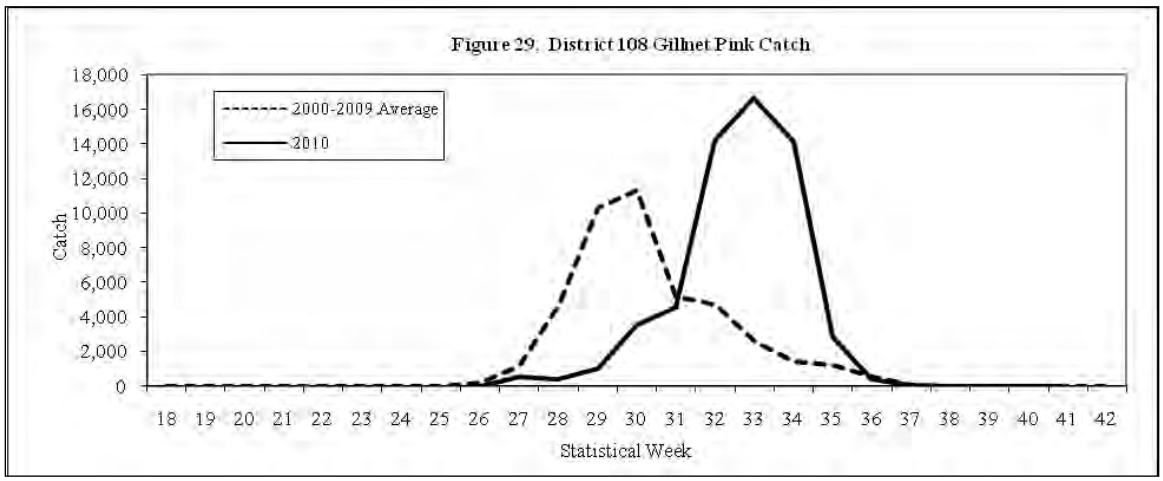


Figure 29. District 108 Gillnet Pink Catch
2000-2009 Average
2010
Catch
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
Statistical Week

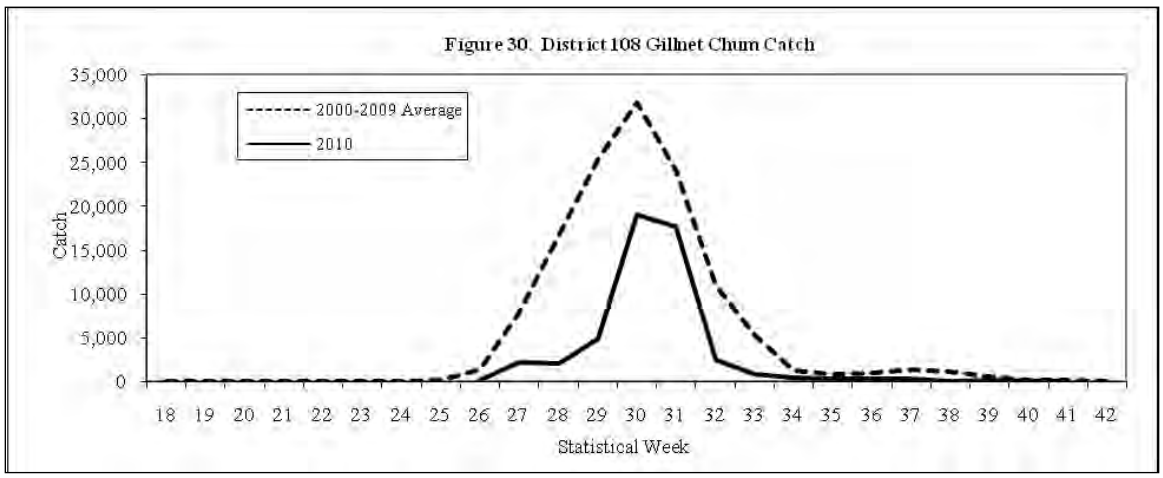


Figure 30. District 108 Gillnet Chum Catch
2000-2009 Average
2010
Catch
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
Statistical Week

Harvest sharing of Stikine River enhanced and wild sockeye stocks is based on inseason abundance forecasts produced by the Stikine Management Model (SMM) (Table 44). The marine and inriver catch of planted Tuya fish were estimated by examining otoliths for thermal marks. Egg diameter analysis of inriver catches was used to estimate the relative abundance of Tahltan and Tuya fish to the abundance of mainstem spawning stocks in the Stikine River. The historical average weekly stock compositions were used to estimate the harvests of Tahltan and Mainstem Stikine sockeye salmon stocks in marine harvests.

Based on these analyses and ratios, the 2010 Sumner Strait fishery (subdistricts 106-41 & 42) harvested 14,919 Stikine sockeye salmon, 25% of the total sockeye harvest in those subdistricts. The Clarence Strait fishery (subdistrict 106-30) harvested an estimated 3,441 Stikine sockeye salmon, 7% of the sockeye harvest in that subdistrict. It is estimated that the 2010 District 108 fishery harvested 28,323 Stikine fish, 87% of the total sockeye harvest in that area.

An estimated 48,229 Stikine sockeye salmon were harvested in commercial gillnet fisheries from districts 106 and 108. Of this amount, an estimated 20,377 fish were produced by the joint U.S./Canada fry-planting projects on the Stikine River.

A total of 106 Stikine River subsistence fishing permits were issued and current estimate of the sockeye subsistence harvest for the Stikine River is 1,547 fish. The guideline harvest level for the subsistence fishery is 600 sockeye salmon. Sockeye harvested in the subsistence fishery are part of the U.S. total allowable catch.

Preliminary postseason run reconstruction estimates (Table 45) will differ from the inseason management model estimates (Table 44).

Table 44 Weekly Forecasts of Run Size and Total Allowable Catch for Stikine River Sockeye Salmon as Determined In-Season by the Stikine Management Model, 2010

Stat.	Start	Forecast	TAC			Cumulative Catches	
Week	Date	Run Size	Total	U.S.	Canada	U.S.	Canada
26	20-Jun	187,700	118,672	59,336	59,336	7,875	1,852
27	27-Jun	187,700	118,672	59,336	59,336	14,378	6,023
28	04-Jul	166,113	100,809	50,405	50,405	33,500	22,718
29	11-Jul	209,026	146,106	73,053	73,053	36,721	27,377
30	18-Jul	206,580	139,965	69,983	69,983	42,002	38,049
31	25-Jul	219,927	152,502	76,251	76,251	44,580	47,485
32	01-Aug	189,336	122,933	61,466	61,466	40,969	48,246
33	08-Aug	213,381	145,577	72,788	72,788	41,696	49,907
34	15-Aug	214,520	146,021	73,010	73,010		
Preliminary end-of-season estimate		135,721	96,209	48,104	48,104	47,209	50,543

[a] Does not include test fishery catches

Table 45 Preliminary Post Season Stikine River Sockeye Salmon Run Reconstruction, 2010

					Tahltan				
	Tahltan	Mainstem	Total	Tuya	Wild	Hatchery	Total Stikine	All Planted	All Wild
Escapementa	22,860	25,163	48,023	15,687	13,190	9,670	63,710	25,357	38,353
ESSR Catchb	0		0	0			0	0	0
Biological Samples	158		158	280	91	67	438	347	91
Broodstock	4,352		4,352		2,511	1,841	4,352	1,841	2,511
Natural Spawning	18,350	25,163	43,513		10,588	7,762	43,513	7,762	35,751
Excessc				15,407			15,407	15,407	
Canadian Harvest									
Aboriginal	4,145	127	4,272	3,004	2,491	1,654	7,276	4,659	2,618
Upper Commercial	687	9	695	520	419	268	1,215	788	427
Lower Commercial	18,786	7,386	26,172	15,881	11,326	7,460	42,053	23,341	18,712
Tuya Test	1,167	173	1,340	1,452	304	239	2,792	1,691	477
Total	24,785	7,695	32,479	20,857	14,540	9,622	53,336	30,478	22,234
% Harvest	49.9%	43.4%	48.2%	61.0%					
Test Fishery Catch	420	1,118	1,538	216	270	151	1,754	367	1,387
Inriver Run	48,065	33,975	82,041	36,760	28,000	19,442	118,800	56,202	61,975
U.S. Harvest									
106-41&42	7,142	2,419	9,561	5,358	5,107	2,035	14,919	7,393	7,526
106-30	1,556	1,474	3,030	410	1,451	105	3,440	515	2,925
108	15,547	5,700	21,247	7,076	10,882	4,665	28,323	11,741	16,582
Subsistence	626	442	1,068	479	377	249	1,547	727	820
Total	24,871	10,035	34,906	13,323	17,817	7,054	48,229	20,377	27,852
% Harvest	50.1%	56.6%	51.8%	39.0%					
Test Fishery Catch	0	0	0	0	0	0	0	0	0
Total Run	72,936	44,011	116,947	50,083	45,817	26,496	167,029	76,578	89,827
Escapement Goal	24,000	30,000	54,000	0					
Terminal Excessd				16,769					
Total TAC	48,516	12,893	61,409	33,314			94,723		
Total Harveste	50,076	18,848	68,924	34,395			103,319	51,222	51,474
Canada TAC	24,258	6,447	30,704	16,657			47,361		
Actual Catchfg	24,785	7,695	32,479	20,857			53,336	30,478	22,234
% of total TAC	102.2%	119.4%	105.8%				112.6%		
U.S. TAC	24,258	6,447	30,704	16,657			47,361		
Actual Catch fg	24,871	10,035	34,906	13,323			48,229	20,377	27,852
% of total TAC	102.5%	155.7%	113.7%				101.8%		

a Escapement into terminal and spawning areas from traditional fisheries.

b Catch allowed in terminal areas under the Excess Salmon to Spawning Requirement license.

c Fish returning to the Tuya system are not able to access the lake where they originated due to velocity barriers.

d The number of Tuya fish that should be passed through traditional fisheries in order to harvest the Tuya stock at the same rate as the Tahltan stock to ensure adequate spawning escapement for Tahltan fish.

e Includes traditional, ESSR, and test fishery catches.

f Does not include ESSR or test fishery catches.

g U.S. harvest estimate differs from Joint Interception Committee estimate because no estimates are made for catches other than in the listed

A number of stocks are known to contribute to the Wrangell/Petersburg area sport Chinook salmon fishery, including those from the Taku, Unuk, Chickamin, and King Salmon rivers as well as local hatchery stocks. But the major contributor of large, wild mature fish is believed to be the Stikine River. Preliminary estimates indicate that approximately 994 Chinook harvested in the Wrangell/Petersburg sport fishery were of Stikine River origin during 2010 (based on coded wire tag analysis and maturity data collected from onsite surveys).

Taku River Area Fisheries

Table 46 Weekly Salmon Harvest in the Alaskan District 111 Traditional Commercial Drift Gillnet Fishery, 2010

Stat. Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
26	20-Jun	633	2,398	42	47	9,299	65	3	195
27	28-Jun	433	3,016	123	507	42,915	59	3	177
28	5-Jul	215	3,725	516	4,510	97,278	115	2	230
29	12-Jul	154	7,186	1,224	7,875	112,173	136	2	272
30	19-Jul	83	14,330	2,336	22,043	152,395	134	2	268
31	26-Jul	88	12,672	2,608	20,426	47,036	139	2	278
32	2-Aug	30	12,612	2,988	27,646	21,082	61	3	183
33	9-Aug	4	2,364	1,663	28,344	2,692	49	2	98
34	16-Aug	3	1,596	3,704	18,549	1,124	41	3	123
35	23-Aug	2	1,790	6,846	2,303	738	51	4	204
36	30-Aug	9	185	10,782	95	1,028	44	4	176
37	6-Sep	6	56	12,497	9	596	50	4	200
38	13-Sep	4	11	10,543	0	224	42	4	168
39	20-Sep	5	5	5,699	0	19	25	4	100
40	27-Sep	5	1	588	0	6	12	4	48
41	4-Oct	Confidential information - less than three boats fishing						4	
Total		1,674	61,947	62,204	132,354	488,605	204	43	2,723
2000-2009 Average		4,836	159,951	31,540	108,239	419,594	184	60	3,606
2010 % of 10 year average		35%	39%	197%	122%	116%	111%	71%	76%

The escapement goal range for large Taku River Chinook salmon is 19,000 to 36,000 fish with a point goal of 25,500 fish. The PST established base level catches of 1,500 and 3,500 large Chinook salmon for Canada and the U.S., respectively, that reflect the average harvests by each country between 1985 and 2003. In years of high abundance, directed fisheries can be implemented to harvest runs in excess of escapement needs.

In 2010, the preseason forecast of terminal run size was 41,328 which equated to a small U.S. allowable catch of 1,782 large Chinook salmon. All subsequent inseason estimates were even less, and as a result, the U.S. did not prosecute any directed commercial fisheries but did liberalize the sport fishery. The U.S. sport fishery harvested an estimated 1,406 large Chinook salmon. When combined with the 639 large Chinook salmon caught in the traditional U.S. sockeye fishery, the U.S. harvested a total of 2,046 large Chinook salmon in 2010, well below the base level catch of 3,500 fish.

The first inseason estimate of large Taku River Chinook salmon terminal run was 39,426 and was released on May 19. This equated to a revised U.S. allowable catch of 1,855. After accounting for run timing only about half of this allowable catch would be available for harvest, an unmanageably small amount to allow directed commercial fishing in 2010. By late June the inriver Chinook run size past all fisheries was estimated at 25,170, just shy of the point goal and with continued good catches in the Canyon Island fishwheels it was anticipated that the 25,500 escapement goal would easily be met.

The final estimate of large Taku River Chinook salmon inriver abundance is 34,746 in 2010. A total of 5,439 large Chinook salmon were harvested in the Canadian commercial, sport, and food fisheries resulting in a preliminary escapement estimate of 29,307 fish and a final terminal run estimate of 36,791. These escapement and terminal run estimates are 75% of the ten-year (2000-2009) averages of 39,217 and 48,900, respectively.

The total run of wild Taku river sockeye salmon in 2010 was expected to be below average based on spawner-recruit analysis and sibling forecasts. The 2005 and 2006 parent year escapements were 120,100 and 146,000 fish respectively, both above the PST escapement goal of 75,000 fish as well as the 10-year average escapement of approximately 112,500 sockeye salmon. The joint U.S./Canada Taku River sockeye salmon enhancement project at Tatsamenie Lake was not expected to contribute significant numbers of fish to harvest in 2010 yet enhanced sockeye salmon returning to DIPAC's Snettisham Hatchery, based on DIPAC's forecast, was 198,000 fish, greater than the 2009 return of 113,200.

Directed sockeye and chum salmon fishing in District 111 first opened on Sunday, June 20 for 3 days. An average number of boats caught above average numbers of Chinook salmon, below average numbers of sockeye, pink and chum salmon, and average numbers of coho. Sockeye indicators from the Taku River were mixed with Canyon Island fish wheel catches being below average and the Canadian inriver fishery catches above average.

The following week, June 27, the fishery was again opened for three days. Effort was below average as was the harvest of all species except coho salmon. However, the catch per unit effort for Chinook, coho and chum salmon was above average and many boats switched to 6" mesh gear to target chum salmon which were larger than normal. Sockeye salmon catch per unit effort for boats targeting sockeye was close to average. Sockeye indicators in the Taku River were weak with Canyon Island fish wheel catches improving but still only 66% of average while Canadian inriver catches were 75% of average. The projection of the Taku above border sockeye salmon run size was 68,655 fish, about 50% of the ten year average.

In early July the number of boats fishing District 111 increased to above average numbers but due to poor sockeye salmon catches, the fishery was only opened for two daysper week. Most of the gillnet fleet switched to 6" mesh to target chum salmon. Indicators in the Taku River continued to be poor but low water levels hampered fish wheel performance. In addition, the Canadian inriver fishery sockeye salmon CPUE dropped below average, even with the optimal fishing conditions caused by low water. Regardless, the early July projection for Taku River above border sockeye salmon run size improved to 82,000 fish. Accounting for inriver harvest, the escapement was estimated to be tracking the midpoint of the escapement goal range at 77,000 fish.

On July 19, the fishery opened for two days and the number of boats fishing continued to be above average. For the first time all season, sockeye salmon CPUE was above average but in total the harvest was below average due to reduced fishing time. Chum salmon CPUE and catches were above average, coho salmon catches were strong, and the catch of pink salmon rose to above average. Canyon Island fish wheel catches of sockeye salmon reached average levels even with continuing low water level suggesting an above average abundance of sockeye salmon. Even so, the estimate of the above border sockeye

salmon run size fell to 66,000 fish yet this still resulted in a projected escapement that fell comfortably above the 75,000 fish escapement goal.

On July 26, the fishery opened for two days due to low sockeye salmon catch, continuing uncertainty about the run, and above average levels of effort. Coho, pink, and chum salmon catches were above average. Indicators in the Taku River continued to be variable but overall sockeye salmon inriver abundance projected to be below average yet on track to exceed the lower bound of the escapement goal range.

In early August, effort in District 111 dropped off substantially while CPUE for sockeye increased and was above average for all other species. The above border projection of the Taku sockeye run size declined slightly but the inriver estimate suggested the lower bound of the escapement goal would be reached and the fishery was extended to three days for the first time since June.

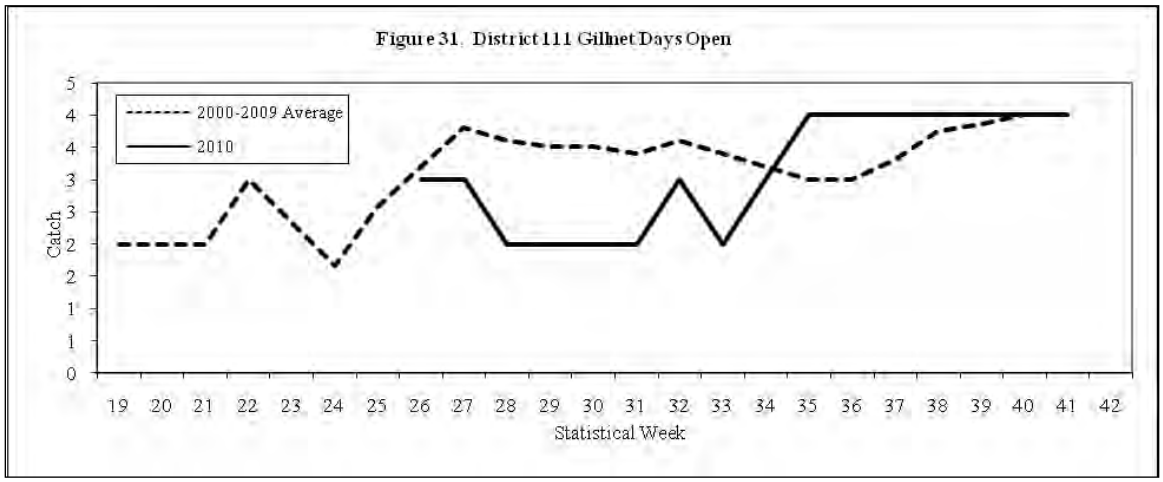
On August 9, the fishery was opened for two days and effort continued to drop as the sockeye salmon run tapered off. Coho and chum salmon catches were average, pink salmon catches were above average, and CPUE was above average for all three species. The inseason estimate for Taku River sockeye salmon indicated that 83,500 fish had escaped past all fisheries exceeding the escapement goal of 75,000.

On August 16, the fishery opened for three days yet poor weather further reduced fishing effort resulting in reduced catches albeit with at or above CPUE levels for all species. Management shifted focus to coho salmon and coho CPUE was over twice the long term average.
The first inriver run estimate of 20,454 Taku River coho salmon was released on August 3. This estimate projected to a final inriver run of 170,000, substantially higher than the preseason forecast of 100,000. The management intent of the U.S. is to ensure a minimum inriver run of 38,000 Taku River coho salmon as detailed by the Pacific Salmon Treaty. With good coho salmon catches in District 111 and in the Canyon Island fish wheels, the high first inseason projection, and with adequate escapements of local pink salmon, District 111 was opened for four days a week through the end of the season.

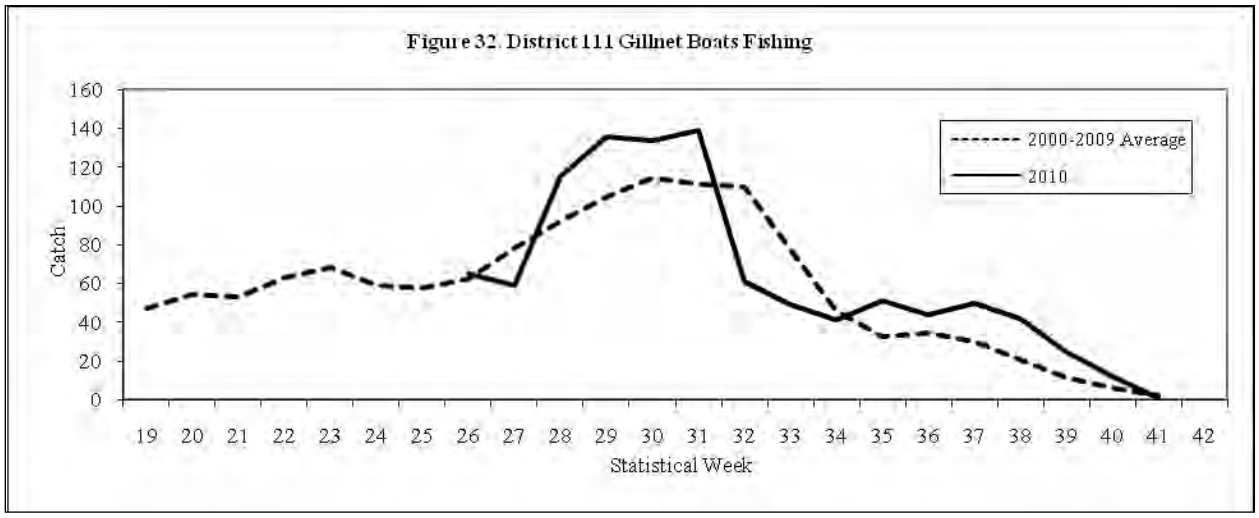
In early September, fishing effort remained low and coho salmon catches were above average. Low water rendered the Canyon Island fish wheels inoperable and tangle nets were used to capture and tag fish as part of the joint U.S./Canada stock assessment project. The Canadian inriver fishery had above average CPUE and inseason projections remained at very high levels.

As September progressed, effort in the District 111 fishery increased to above average levels and coho salmon CPUE continued to improve. The final estimate of Taku River coho salmon inriver abundance was 117,846. The Canadian inriver fishery harvested 13,483 coho salmon resulting in an escapement of 104,363.

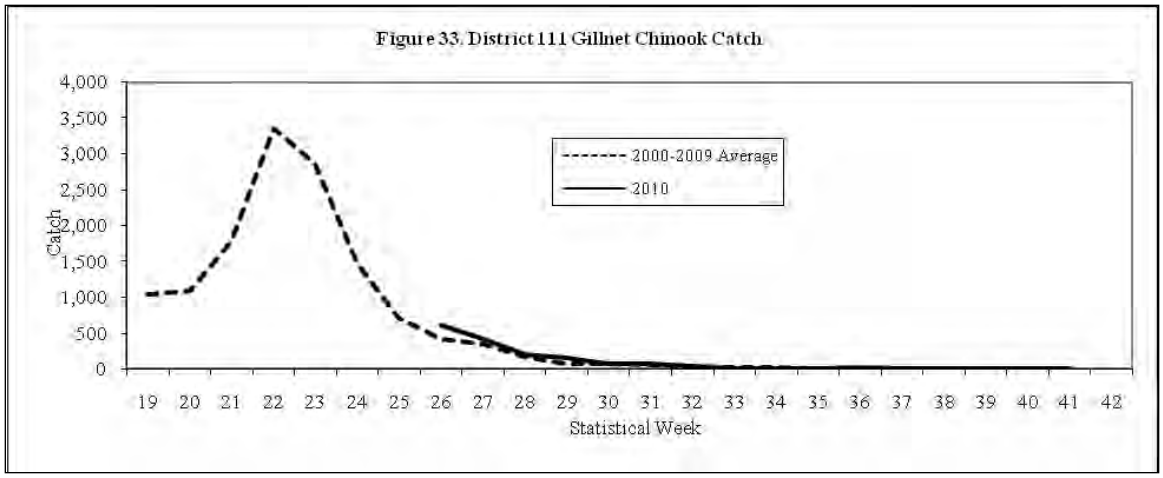
District 111 opened for a below average number of days until September (Figure 31).



The number of boats fishing was below average during the first two weeks of the season, above average in July, below average through mid-August, and above average for the remainder of the season.



There was no directed Chinook salmon fishery in 2010. In the directed sockeye portion of the fishery Chinook catches were about average, totaling 1,551 fish (Figure 33) of which 639 were estimated to be large Taku River Chinook salmon.



The total 2010 wild Taku River sockeye salmon run was estimated at 154,012 fish (Table 47). Based on the escapement goal midpoint of 75,000 wild Taku River sockeye, the TAC was 79,012 fish. The U.S. TAC was 63,210 wild Taku River sockeye (80% of the TAC). It is estimated that the total U.S. harvest of wild Taku River sockeye salmon was 49,408 fish, 78% of the TAC. Sockeye salmon produced from a joint U.S./Canada fry-planting program at Trapper and Tatsamenie Lakes contributed an estimated 910 fish or 0.015% of the total US sockeye catch. An estimated 6,759 Snettisham Hatchery sockeye salmon were harvested in common property traditional fisheries in District 111.

The preliminary 2010 estimated above-border in-river wild Taku River sockeye run, based on mark-recapture estimates at Canyon Island, was 104,604 fish plus 3,347 salmon from Tatsamenie and Trapper fry plants, for a total of 107,951 sockeye salmon. After accounting for harvests, a total of 87,423 sockeye salmon escaped past all fisheries, above the 71,000 - 80,000 fish escapement goal range.

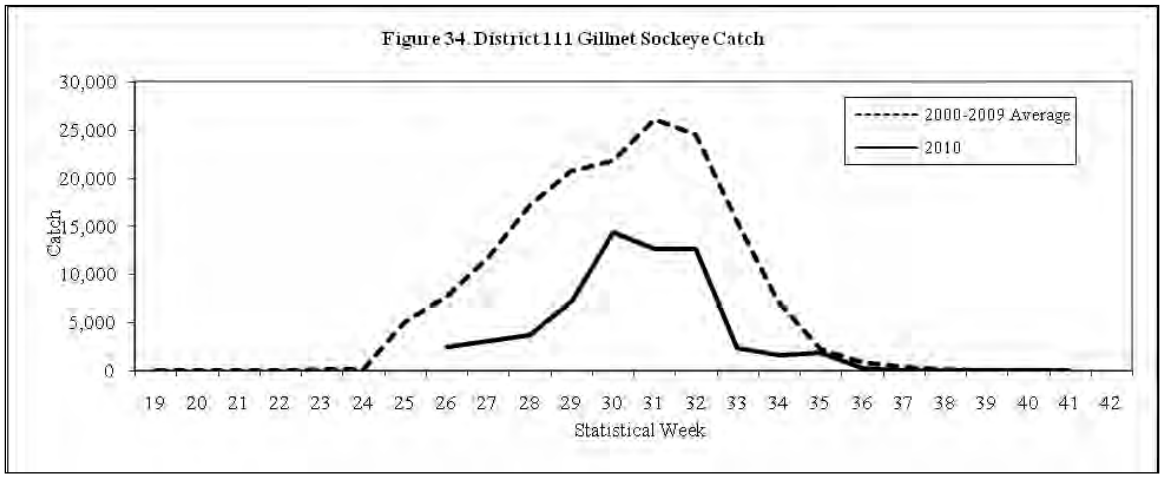
Preliminary 2010 Taku River sockeye escapements for enumerated systems were approximately: Trapper Lake weir count of 3,472; Kuthai Lake 1,626; Tatsamenie Lake weir count of 3,515 (spawning escapement 2,115), and King Salmon Lake 2,977 fish. Escapements of sockeye salmon to Port Snettisham systems were poor, with 5,570 counted through a weir at Speel Lake, within 4,000-13,000 fish escapement goal range. The Crescent Lake sonar reported a net upstream count of approximately 2,832 fish, which was not separable by species. It is known that all species of Pacific salmon do enter Crescent Lake; however sockeye is the predominant species.

Table 47 Preliminary Taku Sockeye Salmon Run Reconstruction, 2010. Estimates do not include spawinging escapements below the U.S./Canada border.

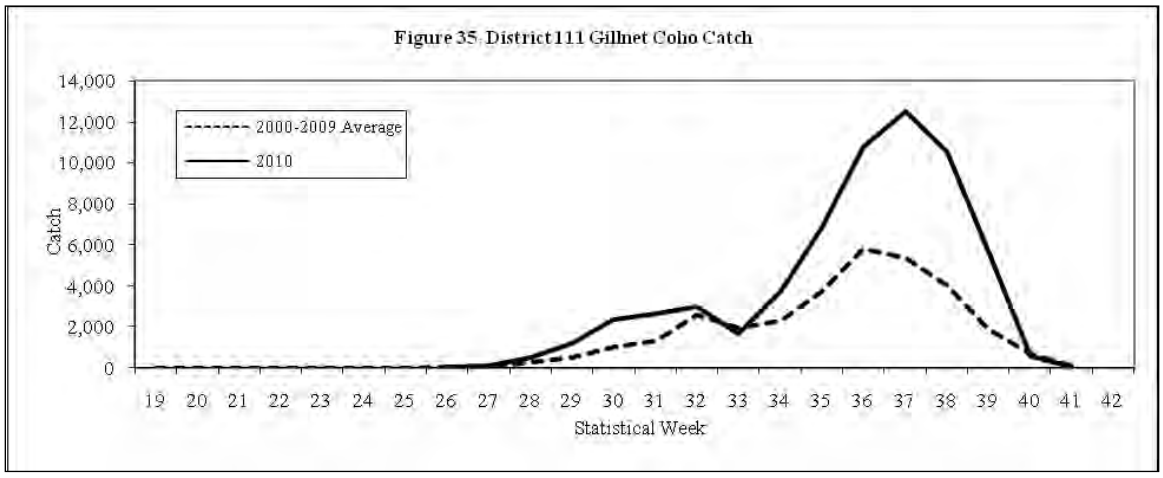
			Total	Taku Wild	Planted
Escapement			87,423	84,713	2,710
Canadian Harvest					
Commercial			20,052	19,430	622
Food Fishery			184	178	6
Total			20,236	19,609	627
Test Fishery Catch			292	283	9
Above Border Run			107,951	104,604	3,347
U.S. Harvest [a]					
District 111			49,339	48,429	910
Personal Use			1,000	979	21
Total			50,339	49,408	931
Test Fishery Catch			0		
Total Run			158,290	154,012	4,278
Taku Harvest Plan					
	Total Wild Run		154,012		
	Escapement Goal		75,000		
	Wild AC	79,012	52,006		
	Planted Run		4,278		
	TAC All Sockeye		83,290		
Canada					
	Harvest Share		20%		
	Base Allowable		16,658		
	Surplus Allowable		0		
	Total TAC		16,658		
U.S.					
	Harvest Share		80%		
	Total TAC		66,632		

[a] U.S. harvest estimate differs from Joint Interception Committee estimate because no estimates are made for catches other than the listed fisheries.

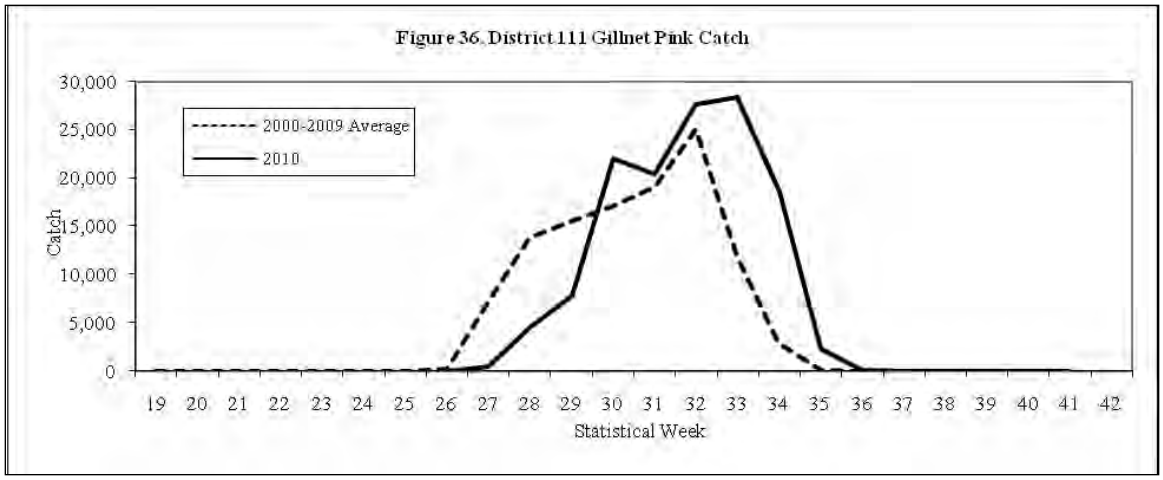
The 2010 sockeye catch in the District 111 drift gillnet fishery was 61,947 which is 39% of the 2000-2009 average. Sockeye catches were below average throughout the season (Figure 34).



Coho stocks harvested in District 111 include runs to the Taku River, Port Snettisham, Stephens Passage, and local Juneau area streams as well as Alaskan hatcheries. The 2010 coho harvest of 62,204 fish was 197% of the 10-year (2000-2009) average (Figure 35). Approximately 91% of the coho were harvested in Taku Inlet, above the ten-year average of 80%); and 9% were harvested from Stephens Passage. Alaskan hatchery coho salmon contributed 5,130 fish or 8% of the District 111 harvest. Weekly coho harvests were above average in early July and from mid-August through the end of the season. The week 37 harvest of 12,500 fish was the peak week of coho harvest for the 2010 drift gillnet fishery.

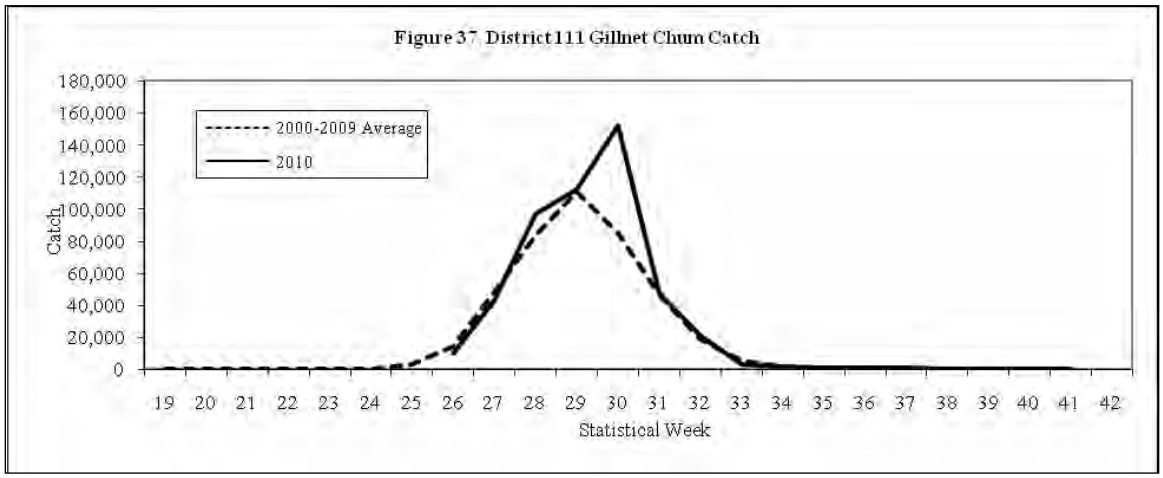


The 2010 District 111 pink salmon harvest of 132,354 fish was 117% of the ten-year (2000-2009) average (Figure 36). The 2010 pink salmon escapement to the Taku River was unknown; however, the number of pink salmon passing through the fish wheels at Canyon Island is used as an index of escapement. The 2008 (parent year) Canyon Island pink salmon fish wheel catch was 4,704 fish. The 2010 Canyon Island pink salmon fish wheel catch of 8,868 was 74% of the 1998-2008 even-year average of 11,740.



The catch of 488,605 chum salmon was 116% of the ten-year (2000-2009) average, and was comprised almost entirely of summer run fish (Figure 37). The summer chum run is considered to last through mid-August (week 33) and is comprised mostly of domestic hatchery fish and small numbers of wild stocks. Chum salmon returning both to DIPAC hatcheries in Gastineau Channel and to the DIPAC remote release site at Limestone Inlet contributed a major portion of the harvest, but quantitative contribution estimates are not available. Approximately 62% of the District 111 chum harvest was made in Taku Inlet, and 38% in Stephens Passage.

The harvest of 3,735 fall chum salmon (i.e. chum salmon caught after week 33) was 77% of the ten-year (2000-2010) average. Most of these chums are probably of wild Taku and Whiting River origin. Escapement numbers to the Taku River chum are unknown; however, the numbers of fall chum passing through the fish wheels at Canyon Island were used as an index of escapement. The index number for 2010, 94 chum salmon is 28% of the 2000-2009 average.



Several other fisheries in the Juneau area harvested Taku River salmon stocks in 2010. Personal use permits were used to harvest an estimated 979 Taku River sockeye salmon**.** A number of stocks are known to contribute to the Juneau area sport fishery, including those from the Taku, Chilkat, and King Salmon rivers, and local hatchery stocks, but the major contributor of large, wild mature fish was believed to be the Taku River. Preliminary estimates indicate that approximately 1,406 of the Chinook harvested in the Juneau sport fishery were of Taku River origin (based on coded wire tag analysis and maturity data from onsite survey data).

Transboundary River Joint Enhancement Activities

The transport of sockeye fry from the Snettisham Hatchery facility back to the Canadian lakes took place between May 18 and June 10, 2010. This season saw a relatively early ice-out on the Canadian lakes. Slightly over 3.5 million fry were released in the Canadian Tahltan, Tuya, and Tatsamenie Lakes. Fry transported were released directly from the aircraft into the lakes with one exception. An extended rearing project in shore-based raceways at Tatsamenie Lake was funded by the Pacific Salmon Commission Northern Fund. For that project there were 210,000 fry which were reared until late July and early August before release.

The Tatsamenie Lake extended rearing project involved using water from an upland fish-free water source. Growth and survival was good; somewhat surprisingly, the majority of the released fish left the lake within weeks of release in a condition that indicated they had smolted. This behavior is similar to what was seen in 2009. The fish had a unique thermal mark and the full success of the program will not be known until the adults return.

There were 4 incubators of brood year 2009 fry lost to the IHN virus this season; two from Tahltan Lake resulting in a loss of 419,000 fry and two from Tatsamenie Lake with a loss of 251,000 fry. This is the second year in a row with IHNV losses and while mildly disturbing; the losses due to this virus are consistent with Alaska's experience with sockeye culture.

Table 48 Summary of numbers and survival rates of brood year 2009 sockeye salmon fry released May-June 2010. Fish were raised at Snettisham Hatchery as part of the Transboundary River Salmon Enhancement Project.

Broodstock	Release Site	Number of Trips	Survival Rate to Eyed Stage	Survival Rate to Release	Number Released
Tahltan	Tahltan	4	77.4%	70.1%	1,826,000
Tahltan	Tuya	2	79.4%	52.5%	977,000
Tatsamenie	Tatsamenie	8	85.2%	58.6%	717,000
	Average/Totals	13			5,951,761

Brood Year 2010 Activities

Brood year 2010 TBR egg takes were initiated on August 31 at Tahltan Lake, and September 19th at Tatsamenie Lake. An estimated total of 8.1 million green eggs were collected from the two donor lakes.

Tahltan Lake egg takes were completed on September 30th with an estimated 6.00 million eggs. The receipt of four lots of Tahltan eggs was delayed by 1 day, due to a desire for fewer flights and larger egg takes; there

were 13 lots in aggregate. Tatsamenie Lake egg takes were completed on October 1st with an estimated 2.09 million eggs. Three lots of Tatsamenie eggs were delayed by 1 day; largely due to a smaller crew than normal and the necessity of waiting until the next day to transport. There were 4 lots in aggregate at Tatsamenie Lake.

While an enhancement project at Little Trapper Lake was included in the TEPP, no eggs were collected due to the low adult escapement into Little Trapper Lake and no eggs were planted in Tunjony Creek, a tributary of Big Trapper Lake.

During the 2010 season the ADFG thermal mark lab processed 18,600 sockeye otoliths collected by ADFG and DFO staff as part of the U.S./Canada fry-planting evaluation program. These collections came from commercial and test fisheries in both U.S. and Canadian waters on the Taku and Stikine Rivers over a 10-week period. In addition, several escapement samples were examined. The laboratory provided estimates on hatchery contributions for 90 distinct sampling collections. Estimates of the percentage of hatchery fish contributed to commercial fishery catches were provided to ADF&G and DFO fishery managers 24 to 48 hours after samples arrived at the lab.

Alsek River Area Fisheries

Although harvest sharing arrangements of Alsek salmon stocks between Canada and the U.S. have not been specified, Annex IV of the Pacific Salmon Treaty does call for a cooperative attempt to rebuild depressed Chinook and early-run sockeye stocks. The Canadian DFO preseason forecasts for salmon in the Alsek River were for below average returns for both Chinook and sockeye salmon based on parent-year spawning escapements, commercial catch trends, and observations of rearing conditions. Although the Chinook salmon Biological Escapement Goal (BEG) was attained at the Klukshu weir in 2009, recent returns have been below average. The Alsek Chinook salmon test fishery, conducted by ADF&G from 2005 through 2008 under auspices of the PSC, was not conducted in 2010 to allow Chinook salmon returns to continue to rebuild.

The sockeye salmon BEG was not attained at the Klukshu weir in 2008 and 2009. Prior to the first Alsek River fishing period in 2010 department staff met with Alsek River permit holders to discuss the coming season. All parties agreed that the attainment of the BEG for sockeye salmon at the Klukshu weir was the utmost priority. It was agreed that management strategies in 2010 would not utilize the traditional CPUE in season management regime. No individual weekly fishing period, regardless of CPUE information, would be extended beyond one 24-hour period during that week. In other words, emphasis was to be on the attainment of the BEG.

The Alsek River commercial fishery opened on the first Sunday in June, statistical week 24 (June 6) for 24 hours with 15 boats catching 133 Chinook and 690 sockeye salmon. The weekly fishing period remained at one day for the first ten weeks of the sockeye salmon season. Almost all Chinook salmon were harvested in the first three weeks of the season. Under a normal CPUE management regime the Alsek would not have been extended during the first four weeks of the season. For the next four weeks of the season, basically the month of July (statistical weeks 28-31), CPUE indicated sockeye salmon abundance was well above average, and all four of those weeks would have received extensions under normal management strategies. None of those four weeks were extended beyond the 24 hours agreed to prior to the season. The peak sockeye catch occurred in week 31 when 12 permits harvested 2,336 sockeye salmon. That harvest was almost equaled in week 29 when 12 permits harvested 2,269 sockeye salmon. Both sockeye salmon harvest and numbers of permits fished dropped rapidly after this. During week 34, on August 15, management strategies switched to coho salmon, and the weekly fishing period was returned to three days. Effort remained low through the end of the coho salmon season with a

maximum of six boats participating in weekly 3-day openings. The highest coho salmon harvest was in the last week in August and the first week in September when 560 coho salmon were harvested. The fishery was open the first two weeks of October, but was not fished.

The 2010 Dry Bay commercial set-gillnet fishery harvested 273 Chinook, 12,668 sockeye, and 1,884 coho salmon. No pink and 9 chum salmon were harvested. The Chinook salmon harvest was well below the recent 10-year average. Chinook salmon harvest was undoubtedly affected by conservation measures in place for sockeye salmon. The sockeye salmon harvest was also below the average, but did equal the 2009 harvest. The coho salmon harvest was also below average. The total number of boats that fished during the season was 19, which was above the 10-year average of 16. The number of fishing days, 37, was below average. The total effort expended in the fishery was 206 boat-days, which was also below average.

Table 49 Weekly catch and effort in the U.S. commercial fishery in the Alsek River, 2010.

Statistical Week	Start Date	Catch					Effort		
		Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
24	6-Jun	133	690	0	0	0	15	1	15
25	13-Jun	79	753	0	0	0	13	1	13
26	20-Jun	48	1,103	0	0	0	14	1	14
27	27-Jun	7	1,303	0	0	0	13	1	13
28	4-Jul	4	1,696	0	0	0	13	1	13
29	11-Jul	0	2,269	0	0	0	12	1	12
30	18-Jul	0	1,522	0	0	1	12	1	12
31	25-Jul	0	2,336	0	0	2	12	1	12
32	1-Aug	0	735	1	0	0	11	1	11
33	8-Aug	2	147	1	0	0	5	1	5
34	15-Aug	0	64	31	0	0	4	3	12
35	22-Aug	0	41	246	0	2	3	3	9
36-37	29-Aug	0	9	560	0	0	6	6	36
38	12-Sep	0	0	308	0	0	3	3	9
39	19-Sep	0	0	397	0	0	4	2	8
40	26-Sep	0	0	340	0	4	4	3	12
41-42	3-Oct	Not	Fished					7	
Total[a]		273	12,668	1,884	0	9	19	37	206
2001-2010 Avg.		547	15,430	2,499	1	5	16	37	242
2010 as % of Avg.		49%	82%	75%	0%	10%	118%		85%

Southeast Alaska Chinook Salmon Fishery

All Gear Harvest

The 2009 Chinook salmon target harvest level was determined using the preseason abundance index of 1.33 generated with the CTC model. The corresponding Alaskan all-gear Treaty Quota of 218,789 Chinook salmon was identified using Table 1 of Chapter 3. The preliminary estimated total Chinook salmon harvest by all Southeast Alaska commercial fisheries was 229,781 fish, the preliminary sport fish harvest was 42,686, for an all gear total catch of 272,467 (Table 51). The preliminary Treaty catch was 214,451 fish, 2.0% below the target quota of 218,789.

The preseason abundance index (AI) of 1.35 for Southeast Alaska (SEAK) was announced on March 30, 2010, which corresponds to an all-gear harvest quota of 221,823 treaty Chinook salmon. This was the second year that the Annex IV, Chapter 3 provisions of the 2009 PST agreement were implemented. Therefore, the harvest allocation for SEAK reflects a 15% reduction in allowable catch from that allowed under the 1999 PST Agreement. The preliminary estimated total Chinook salmon harvest by all Southeast Alaska commercial fisheries was 229,286 fish, and the preliminary sport fish harvest was 41,925, for an all-gear total harvest of 271,211 (Table 50). The preliminary all-gear treaty harvest was 218,329 fish, 1.6% below the all-gear treaty quota of 221,823.

Table 50 Preliminary estimated all-gear Chinook salmon harvests in 2010.

2010 Preliminary Estimated All-Gear Chinook Salmon Harvests								
Gear	**Total Harvest**	**AK Hatchery Harvest**	**Wild Terminal Exclusion**	**Alaska Hatchery Addon**	**Treaty Harvest**	**Quota**	**O/U**	**% O/U**
Troll	195,492	21,698	0	17,879	177,613	163,882	13,731	8.4%
Purse Seine	15,876	13,421	0	12,973	2,791	9,538	-6,747	44.4%
Drift Gillnet	17,417	13,017	566	11,195	5,656	6,345	1,525	70.7%
Set Net	501	0	0	0	451	1,000	-549	54.9%
Total Net	33,794	26,438	566	24,734	9,060	16,971	-7,911	46.6%
Total All Commercial Gear	229,286	48,136	566	42,613	186,673	180,853	5,820	3.2%
Sport	41,925	12,075	0	10,269	31,656	40,970	-9,314	-22.7%
Total All Gear	***271,211***	***60,211***	***566***	***52,316***	***218,329***	***221,823***	***-3,494***	***-1.6%***

Note: Annette Island and terminal area harvests are included

Table 51 Chinook all-gear harvests[1] in Southeast Alaska, 1987 to 2010, and deviation from the ceiling for years for which there were ceilings. Harvests are in thousands.

Year	Total Harvest	Add-on and Exclusion Harvest	Target Treaty Harvest	Treaty Harvest	Deviation Number	Deviation Percent
1987	282.4	17.1	263.0	265.3	2.3	0.9%
1988	279.3	22.5	263.0	256.8	-7.8	-3.0%
1989	291.0	21.5	263.0	269.5	6.5	2.5%
1990	366.9	45.9	302.0	321.0	19.0	6.3%
1991	359.5	61.5	273.0	298.0	25.0	9.2%
1992	258.8	36.8	227.4	222.0	-5.4	-2.4%
1993	304.1	32.9	263.0	271.2	8.2	3.1%
1994	264.4	29.2	240.0	235.2	-4.8	-2.0%
1995	235.7	58.8		176.9		
1996	236.3	81.3		155.0		
1997	343.0	56.3		286.7		
1998	270.6	27.4	260.0	243.2	-16.8	-6.5%
1999	251.0	52.2	184.2	198.8	14.6	7.9%
2000	263.3	76.8	178.5	186.5	8.0	4.5%
2001	265.7	78.8	250.3	186.9	-63.4	-25.3%
2002	426.5	69.4	371.9	357.1	-14.8	-4.0%
2003	439.4	59.3	439.6	380.2	-59.5	-13.5%
2004	506.2	77.4	418.3	428.8	10.4	2.5%
2005	469.6	108.9	416.4	387.7	0.3	0.1%
2006	438.5	79.9	354.5	358.6	4.1	1.1%
2007	406.9	78.5	259.2	328.4	69.2	26.7%
2008	247.3	75.0	170.0	172.3	19.5	12.7%
2009[1]	272.5	58.0	218.8	214.5	-4.3	-2.0%
2010	271.0	52.9	221.8	218.3	-3.5	-1.6%

[1] The actual target harvest and deviation cannot be calculated until the CTC completes the postseason calibration.
[2] The 2007-2010 exclusion harvests are still preliminary pending genetic stock composition estimates of the District 108 and District 111 fisheries.

Troll Fishery

The accounting of treaty Chinook salmon harvested by trollers begins with the winter fishery and ends with the summer fishery. The winter troll fishery is managed to not exceed the guideline harvest level (GHL) of 45,000 Chinook salmon established by the Alaska Board of Fisheries. The 2009-2010 winter troll fishery harvested 42,536 Chinook salmon (Table 52) from October 11, 2009 through April 30, 2010, which is 2,464 less than the winter GHL. The 2010 harvest was 10% above the 5-year average harvest and 11% above the 10-year average harvest. The Alaska hatchery percentage was 13% of the harvest, which is above the 10 and 20-year average winter fishery contributions. A total of 5,358 fish were from Alaska hatcheries with 4,378 fish counting toward the Alaska hatchery add-on. Approximately 42% of the season total catch was taken in the last two weeks of the fishery. A total of 459 permits were fished during the winter fishery, which is the similar to the 5-year average and yet higher by 30 permits than were fished last year.

The spring troll fisheries target Alaskan hatchery-produced Chinook salmon and are conducted along migration routes or close to hatchery and release sites. Terminal area fisheries, which begin during the spring, occur directly in front of hatcheries or at remote release sites. While there is no ceiling on the number of Chinook salmon harvested in the spring fisheries, the take of treaty Chinook salmon is limited according to the percentage of the Alaskan hatchery fish taken in the fishery. In 2010, spring troll

fisheries were conducted from May 1–June 30 in a total of 27 spring areas and five terminal area fisheries. The combined spring and terminal troll harvest was 29,737 Chinook salmon, the lowest since 2000, yet effort (544 permits) was well above the 10-year average and close to effort seen during the past two spring fisheries. A total of 40% (11,981) of the Chinook salmon landed in these fisheries were from Alaska hatcheries of which 9,940 counted toward the Alaska hatchery add-on (Table 52).

The 2010 summer troll fishery included two Chinook salmon retention periods. From July 1–8, a total of 74,575 Chinook salmon were harvested, of which 2,914 (3.9%) were of Alaskan hatchery origin and 2,381 counted toward the Alaska hatchery add-on, resulting in a treaty catch of 72,194 fish. From August 15–19, a total of 48,512 Chinook salmon were harvested, of which 1,445 (3.0%) were of Alaskan hatchery origin and 1,180 counted toward the Alaska hatchery add-on, resulting in a treaty harvest of 47,332 fish. The total of 123,087 Chinook salmon were harvested in the summer troll fishery, of which 4,359 were of Alaskan hatchery origin and 3,561 counted toward the Alaska hatchery add-on, resulting in a treaty harvest of 119,526 . A total of 984 permits participated in the summer fishery, which is the lowest since the summer of 2005.

The total harvest for the troll fishery in the 2010 accounting year was 195,492 Chinook salmon, with 177,613 counting as treaty harvest

Table 52 Preliminary 2010 troll fishery Chinook salmon harvest by season.

Gear/Fishery	Total Harvest	Alaska Hatchery Harvest	Alaska Hatchery Addon	Terminal Exclusion Harvest	Total Term. Exclusion/ Alaska Hatchery Addon	Treaty Harvest
Winter Troll	42,536	5,358	4,378	0	4,378	38,158
Spring Troll	29,737	11,981	9,940		9,940	19,797
Summer Troll						
First Period	74,575	2,914	2,381	0	2,381	72,194
Second Period	48,512	1,445	1,180	0	1,180	47,332
Summer Total	123,087	4,359	3,561	0	3,561	119,526
Total Traditional Troll	195,360	21,698	17,879	0	17,879	177,481
Annette Is. Troll	132	0	0	0	0	132
Total Troll Catch	**195,492**	**21,698**	**17,879**	**0**	**17,879**	**177,613**

Net Fisheries

With the exception of directed gillnet harvests of Chinook in SEAK terminal area regulatory districts 108 and 111 targeting Chinook as provided in the transboundary river agreement (Chapter 1), harvests of Chinook salmon in the net fisheries are primarily incidental to the harvest of other species and only constituted a small fraction (<1.0%) of the total net harvest of all species.

Due to preseason forecasts and inseason estimates of low returns of both Taku and Stikine River Chinook salmon neither of the District 108 or District 111 directed Chinook drift gillnet fisheries were opened in 2010. The directed sockeye salmon fisheries in these districts opened June 21 in District 108 and June 20

in District 111. The catch of large Chinook during directed sockeye salmon fisheries totaled 1,562 in District 108 and 1,551 in District 111.

Recreational Fisheries

The 2010 recreational fishery had an estimated preliminary harvest of 51,486 Chinook salmon of which 43,741 counted as Treaty harvest. The final total and Treaty harvest in the sport fishery for 2010 will be available in late fall of 2011. Comparisons of the 2010 recreational fishery harvest with recent years indicate that the preliminary harvest of 51,486 fish is 28% below the recent five-year average and 26% below the recent ten-year average. The freshwater recreational fishery for Chinook salmon 20 inches or greater in length in the Situk River near Yakutat was set to catch and release fishing only on June 24 due to low escapement, and Chinook salmon 20 inches or greater could not be removed from the water if incidentally caught. Onsite creel surveys indicated a small number of Chinook had been harvested prior to that date.

The preseason abundance index generated for the SEAK AABM fishery in spring 2010 was 1.35, resulting in a preseason sport allocation of 40,966 treaty fish under the harvest management plan adopted by Alaska Board of Fisheries . Based on this pre-season AI and the SEAK King Salmon Management Plan, the bag and possession limit for residents was two fish 28 inches or over in length and no annual limit, and for non-residents the bag and possession limit was one fish 28 inches or greater in length, with a 3 fish annual limit.

During 2010, genetic samples were collected from 2,671 large Chinook salmon (28 inches of greater in Total Length), 59 genetic samples from small Chinook salmon (under 28 inches in TL) in Terminal Harvest Areas (THAs), and 230 genetic samples were collected from small Chinook salmon harvested outside of THAs.

Southeast Alaska Coho Salmon Fisheries

Attachment B of the June 30, 1999 U.S.-Canada Agreement relating to the Pacific Salmon Treaty specifies provisions for inseason conservation and information sharing for northern boundary coho salmon. In 2010, troll CPUE in Area 6 in the early weeks of the fishery averaged 25.7, which was above the highest boundary area conservation trigger of 22. The mid-July projection of region-wide total commercial harvest was greater than the 1.12 million trigger for an early region-wide troll closure, specified in Alaska Board of Fisheries regulation and the PST conservation agreement.

The 2010 all-gear catch of coho salmon totaled 2.50 million fish of which 2.30 million (92%) were taken in commercial fisheries (Table 53). The troll catch of 1.34 million fish was 89% of the 10-year average of 1.51 million fish and accounted for 58% of the commercial catch. Average weekly power troll CPUE was 4% below the 10-year average while overall region wild stock abundance appeared very close to the 10-year average. The average dressed weight of 6.9 lbs. for troll-caught fish was 9% above the 10-year average. The harvest of coho salmon in seine fisheries (211,600 fish) was only 64% of the 10-year average while the drift gillnet harvest of 577,200 fish was 174% of average. The set gillnet harvest of 166,500 fish in the Yakutat area was 120% of the 10-year average, with 44% of the catch taken in the Situk-Ahrnklin Lagoon and 48% in the Tsiu River system. A very preliminary estimate of the Southeast Alaska sport catch of 200,000 fish was 71% of the 10-year average.

Wild production accounted for 1.83 million fish (80%) in the commercial catch compared with a recent 10-year average of 1.87 million fish (81%). Of the estimated hatchery contribution of 466,800 fish, over

99% originated from facilities in Southeast Alaska. Escapement counts and estimates were within or above goal throughout the region. The combined peak count in the 14 surveyed streams in the Ketchikan area of 4,657 spawners was within the goal of 4,250-8,500 spawners. Extended periods of high precipitation delayed surveys to the end of the normal timing window and may have affected counts. The total escapement of 2,878 spawners to Hugh Smith Lake ranked 2nd highest in 29 years and was well-above the recently revised biological goal range (500-1,600 spawners). The strong escapement to Hugh Smith Lake resulted from a low exploitation rate combined with the 4th largest return on record, largely as a result of record marine survival and smolt production that was 18% below average.

Marine survival was proportionately much higher in the south for the second year in a row. The estimated survival rate for Hugh Smith Lake smolts (21.4%) was a record and substantially higher than Auke Creek (16.4%) and the Berners River (13.5%). Total returns to two major Lynn Canal systems (Berners and Chilkat Rivers) were still below average but improved from the prior 5 years and escapement goal ranges were achieved for both systems. Ford Arm Creek on the outer coast had the lowest return since 1987 as a result of low pre-smolt production combined with low survival. However, the adult escapement of 1,610 spawners was within the goal range (1,300−2,900 spawners).

Exploitation rate estimates for indicator stocks were mixed relative to recent averages, with Alaska troll fishery exploitation rates generally being below-average. The all-gear exploitation rate of 65% for Ford Arm Creek on the outer coast was above the 10-year average (62%). Although the troll exploitation rate on the stock (46%) was below average (52%), the purse seine exploitation rate reached a record 16% as a result of a very large local pink salmon run in a year of relatively low regional abundance that attracted considerable effort. In contrast, the estimated all-gear exploitation rate on the Hugh Smith Lake stock was only 48% for the second year in a row, down substantially from the 1990s average of 75%. The Alaska troll fishery exploitation rate on the stock was only 22% compared with a long-term average of 35%, continuing a recent lower trend since 2008. The Alaska troll fishery exploitation rate on the Auke Creek stock was estimated at 25% compared with a 10-year average of 26% and a long-term average of 30%.

The 2010 region-wide summer troll coho fishery began on July 1. There was a mid-season closure during August 11-14 and the fishery was closed on September 20.

Table 53 Coho salmon harvest in Southeast Alaska in 2010 by gear type (Preliminary).

Gear Type	Harvest
Troll	1,343,200
Purse Seine	211,600
Drift Gillnet	577,200
Set Gillnet	166,500
Sport (marine and freshwater)	200,000
Total	2,498,500

Preliminary 2010 Chinook and Coho Salmon Catches in Washington and Oregon Fisheries

Introduction

This report describes the conduct of United States (U.S.) fisheries that occurred during 2010 in the area north of Cape Falcon, Oregon and south of the U.S./Canada border. These fisheries were conducted consistent with Annex IV of the Pacific Salmon Treaty (PST, 2008) including obligations defined within Chapter 3 for Chinook individual stock based management regimes (ISBM) and Chapter 5 implementing the Southern Coho Management Plan.

An overview of the pre-season planning process for the various fisheries of interest to the Pacific Salmon Commission in this region is provided with a general description of the Chinook and coho salmon conservation challenges facing managers as the 2010 seasons were designed. The conduct of major fisheries is described, and estimates of landed catch, where available, are compared to pre-season catch limits or expectations for Chinook (Table 54) and coho (Table 55). For perspective, catches for those fisheries since 2005 are also presented. Catch estimates for the 2010 fisheries are preliminary and subject to change. Estimates of spawning escapements and abundance of coho and Chinook stocks are not available at this time.

Pre-season Planning

Pre-season planning for southern U.S. fisheries of interest to the Pacific Salmon Commission is a coordinated activity involving Tribal, state and federal management entities, with the involvement of public conservation and fishing interests. The Pacific Fisheries Management Council (PFMC) conducts a series of public meetings to consider options for ocean fishery season structures while the tribes and states conduct government-to-government and public, open meetings throughout the region to construct and analyze season options for fisheries in the inside waters of the Columbia River, coastal Washington and Puget Sound. Participants in these various planning sessions evaluate the biological and social/economic consequences of options for the outside (ocean) and inside (marine and freshwater) fisheries, including the anticipated impacts on southern origin stocks in fisheries conducted under the PST in Canada and Southeast Alaska. The final product is a complete set of fishery regulations constructed to achieve conservation goals, domestic fishery objectives, and legal obligations including the PST, assuming fisheries are conducted as planned and pre-season abundance estimates are accurate.

Chinook Salmon Management

Under the 2008 Pacific Salmon Treaty Agreement, southern U.S. fisheries are subject to the Individual Stock Based Management provisions of Annex IV, Chapter 3. These provisions require adult equivalent mortality rates on Chinook stocks not achieving their management objectives to be no greater than 60% of rates estimated for the 1979-1982 base period.

Conservation obligations associated with the U.S. Endangered Species Act (ESA) for threatened and endangered Chinook salmon stocks originating from Puget Sound and the Columbia River are generally more constraining to southern U.S. fisheries than PST obligations. The 2010 U.S. ocean fishery seasons in the area north of Cape Falcon, Oregon, were primarily constrained by the need to be consistent with impact limits defined for ESA-listed lower Columbia River natural tule fall Chinook stocks. Puget Sound fishing seasons were limited by the impact limits defined for ESA-listed Puget Sound Chinook.

Coho Salmon Management

The status of Canadian coho management units in 2010 indicated continuing concerns for the conditions of Interior Fraser coho. The Interior Fraser management unit remained in *low* categorical abundance status while the Strait of Juan de Fuca coho was also forecasted to be in the low status, resulting in a requirement to constrain the total mortality fishery exploitation rate for all 2010 U.S. fisheries to a maximum of 10.0 percent for both management units. All other U.S. natural spawning coho management units defined by the Southern Coho Management Plan were forecasted to be in moderate or abundant status.

Seasons and catch limits adopted for all southern U.S. fisheries in the aggregate were predicted using the FRAM to have a total mortality of 9.8% on the Interior Fraser management unit and 10.0% for the Strait of Juan de Fuca coho management unit. Seasons and coho quota levels for U.S. ocean fisheries were constrained primarily by the management objectives of ESA-listed lower Columbia River natural coho, while limits to fisheries in northern Puget Sound and the Strait of Juan de Fuca were primarily constrained by management objectives for the Interior Fraser or Strait of Juan de Fuca coho management units as defined by the Southern Coho Management Plan.

North of Cape Falcon Ocean Fisheries

Fisheries in this area are managed to meet objectives for ESA listed stocks, depressed Columbia River natural stocks and hatchery brood stock goals. Within these constraints, ocean fishing seasons are defined that meet legal requirements of Tribal fishing treaties and allocations between non-Tribal troll and sport fisheries. Ocean fishery seasons are also constructed to ensure a balance of opportunity for harvest with the inside fisheries. Lower Columbia River hatchery coho and Bonneville Pool hatchery fall Chinook have historically been the major stocks contributing to catches of ocean fisheries in the North of Cape Falcon area.

Chinook and coho salmon catch quotas were defined for the 2010 ocean Tribal, non-Tribal troll and sport fisheries. Quotas for Chinook salmon were defined by impact limits of ESA-listed lower Columbia River natural tule fall Chinook stocks. Quotas for coho salmon in 2010 were defined by impact limits of ESA-listed lower Columbia River natural coho and agreements that allocated the total allowable impact on this management unit between ocean and inside fisheries.

Non-Tribal Fisheries

Pre-season non-Tribal troll had quota levels of 56,000 Chinook and 11,800 coho (with healed ad-clip, hereinafter referred to as marked). The Chinook quota was modified in-season to 59,500 and the coho quota was modified in-season to 7,100 following an impact-neutral transfer of Chinook from the sport fishery to the non-Tribal troll fishery and coho from the non-Tribal troll fishery to the sport fishery. The preliminary estimates of non-Tribal harvest in the 2010 North of Falcon troll fishery are 55,900 Chinook, (94% of the modified coast-wide quota), and 3,100 coho (44% of the modified coast-wide quota). Trollers harvested 38,200 Chinook in the May 1-June 30 Chinook-only fishery and the remaining 17,700 Chinook were harvested in the all-species fishery between July 1 and September 16. The coho catch represents harvest in a mark-selective fishery.

Tribal Troll Fishery

The Tribal troll fishery was constrained by a Chinook quota of 55,000 and a coho quota of 41,500. The season was comprised of a May/June Chinook directed fishery and a July 1 through September 15 all species fishery. The season concluded with a catch of 31,900 Chinook (58% of the quota) and

11,200 coho (27% of the quota).The Tribal fisheries are not mark selective.

Sport Fisheries

Pre-season quotas for the sport fishery were 61,000 Chinook (non mark-selective equivalent of 54,000) and 67,200 marked coho. The Chinook quota was modified in-season to 57,500 and the coho quota was modified in-season to 74,200 following impact-neutral transfers of Chinook from the sport fishery to the non-Tribal troll fishery and of coho from the non-Tribal troll fishery to the sport fishery. Preliminary total catch estimates for the ocean sport fisheries north of Cape Falcon were 38,900 Chinook (68% of the modified coast-wide quota) and 42,300 coho (57% of the modified coast-wide quota). A description of the resulting season structure and catches by management area follows.

Columbia River Ocean Area (including Oregon)

Sport all-species salmon fishing opened in Ocean Area 1 (Columbia Ocean Area) on Sunday, June 28 with a quota of 88,200 marked coho (revised in-season to 96,500 following a transfer from the Ocean Area 2 sport quota) and a guideline of 5,400 Chinook. The fishery closed on August 31 upon projected attainment of the coho quota, and reopened on September 7 after a catch update showed coho remaining on the area quota. The catch estimates for Area 1 are 5,202 Chinook (96%) and 84,686 coho (88% of the revised quota). The Chinook minimum size limit was 24 inches, with a sub-area closure in the Columbia Control Zone.

U.S./Canada border to Cape Falcon

Sport salmon fishing opened coastwide for all species except coho on Saturday, June 12 with a quota of 12,000 marked Chinook. The fishery closed on its automatic closure date, June 30. The catch estimate for the coastwide mark-selective sport fishery is 5,000 Chinook (42%). The Chinook minimum size limit was 24 inches.

Columbia Ocean Area (including Oregon)

Sport all-species salmon fishing opened in Ocean Area 1 (Columbia Ocean Area) on Thursday, July 1 with a quota of 33,600 marked coho (revised in-season to 40,600 following a transfer from the non-Tribal troll fishery quota) and a guideline of 13,100 Chinook (revised in-season to 10,372 following a transfer to the non-Tribal troll fishery quota). The fishery closed on its automatic closure date, September 30. The catch estimates for Area 1 are 7,000 Chinook (68% of the revised quota) and 24,700 coho (61% of the revised quota). The Chinook minimum size limit was 24 inches, with a sub-area closure in the Columbia Control Zone.

Westport

Ocean Area 2 (Westport) opened for sport all-species salmon fishing on Sunday, July 4 with a quota of 24,860 marked coho and a guideline of 28,000 Chinook (revised in-season to 27,398 following a transfer to the non-Tribal troll fishery quota). The fishery closed on its automatic closure date, September 19. The catch estimates for Area 2 are 22,500 Chinook (82% of the revised quota) and 12,700 coho (51%). The Chinook minimum size limit was 24 inches. Grays Harbor Control Zone was closed beginning August 1.

La Push

Ocean Area 3 (La Push) opened for sport all-species salmon fishing on Thursday, July 1 with a quota of 1,750 coho and a guideline of 2,500 Chinook (revised in-season to 2,446 following a transfer to the non-Tribal troll fishery quota). The fishery closed on its automatic closure date, September 19, and reopened September 25 through October 10. The catch estimates for Area 3 during the all-species fishery are 1,100 Chinook (47% of the revised quota) and 1,200 coho (69%). The Chinook minimum size limit was 24 inches.

Neah Bay

Ocean Area 4 (Neah Bay) opened for sport all-species salmon fishing on Thursday, July 1 with a quota of 6,990 marked coho and a guideline of 5,400 Chinook (revised in-season to 5,284 following a transfer to the non-Tribal troll fishery quota). The fishery closed on its automatic closure date, September 19. The catch estimates for Area 4 are 3,100 Chinook (60% of the revised quota) and 3,700 coho (53%). The Chinook minimum size limit was 24 inches.

North of Cape Falcon Inside Fisheries

Washington Coastal Terminal Fisheries

Tribal and non-Tribal net and sport fisheries directed at salmon in this region were implemented based upon pre-season, Tribal-State agreements to meet conservation and allocation objectives and are subject to in-season adjustment.

North Washington Coastal Rivers

The north coastal rivers net harvest (all by Tribal fisheries) includes catch for the Copalis, Moclips, Ozette, Sooes, Quillayute system, Hoh, Queets, and Quinault Rivers. The 2010 commercial net fisheries in north coastal rivers have harvested an estimated 5,400 Chinook and 65,100 coho through November 15. Recreational fishery harvest estimates are unavailable at this time.

Grays Harbor

Harvest for Grays Harbor includes catch from both the Humptulips and Chehalis rivers through November 15. The 2010 Tribal net fisheries have harvested an estimated 3,300 Chinook salmon and 20,200 coho salmon. Non-Indian commercial fisheries have harvested 1,200 Chinook salmon and 3,900 coho salmon. Sport fishery harvest estimates are unavailable at this time.

Columbia River Fisheries

Tribal and non-Tribal net and sport fisheries for Chinook and coho in 2010 occurred during the winter/spring (January-June 15), summer (June16-July) and fall (August-October) periods. All fisheries were constrained by impacts on ESA listed stocks. Winter/spring fisheries were primarily constrained by impacts on ESA listed upper Columbia River spring Chinook, Snake River spring/summer Chinook and wild winter steelhead. Summer fisheries were constrained by impacts to ESA listed Snake River sockeye. Fall fisheries were mainly constrained by impacts to ESA listed wild lower Columbia tule fall Chinook and wild lower Columbia River coho as well as Group B steelhead which are part of the Snake River steelhead distinct population segment (DPS).

Columbia River salmon fisheries are developed and regulated to meet conservation standards. Fisheries are managed to operate within the impact limits set for ESA listed stocks, meet the objectives for healthy Columbia River natural stocks, and ensure brood stock needs are met for hatchery salmon. Mainstem Columbia River fisheries are also developed and managed to remain within the requirements of the 2008 – 2017 *US v. Oregon* Management Agreement.

Winter-Spring Fisheries

Non-Tribal Net

The mainstem Winter/Spring commercial fishery has operated under mark-selective fishery regulations since 2002. Winter sturgeon fisheries consisted of five fishing periods conducted during January 19 through February 17 in the area below Bonneville Dam. A total of 80 marked Chinook were landed. The non-Tribal winter/spring salmon fishery consisted of two fishing periods (16 hours total) on March 30 and April 7. Tangle nets (4 ¼ inch mesh) were required and the fishery occurred in the area from the mouth of the Columbia River upstream to the I-205 Bridge. Landings included 9,100 hatchery Chinook. Time, area, and gear restrictions were in place for all Winter/Spring net fisheries.

Sport

The mainstem Winter/Spring sport fishery has been mark-selective since 2001. The area below Bonneville Dam was open January 1 – April 18 for Chinook retention with specific area and time restrictions in place (including areas allowing bank-fishing only). Catch estimates include 29,300 hatchery Chinook. Mark-selective recreational fisheries also occurred during March 16 – May 10 in the area from Bonneville Dam upstream to McNary Dam, during April 24 – May 22 in the Snake River (Washington waters) and during May 1 - 22 on the bank of the mainstem Columbia River near the Ringold Hatchery. Catch estimates from these fisheries total 3,100, 500, and 1,700 hatchery Chinook, respectively.

Tribal

Tribal fisheries are not mark-selective. All harvest includes marked and unmarked Chinook. Tribal fisheries are conducted in the mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Platform, hook and line fisheries also occur in accordance with MOUs in the area immediately below Bonneville Dam. No spring Chinook were harvested in the commercial winter season set-line sturgeon fishery (January 1 – 31) nor in the winter gillnet fishery (February 7 through March 3). Ceremonial and subsistence (C&S) fisheries include harvest from platform, hook and line, and gillnet fisheries through Tribal permits. Two weekly commercial gillnet seasons (April 27-30 and May 11-14) were conducted for spring Chinook during 2010. Commercial sales were also allowed for platform and hook and line caught fish from April 27 through May 21. Harvest estimates from C&S and commercial fisheries total 42,200 spring Chinook. The tribes closed all fishing for the remainder of the 2010 spring season on May 22 in response to the upriver spring Chinook run size downgrade and ESA concerns. Fisheries are also conducted in Zone 6 tributaries and in Columbia and Snake River Tributaries upstream from McNary Dam. Harvest in these fisheries is not reported in this document.

Summer Fisheries

Non-Tribal Net

Summer season fisheries are not mark-selective. Two fishing periods (20 hours total) occurred on June

17-18 and June 22-23 in the area below Bonneville Dam. Landings are estimated at 4,800 Chinook. Time, area, and gear restrictions were in place for all summer season commercial fisheries.

Sport

Summer season Chinook fisheries were mark-selective in 2010. The area below Bonneville Dam was open for adult Chinook retention from June 16 through July 31. An estimated 2,700 hatchery Chinook were kept during the summer season below Bonneville Dam. The area from Bonneville Dam upstream to Priest Rapids Dam was open for adult hatchery Chinook retention during June 16-July 31. Kept catch from this area is estimated at 150 adult hatchery Chinook.

Tribal

Tribal fisheries are not mark-selective. All harvest includes marked and unmarked Chinook. Tribal fisheries are conducted in mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Mainstem fisheries target Upper Columbia summer Chinook. Platform, hook and line fisheries also occur in accordance with MOUs in the area immediately below Bonneville Dam. In 2010, seven weekly (2.5 days) commercial gillnet fishing periods were conducted during June 16 through July 31. Platform and hook and line fisheries also occurred throughout the summer season and fish were sold commercially or retained for subsistence use. Harvest estimates total 15,800 Chinook from mainstem fisheries. Minor summer season fisheries are also conducted in some Zone 6 tributaries and in tributaries upstream of McNary dam. Tributary harvest is not reported in this document.

Fall Fisheries

Non-Tribal Net

Fall season fisheries are not mark-selective. The Early Fall mainstem fisheries consisted of seven fishing periods (76 hours total) during August 3-25. Harvest estimates total 22,500 Chinook and 500 coho. The Late Fall season consisted of 11 fishing periods (130 hours total) during September 22 through October 22. Harvest estimates total 9,700 Chinook and 19,000 coho. Time, area, and gear restrictions were in place for all fall season commercial fisheries, which minimized handling of ESA listed salmonid species including wild tule Chinook and lower Columbia coho.

Sport

Fall season fisheries are mark-selective for coho, but not for Chinook. The 2010 Buoy 10 fishery was open August 1 through December 31, with a two fish, one Chinook bag limit effective through August 31.Chinook retention was prohibited beginning September 1. Buoy 10 catch estimates include 6,800 Chinook and 8,000 coho. The mainstem sport fishery from the Rocky Point – Tongue Point line upstream to Bonneville Dam was open August 1 through December 31 with a two fish, one Chinook bag limit. Restrictions prohibiting Chinook retention were in effect during September 12 through October 24 in the area below the Lewis River to minimize handling of ESA listed wild tule Chinook. Catch estimates from this fishery include 17,300 Chinook and 1,600 hatchery coho. The mainstem sport fishery from Bonneville Dam to the Highway 395 Bridge (near Pasco, Washington) was open August 1 through December 31 with a two fish daily limit. Catch estimates include 2,500 Chinook. A Snake River fishery took place during September and October. The Snake River fishery only allowed the retention of marked Chinook, which was largely incidental catch during the steelhead fishery. Kept catch from the Snake River fishery is estimated to be less than 50 Chinook.

Tribal

Tribal fisheries are not mark-selective. All harvest includes marked and unmarked Chinook. Tribal fisheries are conducted in mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Platform, hook and line fisheries also occur in accordance with MOUs in the area immediately below Bonneville Dam. Platform and hook and line fisheries occurred throughout the fall season. Mainstem platform and hook and line caught fish were allowed to be sold from August 1 through October 16. The commercial gillnet fishery consisted of seven weekly fishing periods during August 24 through October 22. Preliminary harvest estimates total 140,100 Chinook and 12,000 coho. Fisheries are also conducted in some Zone 6 tributaries and in the Snake and Clearwater Rivers, Harvest in tributary fisheries is not reported in this document.

Puget Sound Fishieries

Puget Sound marine fisheries of interest to the Pacific Salmon Commission in 2010 were regulated to meet conservation and allocation objectives for Chinook, coho, chum, pink, and sockeye salmon stocks, per Tribal-State agreement. For Puget Sound Chinook listed under the ESA, fisheries were managed according to the Puget Sound Chinook Harvest Management Plan. This management plan defines limits to total exploitation rates for natural stocks and was determined by the National Marine Fisheries Service (NMFS) to be consistent with requirements specified under the ESA 4(d) Rule.

Release requirements were applied to many sport and net fisheries for Chinook, coho and chum salmon, the latter to protect ESA-listed Hood Canal and Strait of Juan de Fuca summer chum.

Puget Sound marine fisheries were constrained by the need to meet management objectives for ESA listed Puget Sound Chinook, including mid-Hood Canal, Nooksack Early, Skagit Spring and Green River Chinook. For coho Interior Fraser River and Strait of Juan de Fuca management units were the primary stocks of concern.

Strait of Juan de Fuca Sport

Areas 5 and 6 were open to Chinook retention (non-selective) from February 13 through April 10. Sport fishing regulations allowed retention of marked Chinook and marked coho beginning July 1. Chinook mark selective fishing opportunity was limited to the period through August 15. The sport fishery remained open to a coho mark selective opportunity through September 30 in Area 6 and through September 15 in Area 5. From September 16 - 30 retention of wild coho was legal in Area 5. Chinook retention was legal in Area 5 from November 1 through November 30, and Area 6 from October 1 through October 31.

Area 5 sport catch for the creel survey period of July 1 through September 30 totaled 6,100 Chinook and 13,500 coho. Catch record card estimates for salmon taken at times other than noted above are not yet available.

Strait of Juan de Fuca Tribal Troll (Area 4B, 5 and 6C)

The preliminary estimates of the on-going 2010 Strait of Juan de Fuca Tribal troll fishery are 2,000 Chinook and 16 coho. The Tribal catch estimates from this area do not include catches from Area 4B during the May-September PFMC management period, which have been included in the North of Cape Falcon Tribal troll summary.

Strait of Juan de Fuca Net

Preliminary estimates of the 2010 catch in the Strait of Juan de Fuca Tribal net fisheries (non-Tribal does not have any net fisheries in the Strait of Juan de Fuca) are 4,200 Chinook and 3,300 coho salmon.

San Juan Islands Net (Ares 6, 7 and 7A)

Preliminary estimates of the 2010 catch in the San Juan Island net fishery directed at sockeye, pink, or chum salmon total 200 Chinook and 1,000 coho salmon for the non-Tribal fishery. Tribal fishery landings from this area total 6,600 Chinook and 3,900 coho.

San Juan Islands Sport

Marked Chinook retention was allowed in the entire area for the period December 1, 2009 – April 30, 2010. The southern and southeastern (Rosario Strait) portions of this catch area were again closed July 1 through September 30 to protect Puget Sound Chinook salmon. The remaining area was open for retention of Chinook and coho salmon from July 1 to October 31. Release of unmarked coho salmon was required for the months of August through September. December was open for marked Chinook retention. Additional sub area closures are described in the Washington State Sport Fishing Rules Pamphlet. Catch estimates for this area are not available at this time.

Inside Puget Sound (Areas 8-13) Sport

Catch and angler effort estimates are available for mark-selective sport fisheries directed at hatchery Chinook in Areas 8.1 & 8.2, 9, and 10 during the winter period, and summer period fisheries conducted in Areas 9, 10, 11 and 13. Detailed reports of these fisheries, including catch, effort and results of sampling and monitoring programs, are available from the Washington Department of Fish and Wildlife.

Puget Sound Marine Net (Areas 8-13)

To achieve conservation objectives for Puget Sound Chinook and coho, very limited net fishing opportunities directed at abundant returns of hatchery Chinook and both hatchery and natural returns of coho were planned for 2010.

Puget Sound Rivers Fisheries

Tribal net and sport fisheries directed at salmon in this region were implemented based upon pre-season, Tribal-State agreements and subject to in-season adjustment. The Puget Sound rivers net harvest (all by Tribal fisheries) includes catch from river systems in the Strait of Juan de Fuca, Hood Canal, and Puget Sound.

Table 54 Preliminary 2010 Landed Chinook Catches for Washington and Oregon Fisheries of Interest to the Pacific Salmon Commission (nearest 100)[8/]

	2010							
	Preseason							
Fisheries	Total Mortality [1/]	Landed [2/]	Preliminary Landed	2009	2008	2007	2006	2005
OCEAN FISHERIES								
Troll								
Neah Bay and La Push (areas 3, 4, 4B)[3/]	84,400	75,200	39,500	15,700	23,000	28,500	42,400	57,500
Columbia Ocean Area and Westport (area 1&2)	43,900	35,800	46,300	9,600	11,900	10,200	15,400	29,600
Sport								
Neah Bay (area 4)	7,100	6,400	3,300	2,400	1,400	1,500	1,400	2,800
La Push (area 3)	3,300	2,900	1,200	700	700	600	1,700	1,700
Westport (area 2)	41,700	37,100	27,200	5,000	9,600	5,200	5,800	22,400
Columbia Ocean Area (area 1)	16,000	14,600	7,200	5,200	3,700	2,200	2,300	13,200
INSIDE FISHERIES								
Sport [9/]								
Strait of Juan de Fuca (area 5&6)	9,300	5,600	6,100	10,400	4,800	6,200	4,700	2,500
San Juan Is. (area 7)	7,600	4,800	na	4,200	5,800	5,000	3,300	2,200
Puget Sound (area 8-13)	50,600	26,200	na	17,200	21,700	37,600	20,600	18,300
Puget Sound Rivers	17,300	16,800	na	14,700	15,200	19,400	17,000	12,200
North WA Coastal Rivers	na	na	na	900	800	700	700	1,800
Grays Harbor (area 2.2) [6/]	na	na	na	1,000	200	1,700	1,700	400
Col. River (Spring) [5/]	na	na	32,400	17,200	21,800	7,900	8,200	11,600
Col. River (summer) [5/]	na	na	2,900	2,500	2,900	2,400	5,300	2,200
Col River & Bouy 10 (Fall) [5/]	na	na	26,600	22,200	22,200	14,600	17,300	31,100
Commercial								
North WA Coastal Rivers	na	na	5,400	10,469	8,900	5,500	14,000	16,000
Grays Harbor (area 2A-2D) [6/]	na	na	4,500	3,400	2,600	3,000	3,700	2,600
Col.R. Net (winter/Spr.) [7/]	na	na	52,000	17,300	27,100	8,600	12,800	11,400
Col.R. Net (Sum.) [7/]	na	na	20,600	14,200	10,400	6,500	21,100	10,400
Col. R. Net (Fall) [7/]	na	na	172,300	133,600	134,700	49,000	102,300	141,000
Strait of Juan de Fuca net and troll (area 4B,5,6C)	12,600	10,900	4,200	3,600	6,400	4,500	2,000	5,500
San Juan Is. (area 6,7, 7A)	7,400	5,000	6,800	1,000	100	2,600	5,400	3,800
Puget Sound Marine (8-13;7B/C)	44,300	43,500	42,000	44,700	61,000	64,200	69,200	60,700
Puget Sound Rivers	49,200	49,200	34,700	35,100	40,800	55,700	40,900	26,600

Footnotes:
1/ Nominal total mortality is not adjusted for adult equivalents (AEQ) and does include non-retention mortality. Total Mortality is estimated by FRAM as Catch + incidental mortality, where incidental mortality = drop off + non-retention mortality.

2/ For the ocean fisheries, this column shows the Chinook troll and recreational quotas used for 2010 pre-season fishery planning as distributed by ocean area. Pre-season total troll quota is 111,000 and recreational Chinook quota 61,000. See text for any in-season adjustments.

3/ Includes area 4B catch during the PFMC management period (May 1 - September 15); area 4B Treaty troll catch outside PFMC period included under Strait Juan de Fuca net and troll.

4/ 2010 "preliminary landed" represents July 1 – September 30 in area 5 only, since Catch Record Card (CRC) annual estimates are not yet available.

5/ Mainstem retained sport catch only (upstream to McNary Dam for spring, Priest Rapids Dam for summer and to Hwy 395 for fall). See tables 22-23 in the annual Joint Staff Report regarding spring and summer Chinook and tables 29-31 in the annual fall report. http://wdfw.wa.gov/fishing/crc/staff_reports.html.

6/ Includes Grays Harbor catch as well as catch from the Chehalis and Humptulips Rivers and their tributaries for sport and Lower Chehalis and Humptulips River for net fisheries.

7/ Mainstem retained catch only, includes tribal C&S and Commercial from all gear types and non-tribal (Columbia River mouth upstream to McNary Dam). Catch data from annual Joint Staff Reports. Winter and spring catch T7 (Tribal) and T18 (non-Tribal). Summer catch is from T10. Fall catch from annual fall report T20, 24 and 26.

8/ Catch and encounter information from Chinook mark selective fisheries conducted in Washington from the years 2003-2009 is shown in tables 3 and 4.

9/ Sport catch estimates for 2009 and 2010 are preliminary.

Table 55 Preliminary 2010 Landed Coho Catches for Washington and Oregon Fisheries of Interest to the Pacific Salmon Commission (rounded to the nearest 100)[6/]

Fisheries	2010 Preseason Total Mortality [1/]	2010 Preseason Landed [2/]	2010 Preliminary Landed	2009	2008	2007	2006	2005
OCEAN FISHERIES								
Troll								
Neah Bay and La Push (area 3, 4, 4B)[3/]	48,300	42,500	9,500	64,300	14,000	41,800	32,800	23,800
Columbia Ocean Area and Westport (area 1&2)	19,200	10,800	4,800	29,200	3,000	16,700	1,800	4,300
Sport								
Neah Bay (area 4)	8,900	7,000	3,700	13,300	2,200	10,600	6,000	10,200
La Push (area 3)	2,200	1,700	1,200	6,900	500	2,800	1,900	2,300
Westport (area 2)	30,400	24,900	12,700	53,900	7,500	23,000	8,800	10,500
Columbia Ocean Area (area 1)	39,300	33,600	24,800	83,800	10,800	65,800	24,800	38,700
INSIDE FISHERIES								
Sport [7/]								
Strait of Juan De Fuca (area 5&6)	36,500	31,000	13,500	30,800	11,400	33,900	9,700	27,200
San Juan Is. (area 7)	800	700	na	800	200	600	100	1,000
Puget Sound (area 8-13)	30,600	29,000	na	41,900	9,700	30,800	16,800	30,000
Puget Sound Rivers	23,700	22,500	na	40,500	15,000	32,100	13,700	32,300
North WA Coastal Rivers	5,200	5,000	na	7,000	1,500	1,700	600	5,400
Grays Harbor (area 2.2) [5/]	7,800	7,400	na	10,700	3,200	4,400	2,200	11,000
Columbia River Bouy 10	14,100	12,000	8,000	48,100	8,600	8,300	3,700	6,800
Commercial								
North WA Coastal Rivers	58,900	57,800	65,100	124,200	50,400	26,900	30,600	98,400
Grays Harbor (area 2A-2D)[5/]	22,200	21,800	24,100	27,500	19,500	11,800	9,600	29,200
Strait of Juan de Fuca net and troll (area 4B,5,6C)	6,800	6,600	3,300	3,300	1,100	2,600	2,800	1,700
San Juan Is. (area 6,7, 7A)	3,300	2,400	4,900	6,400	200	1,900	800	2,900
Puget Sound Marine (8-13;7B/C)	123,600	121,200	101,000	174,400	147,400	132,800	148,100	194,000
Puget Sound Rivers	85,900	84,200	60,900	89,800	85,400	85,400	118,700	106,200

Table 55 Footnotes:

1/ Estimates of total mortality include non-retention mortality. Total Mortality is estimated by FRAM as Catch + incidental mortality, where incidental mortality = drop off + non-retention mortality.

2/ For ocean fisheries this column shows the coho troll and recreational quotas used for 2010 pre-season fishery planning as distributed by ocean area. Pre-season total troll quota is 53,300 and recreational marked coho quota is 67,200. See text for any in-season adjustments.

3/ Includes area 4B catch during the PFMC management period (May 1 - September 15); area 4B Treaty troll catch outside PFMC period included under Strait Juan de Fuca net and troll.

4/ 2010 "preliminary landed" represent selective fisheries July 1 through September 30 in area 5 only, since CRC annual estimates are not yet available.

5/ Includes Grays Harbor catch as well as catch from the Chehalis and Humptulips Rivers and their tributaries for sport and Lower Chehalis and Humptulips River for net fisheries.

6/ Catch and encounter information from Chinook mark selective fisheries conducted in Washington from the years 2003-2009 is shown in tables 3 and 5.

7/ Sport catch estimates for 2009 and 2010 are preliminary.

Table 56 Mark-Selective non-tribal Chinook and Coho Fisheries by Area and Year

Selective Chinook	2010	2009	2008	2007	2006	2005
Ocean Troll						
Neah Bay & La Push (Areas 3 & 4)	no	no	no	no	no	no
Columbia Ocean Area & Westport (Areas 1 & 2)	no	no	no	no	no	no
Ocean Sport						
Neah Bay (Area 4)	yes	no	no	no	no	no
La Push (Area 3)	yes	no	no	no	no	no
Westport (Area 2)	yes	no	no	no	no	no
Columbia Ocean Area (Area 1)	yes	no	no	no	no	no
Inside Fisheries						
Sport						
Strait of Juan de Fuca (Area 5 & 6)	yes	yes	yes	yes	yes	yes
San Juan Islands (Area 7)	yes	yes	yes	no	no	no
Puget Sound Sport (Areas 8-13)	yes	yes	yes	yes	yes	yes
Puget Sound Rivers	yes	yes	yes	yes	yes	yes
North WA Coastal Rivers	yes	yes	yes	yes	yes	yes
Grays Harbor (Area 2.2)	no	no	no	no	no	no
Columbia River Sport - Winter/Spring	yes	yes	yes	yes	yes	yes
Columbia River Sport - Summer	yes	no	no	no	no	yes
Columbia River Sport - Fall	no	no	no	no	no	no
Commercial						
North WA Coastal Rivers	no	no	no	no	no	no
Grays Harbor (Areas 2A-2D)	no	no	no	no	no	no
Columbia River Net-Winter/Spring	yes	yes	yes	yes	yes	yes
Columbia River Net - Summer	no	no	no	no	no	no
Columbia River Net - Fall	no	no	no	no	no	no
Strait of Juan de Fuca Net&Troll (Areas 4B/5/6C)	no	no	no	no	no	no
San Juan Islands (Areas 6, 7 & 7A)	yes	yes	yes	no	no	no
Puget Sound Marine (Areas 8 - 13)	yes	no	no	no	no	no
Puget Sound Rivers	no	no	no	no	no	no

Selective Coho	2010	2009	2008	2007	2006	2005
Ocean Troll						
Neah Bay & La Push (Areas 3 & 4)	yes	yes	yes	yes	yes	yes
Columbia Ocean Area & Westport (Areas 1 & 2)	yes	yes	yes	yes	yes	yes
Ocean Sport						
Neah Bay (Area 4)	yes	yes	yes	yes	yes	yes
LaPush (Area 3)	yes	yes	yes	yes	yes	yes
Westport (Area 2)	yes	yes	yes	yes	yes	yes
Columbia Ocean Area (Area 1)	yes	yes	yes	yes	yes	yes
Inside Fisheries						
Sport						
Strait of Juan de Fuca (Areas 5 & 6)	yes	yes	yes	yes	yes	yes
San Juan Islands (7)	yes	yes	yes	yes	yes	yes
Puget Sound Sport (Areas 8-13)	yes	yes	yes	yes	yes	yes
Puget Sound Rivers	yes	yes	yes	yes	yes	yes
North WA Coastal Rivers	yes	yes	yes	yes	yes	yes
Grays Harbor (Area 2.2)	yes	yes	yes	yes	yes	yes
Columbia River Buoy 10	yes	yes	yes	yes	yes	yes
Commercial						
North WA Coastal Rivers	no	no	no	no	no	no
Grays Harbor (Areas 2A-2D)	yes	yes	no	no	no	no
Strait of Juan de Fuca Net&Troll (Areas 4B/5/6C)	no	no	no	no	no	no
San Juan islands (Areas 6, 7 & 7A)	yes	yes	yes	yes	yes	yes
Puget Sound Marine (Areas 8 - 13)	yes	no	yes	no	no	no
Puget Sound Rivers	no	no	no	no	no	no

1/ "Yes" denotes that a mark selective fishery occurred, even if it only occurred in a subset of the fishing area, season, gear type or users groups.

Chinook and Coho Mark-Selective Fisheries conducted by WDFW in Puget Sound Marine and Freshwater Areas, 2003-2009

Table 57 Chinook: Estimated encounters, catch, release mortalities (i.e., incidental mortalities) and mark rates in Washington's marked selective fisheries

Region	Fishery	Year	Species	MSF period	Retained Marked Fish	Retained Unmarked fish	Encounters Marked	Encounters Unmarked	% Marked	Legal-sized Marked fish Landed & Release Mortalities	Legal-sized Unmarked fish Landed & Release Mortalities	Sub-Legal-sized Marked fish Landed & Release Mortalities	Sub-Legal-sized Unmarked fish Landed & Release Mortalities
WA	Area 5/6	2003	Chin	Jul-Aug	3,417	76	4,850	8,627	36%	3,192	680	512	905
WA	Area 5/6	2004	Chin	Jul-Aug	3,571	5	4,598	6,365	42%	3,375	636	402	430
WA	Area 5/6	2005	Chin	Jul-Aug	2,025	53	3,125	3,237	49%	1,924	311	320	283
WA	Area 5/6	2006	Chin	Jul-Aug	3,641	25	4,494	5,095	47%	3,443	482	368	400
WA	Area 5/6	2007	Chin	Jul-Aug	3,972	124	5,235	3,839	58%	3,684	433	540	300
WA	Area 5	2008	Chin	Jul	2,819	0	3,298	2,199	60%	2,836	280	58	66
WA	Area 5	2009	Chin	Jul-Aug	5,958	439	16,505	20,958	47%	6,067	1,371	1,965	2,862
WA	Area 6	2009	Chin	Jul-Aug	2,293	na	na	na	66%	na	na	na	na
WA	Area 7	2008	Chin	Feb	1,300	2	1,767	1,199	60%	1,330	158	73	31
WA	Area 7	2009	Chin	Feb-Apr	1,420	9	1,769	734	65%	1,452	115	28	3
WA	Area 7	2009-10	Chin	Dec-Apr	1,418	0	2,340	585	70%	1449	66	143	29
WA	Area 8-1, 8-2	2005-06	Chin	Oct-Apr	1,112	40	3,262	2,010	62%	1,038	145	504	253
WA	Area 8-1, 8-2	2006-07	Chin	Oct-Apr	1,177	33	11,781	5,853	67%	1,059	61	2,239	1,123
WA	Area 8-1,8-2	2007-08	Chin	Nov-Apr	1,543	23	4,040	1,388	74%	1,574	96	458	176
WA	Area 8-1	2009	Chin	Jan-Apr	403	12	1,905	966	66%	412	19	289	182
WA	Area 8-2	2009	Chin	Jan-Apr	509	15	2,140	501	81%	520	18	311	94
WA	Area 8-1	2009-10	Chin	Nov-Apr	284	0	920	314	75%	290	7	119	54
WA	Area 8-2	2009-10	Chin	Nov-Apr	825	4	2,247	655	77%	843	29	260	97
WA	Area 9	2007	Chin	Jul	5,239	32	6,757	1,667	80%	5,081	191	462	110
WA	Area 9	2008	Chin	Jan-Apr	1,405	3	2,880	682	19%	1,362	49	330	75

Table 57 Chinook continued:

Region	Fishery	Year	Species	MSF period	Retained Marked Fish	Retained Unmarked fish	Encounters Marked	Encounters Unmarked	% Marked	Legal-sized Marked fish Landed & Release Mortalities	Legal-sized Unmarked fish Landed & Release Mortalities	Sub-Legal-sized Marked fish Landed & Release Mortalities	Sub-Legal-sized Unmarked fish Landed & Release Mortalities
WA	Area 9	2008	Chin	Jul-Aug	4,045	3	7,854	5,436	59%	4,124	244	653	765
WA	Area 9	2008-09	Chin	Nov-Apr	885	14	4,535	3,009	84%	905	38	704	567
WA	Area 9	2009	Chin	Jul-Aug	3,229	20	11,947	4,197	74%	3298	211	1651	581
WA	Area 9	2009-10	Chin	Nov-Apr	1,557	27	3,940	995	80%	1590	80	433	123
WA	Area 10	2007	Chin	Jul	1,539	38	4,301	1,044	80%	1,451	95	640	123
WA	Area 10	2007-08	Chin	Dec-Jan	635	21	2,575	545	83%	551	45	468	72
WA	Area 10	2008	Chin	Jul-Aug	1,031	3	1,348	898	60%	1,046	79	42	77
WA	Area 10	2008-09	Chin	Dec-Jan	251	0	1,298	498	72%	257	5	202	92
WA	Area 10	2009	Chin	Jul-Aug	1,621	22	4,329	1,121	79%	1654	34	498	203
WA	Area 10	2009-10	Chin	Oct-Jan	395	2	2,979	983	75%	403	14	506	180
WA	Area 11	2007	Chin	Jun-Sep	10,546	95	17,534	4,779	79%	10,208	468	1,736	433
WA	Area 11	2008	Chin	Jun-Sep	7,377	23	10,434	2,269	82%	7,440	318	494	54
WA	Area 11	2009	Chin	Jun-Sep	3,277	37	7,582	4,623	62%	3348	228	767	663
WA	Area 11	2010	Chin	Feb-Apr	326	3	487	93	84%	333	15	23	2
WA	Area 12	2010	Chin	Feb-Apr	300	na	na	na	50%	na	na	na	na
WA	Area 13	2009	Chin	May-Sep	1,340	na	na	na	86%	na	na	na	na
WA	Skagit R	2005	Chin	Jun-Jul	173	0	173	205	46%	173	21	--	--
WA	Skagit R	2006	Chin	Jun-Jul	454	4	507	332	60%	459	37	--	--
WA	Skagit R	2007	Chin	Jun-Jul	724	0	891	499	64%	741	50	--	--
WA	Skagit R	2008	Chin	Jun-Jul	508	0	517	359	59%	509	36	--	--
WA	Skagit R	2009	Chin	Jun-Jul	na	na	na	na	na	na	na	na	na

Table 57 Chinook continued:

Region	Fishery	Year	Species	MSF period	Retained Marked Fish	Retained Unmarked fish	Encounters Marked	Encounters Unmarked	% Marked	Legal-sized Marked fish Landed & Release Mortalities	Legal-sized Unmarked fish Landed & Release Mortalities	Sub-Legal-sized Marked fish Landed & Release Mortalities	Sub-Legal-sized Unmarked fish Landed & Release Mortalities
WA	Skykomish R	2003	Chin	Jun-Jul	177	0	184	163	53%	177	16	--	--
WA	Skykomish R	2005	Chin	Jun-Jul	76	0	76	66	54%	76	7	--	--
WA	Skykomish R	2006	Chin	Jun-Jul	78	0	85	74	53%	78	7	--	--
WA	Skykomish R	2007	Chin	Jun-Jul	637	0	691	534	56%	637	53	--	--
WA	Skykomish R	2008	Chin	Jun-Jul	572	0	593	213	74%	572	21	--	--
WA	Skykomish R	2009	Chin	Jun-Jul	na	na	na	na	na	na	na	na	na
WA	Puyallup R	2004	Chin	Sep-Dec	281	28	492	266	65%	302	52	--	--
WA	Puyallup R	2005	Chin	Aug-Dec	842	0	920	225	80%	850	23	--	--
WA	Puyallup R	2006	Chin	Sep-Dec	507	13	1025	130	89%	559	25	--	--
WA	Puyallup R	2007	Chin	Sep-Dec	1277	13	1613	417	79%	1311	53	--	--
WA	Puyallup R	2008	Chin	Aug-Dec	791	29	845	257	77%	796	51	--	--
WA	Puyallup R	2009	Chin	Aug-Dec	na	na	na	na	na	na	na	na	na
WA	Carbon R (Puy.)	2003	Chin	Sep-Nov	1202	85	2219	786	74%	1304	155	--	--
WA	Carbon R (Puy.)	2004	Chin	Sep-Nov	660	50	1020	469	69%	696	92	--	--
WA	Carbon R (Puy.)	2005	Chin	Sep-Nov	748	0	1671	571	75%	840	57	--	--
WA	Carbon R (Puy.)	2006	Chin	Sep-Nov	1200	16	2385	162	94%	1318	31	--	--
WA	Carbon R (Puy.)	2007	Chin	Sep-Nov	1226	9	3367	294	92%	1440	38	--	--
WA	Carbon R (Puy.)	2008	Chin	Sep-Nov	740	0	1042	230	82%	770	23	--	--
WA	Carbon R (Puy.)	2009	Chin	Sep-Nov	na	na	na	na	na	na	na	na	na

Dash indicates no records are available, for example, the data was not collected when the fishery took place.

Table 58 Coho: Estimated encounters, catch, release mortalities (i.e., incidental mortalities) and mark rates in Washington's marked selective fisheries.

Region	Fishery	Year	Species	MSF period	Total Retained Fish	Retained Marked Fish	Retained Unmarked fish	Encounters Total	Encounters Marked	Encounters Unmarked	% Marked
WA	Area 5 [a/]	2003	Coho	July 1-Sept 30	38,700	37,907	793	140,303 [d/]	42,168	89,374	35%
WA	Area 5 [a/]	2004	Coho	July 1-Sept 30	42,224	42,075	148	174,253 [e/]	45,400	113,418	42%
WA	Area 5 [a/]	2005	Coho	July 1-Sept 30	26,284	25,696	588	78,624 [f/]	27,101	50,213	45%
WA	Area 5 [a/]	2006	Coho	July 1-Sept 30	9,479	9,430	49	44,783 [g/]	13,243	19,592	39%
WA	Area 5 [a/]	2007	Coho	July 1-Sept 15	14,868	14,226	642	53,660 [h/]	15,706	36,479	35%
WA	Area 5 [a/]	2008	Coho	July 1–Sept 15	6,406	6,378	28	19,024 [i/]	6,745	9,080	37%
WA	Area 5 [b/]	2009	Coho	July 1–Sept 18	18,695	18,381	314	61,246 [j/]	19,800	39,132	34%
WA	Area 6 [c/]	2003	Coho	July 1-Sept 30	2,462	2,462	--	--	--	--	38%
WA	Area 6 [c/]	2004	Coho	July 1-Sept 30	1,350	1,350	--	--	--	--	43%
WA	Area 6 [c/]	2005	Coho	July 1-Sept 30	905	905	--	--	--	--	35%
WA	Area 6 [c/]	2006	Coho	July 1-Sept 30	253	253	--	--	--	--	27%
WA	Area 6 [c/]	2007	Coho	July 1-Sept 30	855	855	--	--	--	--	28%
WA	Area 6 [c/]	2008	Coho	July 1-Sept 30	202	202	--	--	--	--	48%
WA	Area 6 [c/]	2009	Coho	July 1-Sept 30	2,987	2,987	--	--	--	--	36%
WA	Area 7 [c/]	2003	Coho	Aug 1-Sept 30	918	918	--	--	--	--	35%
WA	Area 7 [c/]	2004	Coho	Aug 1-Sept 30	433	433	--	--	--	--	39%
WA	Area 7 [c/]	2005	Coho	Aug 1-Sept 30	458	458	--	--	--	--	31%
WA	Area 7 [c/]	2006	Coho	Aug 1-Sept 30	148	148	--	--	--	--	66%
WA	Area 7 [c/]	2007	Coho	Aug 1-Sept 30	314	314	--	--	--	--	26%
WA	Area 7 [c/]	2008	Coho	Aug 1-Sept 30	638	638	--	--	--	--	52%
WA	Area 7 [c/]	2009	Coho	Aug 1-Sept 30	640	640	--	--	--	--	35%
WA	Area 13 [c/]	2003	Coho	July 1-Oct 31	818	818	--	--	--	--	88%
WA	Area 13 [c/]	2004	Coho	July 1-Oct 31	1,064	1,064	--	--	--	--	83%
WA	Area 13 [c/]	2005	Coho	July 1-Oct 31	1,353	1,353	--	--	--	--	85%
WA	Area 13 [c/]	2006	Coho	July 1-Oct 31	421	421	--	--	--	--	77%
WA	Area 13 [c/]	2007	Coho	July 1-Oct 31	742	742	--	--	--	--	64%
WA	Area 13 [c/]	2008	Coho	July 1-Oct 31	642	642	--	--	--	--	86%
WA	Area 13 [c/]	2009	Coho	July 1-Oct 31	272	272	--	--	--	--	69%

Table 58 footnotes:

Dash indicates no records are available, for example, the data was not collected when the fishery took place.

a/ For the 2003-2008 Area 5 mark-selective coho fisheries, retained and released coho catches were estimated via creel surveys (Murthy estimates), and the mark rate was estimated from the test fishery encounter data.

b/ For the 2009 Area 5 mark-selective coho fishery, retained and released coho catches were estimated via creel surveys (Murthy estimates), and the mark rate was estimated from voluntary angler-completed trip reports and in-sample dockside interview data.

c/ Total retained catch was estimated via the salmon Catch Record Card (CRC) system, and the mark rate was estimated from in-sample dockside interview data.

d/ Consists of 8,761 estimated released coho of unknown mark status, in addition to the 42,168 marked and 89,374 unmarked coho encounters.

e/ Consists of 15,435 estimated released coho of unknown mark status, in addition to the 45,400 marked and 113,418 unmarked coho encounters.

f/ Consists of 1,310 estimated released coho of unknown mark status, in addition to the 27,101 marked and 50,213 unmarked coho encounters.

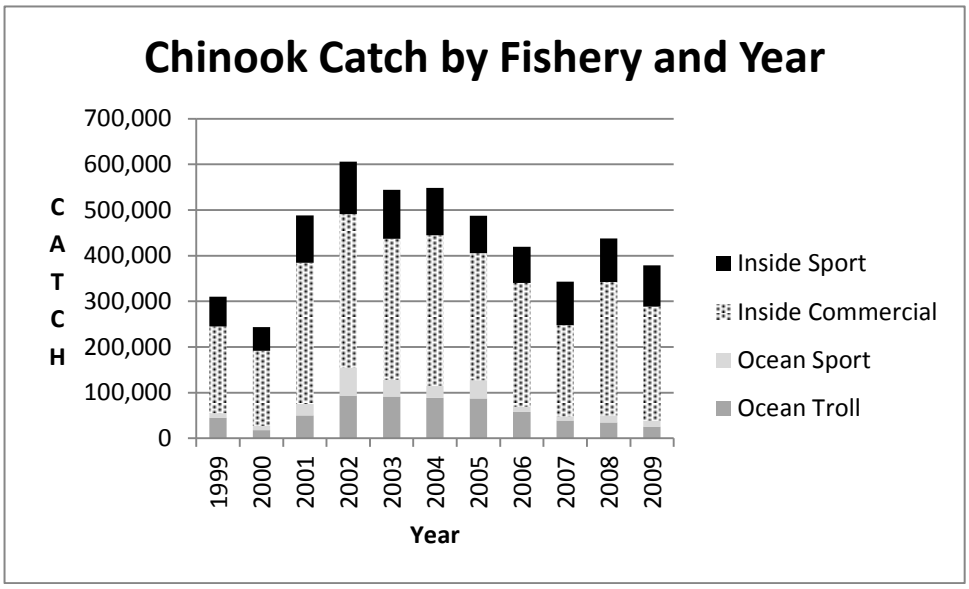
g/ Consists of 11,948 estimated released coho of unknown mark status, in addition to the 13,243 marked and 19,592 unmarked coho encounters.

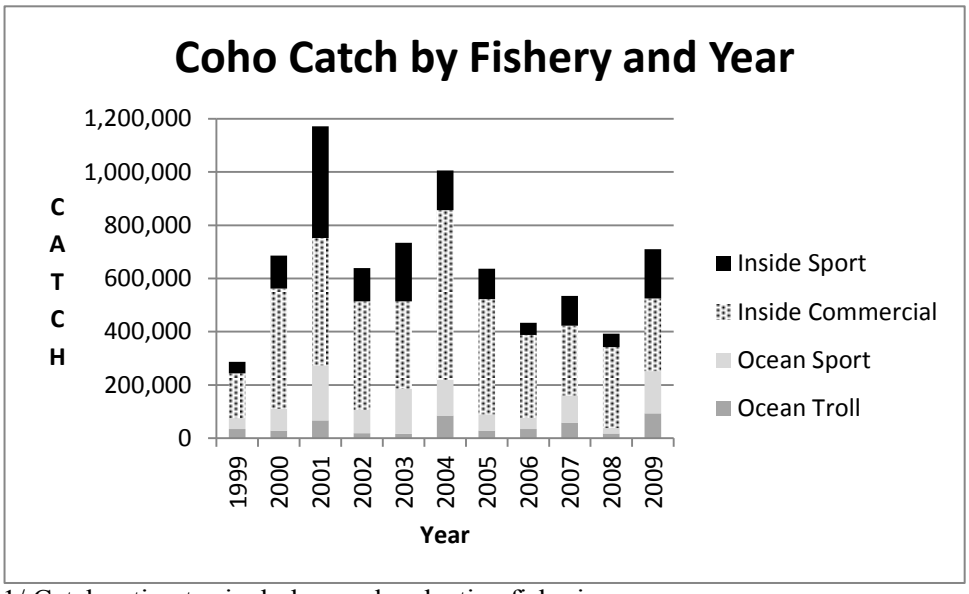
h/ Consists of 1,475 estimated released coho of unknown mark status, in addition to the 15,706 marked and 36,479 unmarked coho encounters.

i/ Consists of 3,199 estimated released coho of unknown mark status, in addition to the 6,745 marked and 9,080 unmarked coho encounters.

j/ Consists of 2,314 estimated released coho of unknown mark status, in addition to the 19,800 marked and 39,132 unmarked coho encounterrs.

Figure 38: Landed Chinook and Coho Catches for Washington and Oregon fisheries of Interest to the Pacific Salmon Commission. [1/]





1/ Catch estimates includes mark-selective fisheries

Preliminary Review of the 2010 Washington Chum Fisheries of Interest to the Pacific Salmon Commission

This summary report provides a preliminary review of the 2010 U.S. chum fisheries conducted in the Strait of Juan de Fuca (Areas 4B, 5 and 6C), the San Juan Islands (Areas 6 and 7) and the Point Roberts area (Area 7A), conducted in compliance with provisions of Chapter 6 of Annex IV of the Pacific Salmon Treaty. The harvest and abundance information provided are based on preliminary data reported through December 7 and is subject to correction and revision as additional information becomes available.

Mixed Stock Fisheries

Areas 4B, 5 and 6C

As in previous years, the chum fishery in Areas 4B, 5 and 6C was restricted to Treaty Indian fishers using gill nets. The fall chum fishery opened the week of October 10, with a schedule of three days per week and continued through November 13. A total of 1,476 chum salmon were harvested. Including incidental catches of chum salmon prior to the chum directed fishing season, 1,788 chum salmon were harvested (Table 59). During the fall chum fisheries in Areas 4B, 5, and 6C, there was a reported bycatch of no steelhead, 865 coho, and 1 Chinook.

Areas 7 and 7A

Chum fisheries in Areas 7 and 7A are regulated to comply with a base harvest ceiling of 130,000 chum salmon, unless a critically low level of abundance (< 1,000,000) is identified for those populations migrating through Johnstone Strait (Inside chum). Chapter 6 of the Annex specifies that chum-directed fishing is not allowed in Areas 7 and 7A before October 10. Paragraph 10 (a-b) specifies that for runsizes below the critical threshold, catch of chum salmon in Areas 7 and 7A will be limited to those taken incidentally to other species and in other minor fisheries, and shall not exceed 20,000.

On October 7, based on Inside area test fishery catches, Canada indicated that an in-season update of return abundance of the Inside area chum was at a critical level. Therefore, no commercial fisheries were opened as planned on October 10, except for the ongoing reef net fishery.

Paragraph 10 (d) says that if Canada provides an estimate of Fraser River runsizes below 900,000, the U.S. will limit its fishery impacts to not exceed catch of 20,000 chum from the day following notification. An initial in-season Fraser chum run size abundance estimate of 1.098 million was provided to the U.S. on October 15 allowing the U.S. to initiate commercial fishing. The Treaty Indian gillnet and purse seine fisheries were opened on October 16, and ran continuously through October 22. The Non-Treaty gillnet and purse seine fleets were open daily from October 18 through October 22. Catches per vessel and effort were low throughout the fishery.

An additional update of the estimated Fraser chum run size was provided by Canada on October 18, with a decreased estimate of 810,000, triggering the limit of 20,000 additional chum to be caught in Areas 7 and 7A beginning October 19.

The U.S. chum fishery was monitored closely after that point to insure that the 20,000 fish limit was not exceeded. The fishery was closed for both Treaty Indian and Non-Indian fishers at 11:59 PM on October 22. The U.S. catch between October 19 and 22 in Areas 7 and 7A was 9,157 chum salmon. There was an additional run size update communicated from Canada on Thursday October 28 for a Fraser River chum run size of 799,000.

Non-Indian reef net fisheries targeting adipose-marked coho salmon were conducted from the end of Fraser Panel control (September 18), until September 30. Chum retention was prohibited in this fishery until October 1. Chum salmon catch in this fishery, between October 1 and October 9, was 1,089 fish. Reef nets opened daily targeting chum salmon from October 16 through October 22 catching an additional 61 chum, for a total of 1,150 chum caught in the reef net fishery.

There were 185 chum salmon reported caught in Areas 7 and 7A prior to September 16 and assigned to summer chum stock. The total 2010 chum salmon catch by all gears in Areas 6, 7, and 7A, reported through December 7, was 23,617. Catch distribution, between Areas 7 and 7A, was 85.7% and 14.3% respectively. However, it should be noted that these catch reports may be incomplete at this time (Table 60).

During the fall chum fisheries in Areas 6, 7 and 7A, there was a reported bycatch of 1820 coho salmon and 1 steelhead.

The third year of a southern area chum stock distribution study was conducted in the San Juan Islands – Point Roberts area chum fisheries. Northwest Indian Fisheries Commission staff and Washington Department of Fish and Wildlife crews collected tissue samples from commercial fishery landings at seafood processing plants. Four hundred chum tissue samples from Area 7 and two hundred and one samples from Area 7A were collected in Management Week 43 (October 17 – 23) . All samples will be screened for the presence of Washington, British Columbia (non-Fraser River), and Fraser stock aggregates, using mixed stock analytical methods based on DNA techniques.

Puget Sound Terminal Area Fisheries and Run Strength

Preseason forecasts for chum returns to Puget Sound were for a fall chum run totaling approximately 1,333,000 fish. Current in-season estimates indicate that the returns to Hood Canal and Skagit may be above forecast, South Puget Sound, and those to Stillaguamish–Snohomish are all below forecast. Some Puget Sound chum fisheries are still underway and additional in-season estimates of abundance may occur. At this time, spawning escapement surveys are underway and therefore estimates are not available.

Table 59 Preliminary 2010 Chum Harvest Report for Washington Catch Reporting Areas 4B, 5, 6C.

Areas 4B, 5, 6C	
Treaty Indian, Gill Net Only	
Time Periods	GN
Through 9/15	172
9/16-10/2	0
10/3–10/9	140
10/10–10/16	507
10/17–10/23	798
10/24–10/30	119
10/31–11/6	45
11/7–11/13	7
Total	1,788

Table 60 Preliminary 2010 Chum Harvest Report for Washington Catch Reporting Areas 6, 7, 7A.

	Area 6	Area 7				Area 7A			Area 6, 7, 7A
Time Periods	GN	PS	GN	RN	Area total	PS	GN	Area total	Total
Through 9/15	0	82	42	0	124	22	7	29	153
9/16–9/30	0	0	0	0	0	110	0	0	110
									0
10/1–10/9	0	0	0	1,089	1,089	0	0	0	1,089
10/10–10/16	0	950	0	61	1,011	0	62	62	1,073
10/17–10/23	0	17,104	913	0	18,017	1,489	1,686	3,266	21,192
10/24–10/30	0	0	0	0	0	0	0	0	0
10/31–11/6	0	0	0	0	0	0	0	0	0
11/7–11/13	0	0	0	0	0	0	0	0	0
Total	0	18,136	955	1,150	20,241	1,621	1,225	3,357	23,617
10/11 – 12/7 Period Bycatch	Coho: 1820; Steelhead: 1								

Preliminary Review of 2010 United States Fraser River Sockeye and Pink Salmon Fisheries

Introduction

The 2010 Fraser River Panel season was the twelfth and final season implemented under the renewed (1999) Annex IV, Chapter 4 of the Pacific Salmon Treaty (PST). The Treaty establishes a bilateral (U.S. and Canada) Fraser River Panel (Panel) that develops a pre-season management plan and approves in-season fisheries within Panel Area waters directed at sockeye and pink salmon bound for the Fraser River (Figure 39). In partial fulfillment of Article IV, paragraph 1 of the PST, this document provides a season review of the 2010 U.S. Fraser River sockeye salmon fisheries as authorized by the Panel. Catch and abundance information presented is considered preliminary.

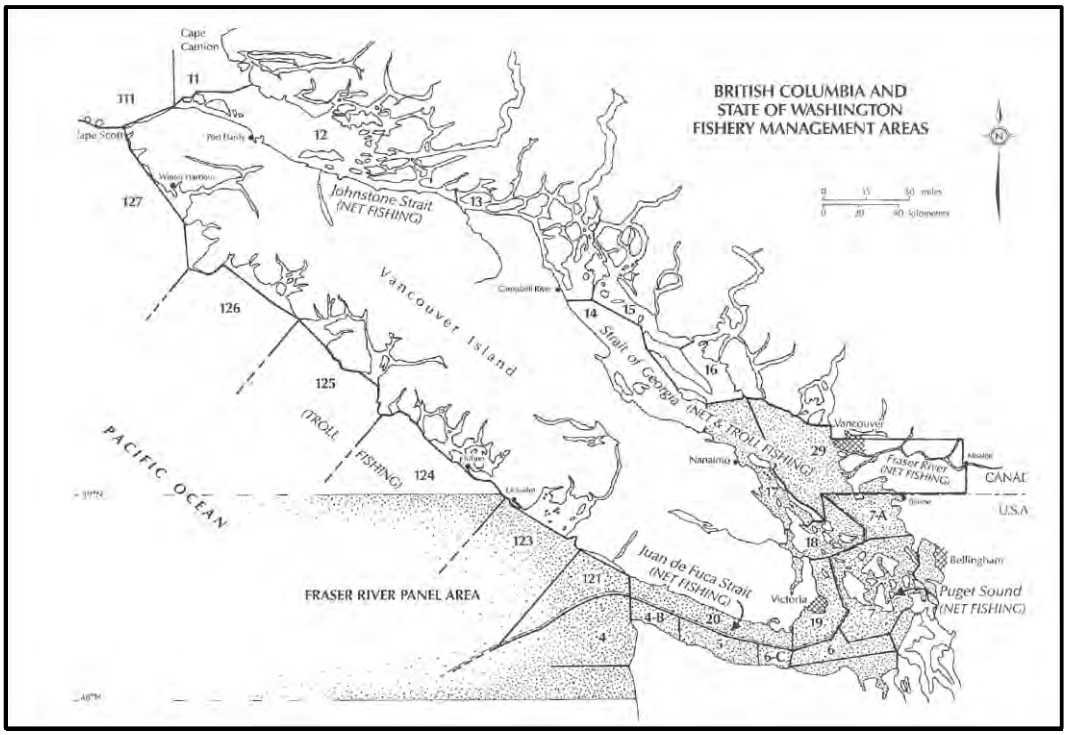


Figure 39 British Columbia and State of Washington Fishery Management Areas. The shaded area in the figure represents the marine waters managed by the Fraser River Panel.

Preseason Expectations and Plans

Forecast and Escapement Goals

The Department of Fisheries and Oceans, Canada (DFO) provided the Panel pre-season run size forecasts and escapement goals by stock group (run) at various probability levels. Table 61 shows the 2010 pre-season sockeye forecasts at the 50 percent probability level, which represents the mid-point of the range of possible run sizes. These are the forecasts agreed upon by the Panel for use in pre-season fishery planning. Table 61 also provides the escapement goals for timing groups based on the pre-season forecasted abundance. The escapement goals for all timing groups can change in-season as the run size estimates change.

Table 61 2010 Pre-season Fraser River Sockeye Forecasts and Escapement Goals, by Stock Group

	Early Stuart	Early Summer	Summer	Late	Total
Forecast of Abundance	41,000	783,300	2,612,000	8,003,000	11,439,300
Escapement Goal	41,000	313,300	1,044,800	3,201,200	4,600,300

Diversion

Diversion is defined as the percentage of Fraser sockeye salmon migrating through Johnstone Strait (rather than the Strait of Juan de Fuca) in their approach to the Fraser River. Diversion through Johnstone Strait was forecasted pre-season to be 47% for sockeye. Diversion was modeled on a daily basis starting at 0% (100% migration through the Strait of Juan de Fuca) in late June and climbing to 53% in steady increments by early August.

Management Adjustment (MA) and Environmental Conditions

Management Adjustments reflect the expected difference between escapement estimates at Mission (minus catch above Mission) and actual spawning escapements. If the adjustments are adopted by the Panel, they are added to the gross escapement goal, effectively increasing the goal for an affected run. For 2010, the Management Adjustments were modeled using discharge and temperature predictor variables and relationships between differences between estimates and run timing. Table 62 provides the pre-season projected MA's that were used for planning fisheries. In-season management adjustments use MA models that are based on both measured and forecasted temperatures and discharges, and in-season estimates of run timing.

Table 62 2010 Pre-Season Management Adjustments

Early Stuart		Early Summer		Summer		Lates	
Difference Between Estimates	**Management Adjustment**	**Difference Between Estimates**	**Management Adjustment**	**Difference Between Estimates**	**Management Adjustment**	**Difference Between Estimates**	**Management Adjustment**
29%	16,400	38%	194,300	3%	31,300	26%	1,120,400

Run Timing

Run timing is temporal information about the presence of a salmon stock in a specific area during the time the stock is migrating through that area. Run timing is an important variable when planning fisheries and predicting run size in-season. The following Area 20 50% dates (the dates when 50% of the stock or run group is forecasted to have passed through Canadian catch area 20) were predicted pre-season for the major Fraser sockeye run groups.

Table 63 2010 Area 20 Pre-Season 50% Run Timing Dates

Run Group	Area 20 50% Run Timing Date
Early Stuart	July 1
Early Summers	July 27
Summers	August 3
Lates	August 15

U.S. Total Allowable Catch (TAC)

Pre-season, the U.S. TAC was established at 832,000 sockeye. To the extent practical, the Panel was to strive to concentrate the U.S. fishery on the most abundant management group, which in 2010 was the Late run.

Pre-Season Management Plans

During the preseason planning process the Fraser Panel evaluates and adopts management approaches for Fraser sockeye salmon that address conservation and harvest objectives for each major stock group. The Fraser River Panel develops fishing plans and in-season decision rules with the objective to meet management goals. Managing Fraser River sockeye often involves a trade-off between catching abundant stocks and meeting escapement objectives for less abundant stock groups.

In 2010 the Panel adopted a management plan that recognized that significant fishing opportunities would be available for the Late runs stocks and fisheries would be concentrated during the later run migration. There was sufficient TAC forecast for the Early Summer and Summer runs such that they did not significantly restrict opportunity to harvest the Late run TAC during preseason planning. There was no TAC predicted to be available for Early Stuart sockeye in 2010 and commercial fisheries were not contemplated on this timing group.

The Panel developed a pre-season fishing plan that allowed the harvest of the abundant Late runs, while meeting the gross escapement goals for Early Summer runs and Summer Runs. The preseason fishing plan for the U.S. fisheries provided opportunity for the U.S. to take its full TAC and distribute the catch across the management groups proportional to each group's available TAC, and focusing most of the harvest on the Late runs. For the major U.S. fisheries this meant that sockeye openings would likely begin in early August and run through mid-August, although the total number of days of fishing in U.S. waters was not expected to be that large given the predicted low diversion rate and availability of the runs to U.S. fisheries.

In-Season Management

In-season, the Pacific Salmon Commission staff analyzes a variety of information to produce best estimates of diversion, management adjustments, run-timing, abundance, and harvest by stock group. These estimates are created using stock ID information, test fishing data, counts of escapements past Mission, harvest data and environmental information.

Run Assessment

The final in-season abundance estimates for 2010 (Table 64) indicate that all management groups returned much larger than expected preseason. The Late run was particularly remarkable with an in-season estimate of over 25 million fish returning. This was the largest total Fraser sockeye return in nearly 100 years. These very large returns relative to expectations for all management groups are indicative of very good marine survival, and provided extensive opportunities for commercial harvest.

Pre-season, run timing was expected to be earlier than cycle averages for all timing groups. In-season timing was significantly later than expected preseason and later than the cycle averages. The Early Summer and Summer runs were almost two weeks later than expected in the preseason plan.

Table 64 Comparison of Pre-Season vs. In-Season Abundance Estimates for Fraser River Sockeye Salmon by Stock Group (run).

Stock Group	Pre-Season 50% Probability Forecast	In-Season Run Size Estimate	Comparison: In-Season vs. Pre-Season Forecast
Early Stuart	41,000	105,000	256%
Early Summer	783,300	3,800,000	485%
Summer	2,612,000	5,200,000	199%
Late	8,003,000	25,441,000	318%
Total	11,439,300	34,546,000	302%

Table 65 2010 Preliminary 50% Run Timing Dates in Area 20

Run Group	Pre-season 50% Run Timing Date	In-season 50% Run Timing Date
Early Stuart	July 1	July 5
Early Summer	July 27	August 9
Summer	August 3	August 15
Late	August 15	August 22

Season Description

Prior to July 24:

Prior to July 24th no Panel water commercial fisheries occurred. The only stock assessment information was a significant increase in the run size for the Early Stuart run from a preseason forecast of 41,000 up to 90,000 sockeye. It also appeared that the Early Stuart stock was returning several days later than expected preseason. It was too early in the season to assess any other stock groups.

Week ending July 31:

This week it appeared that the Early Summer runs were tracking better than forecast and the Summer runs a little lower in abundance and/or a little late. The Harrison run was also tracking well ahead of forecast. Test fishing indicated most of the migration was entering through the Strait of Juan de Fuca and the diversion rate was estimated at 30%. The Panel updated the Early Stuart run size from 90,000 to 105,000, the Early Summer run size from 783,000 to 950,000 and the Harrison run size from 195,000 to 400,000 sockeye. The Panel decided to open treaty Indian fisheries in areas 4B/5/6C beginning at noon on July 29th (one day later than the preseason plan) and this fishery remained open throughout the week.

Week ending August 7:

The Early Summer run continued to show stronger than expected and the Panel updated the run size to 1,600,000 sockeye and adjusted the peak timing from July 27 to August 2. It was still too early to provide an in-season update for the Summer runs but it appeared to be tracking similar to forecast. Test fishing in Johnstone Strait was picking up and the diversion rate was estimated to be 50%. The Treaty Indian fishery in areas 4B/5/6C continued open throughout the week. Treaty Indian fisheries in areas 6/7/7A opened on August 6 for 2 days.

Week ending August 14:

Treaty Indian fisheries in 4B/5/6C continued open until noon on August 10. Non-Indian fisheries in areas 7/7A were open for one day on August 8. An assessment of catches in the U.S. fisheries through the early part of this week indicated that the U.S. had taken its proportional share of the Early Summer TAC and it was decided to hold off on any further fishing until the Late runs were predominate in the fishery, as the Late runs were expected to provide the bulk of the harvestable sockeye this year. Towards the end of the week there were very strong migrations of sockeye through both approach areas and the Late runs were starting to show in good abundance. The Panel updated the Early Summer run size from 1,600,000 to 2,00,000 sockeye, the Summer run size from 2,612,000 to 2,600,000 sockeye, and the Harrison run size from 400,000 to 700,000 sockeye. Proportional management adjustments for Early summer and Summer runs were increased from .62 to 1.00 and .03 to.24, respectively, in response to expected poor in-river

temperature and discharge conditions. The diversion rate was estimated at 45% and was expected to increase as the Late runs increased in abundance.

Week ending August 21:

Based on very strong test catches through both approaches, the run size estimates were increased for all of the stock groups present in the fisheries. The Early Summer run size was increased from 2,000,000 to 2,900,000 sockeye, the Summer run size was increased from 2,600,000 to 4,000,000 sockeye, and the Late run size from 8,508,000 to 12,141,000 sockeye. Expected poor in-river migration conditions did not materialize as predicted and the management adjustments for the Early Summer and Summer stock groups were reduced to .39 and .22, respectively. The diversion rate this week was running between 65% and 75%. Given the strong migration and record test catches in Johnstone Strait additional fisheries were opened this week. Treaty Indian fisheries in areas 4B/5/6C opened on August 15 and continued open throughout the week. Non-Indian fisheries in areas 7/7A were open for two days on August 17 and August 21. Treaty Indian fisheries in areas 6/7/7A were open for one day on August 18.

Week ending August 28:

Record daily test catches continued in Johnstone Strait and the Panel again increased the run sizes for all of the stock groups present in the fishing areas. The Early Summer run size was increased from 2,900,000 to 3,700,000 sockeye, the Summer runs from 4,000,000 to 4,800,000 sockeye, and the Late Runs from 12,141,000 to 21,441,000 sockeye. In-river environmental conditions remained reasonably good and the management adjustments for the Early Summer and Summer runs were decreased to .36 and .15, respectively. The diversion rate continued to increase and was estimated at 94% by the end of the week. Given the very large run sizes now projected, fisheries in U.S. waters continued open throughout the week. Treaty Indian fisheries in areas 4B/5/6C were open continuously through the week Treaty Indian fisheries in areas 6/7/7A were open for six days this week, and the non-Indian gillnet and purse seine fisheries in areas 7/7A were open for one day on August 25. The non-Indian reef net fishery was open two days on August 25th and 26th.

Week ending September 4:

Test fishing dropped off significantly this week, although there was estimated to be about 17 million Late run fish holding in the Gulf of Georgia, off the mouth of the river. The run size estimate for the Late runs was increased from 21,441,000 to 25,441,000 sockeye. The diversion rate was estimated at about 95%. Given the very large run sizes the U.S. share of the TAC was now over 2.5 million with a catch of only about 1.6 million sockeye. Given the declining abundance in marine waters, fisheries in U.S. waters continued throughout the week to try and take as much of the TAC as possible. Treaty Indian fisheries in areas 4B/5/6C were open continuously throughout the week. Treaty Indian fisheries in areas 6/7/7A were open for 5 days, and the Non-Indian fisheries in areas 7/7A were open for 2 days this week, except for the reef net fishery which was open for 4 days.

Week ending September 11:

Test fisheries in all approach areas were discontinued this week as catches dropped to very low levels. Based on in-river assessments the run size estimates for the Early Summer and Summer runs were increased slightly to 3,800,000 and 5,200,000, respectively. Fisheries in U.S. waters continued throughout the week and the Panel relinquished control of areas 4B/5/6C at the end of the week as scheduled pre-season. Treaty Indian fisheries in areas 4B/5/6C were open continuously throughout the week. Treaty Indian fisheries in areas 6/7/7A were open for 6 days, and the non-Indian fisheries in areas 7/7A were open for one day on August 8, except for the reef nets which were open the entire week.

Week ending September 18:

There were no new assessments of run size this week. There was still estimated to be a large abundance of Late runs holding in the Gulf, and these fish were expected to move upstream later in the month. The Panel relinquished control of Areas 6/7/7A as scheduled at the end of the week, except for the apex portion of area 7A. Treaty fisheries in areas 6/7/7A were open for 5 days this week and non-Indian reef net fishing was open the entire week.

Harvest

Between July 29 and September 18 the United States caught a total of 1,957,662 Fraser River sockeye in Panel area waters (Table 66)[4]. This compares with a total U.S. TAC at the time of scheduling the last U.S. fisheries of 2,602,000 sockeye. During this period the Treaty Indian fisheries in Areas 4B/5/6C were open for a total of 38 days and in Areas 6/7/7A for approximately 26 days. The Non-Indian fishery in Areas 7/7A was open for a total of 7 days for gillnet and purse seine gear, and a total of 23 days for reef net gear. The number of days fished was much greater than what was planned preseason due to the much larger TAC available and the higher than expected diversion rate. The overall catches were much larger than expected due to a near record total sockeye run size, but were still significantly less than the U.S. TAC.

Table 66 Preliminary Estimates of 2010 U.S. Catches of Fraser River Sockeye Salmon in Panel Area Waters

	Treaty Indian	Non-Indian
C and S	10,622	0
Catch Areas 4B/5/6C	134,452	0
Catch Areas 6/7/7A	1,069,981	742,607
Total	1,215,055	742,607

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

The Pacific Salmon Treaty between Canada and the United States requires that information be exchanged annually regarding operation 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

[4] Preliminary catch data reported through 12/ 2/10.

- the Parties will provide periodic reports through the appropriate panels on new enhancement plans.

1. 2004 ANNUAL REPORT ON THE SALMON ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2011.

2. 2005 ANNUAL REPORT ON THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2011.

3. 2006 ANNUAL REPORT ON THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2011.

4. 2007 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2011.

5. 2008 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2011.

6. 2009 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2011.

7. 2010 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2011.

8. 2006 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2011.

9. 2007 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2011.

10. 2008 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2011.

11. 2009 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2011.

12. 2010 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2011.

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, 2010 to March 31, 2011 are presented in this section. Copies of the complete reports are available from the library of the Pacific Salmon Commission.

A. JOINT CHINOOK TECHNICAL COMMITTEE

DEVELOPMENT OF THE TECHNICAL BASIS FOR A CHINOOK SALMON TOTAL MORTALITY MANAGEMENT REGIME FOR THE PSC AABM FISHEIRIES. TCCHINOOK (11)-1 – February 2011.

The 2008 Pacific Salmon Treaty directs that "*beginning in 2011, total mortality management shall be implemented"* by revising Table 1 (in Annex IV, Chapter 3) using the 1985-1995 average relationship between incidental mortality (IM) and landed catch (LC) to calculate the total fishing mortality limits at each abundance index (AI) level for each AABM fishery. The Agreement calls for using total mortality (TM) limits, expressed in landed catch equivalents (LCEs), as annual ceilings rather than the LC limits currently in use. The Agreement also directs the Chinook Technical Committee (CTC) to report on how gear allocations and transfers will be handled between sectors; how fisheries will be managed preseason and post-season based on direct and derived observational data; and to evaluate the accuracy of preseason predictions of incidental mortalities, review assumptions, and investigate methods for improving estimates of total mortality in AABM and ISBM fisheries.

This report documents the CTC's extensive efforts to address these directives for AABM fisheries prior to the 2011 season. The report is organized into six primary sections:

- Section I gives the introduction and background for the TM assignments to the CTC.
- Section II develops TM limits for Table 1 from empirically derived 1985-1995 average relationships of IM:LC and LCE scalars based on average adult equivalents (AEQs)
- Section III describes pre- and post-season application of TM regimes in AABM fisheries, and includes comparisons of IM:LC between the 1985-1995 base period and the more recent 1999-2008 period of management under the 1999 Agreement.
- Section IV evaluates the potential effects of changes in mortality allocations among gear sectors and of temporal changes in IM:LC ratios on LC and TM under a TM regime.
- Section V considers caveats and future refinements regarding the implementation of a TM management regime, including impacts of PSC Chinook Model improvements, changes in fishing regulations (e.g., size limits, gear restrictions), development of alternative TM metrics (e.g., the probability of recruitment method), and mark selective fishing.
- Section VI provides a summary and conclusions.

Conversion of Table 1 from LC to TM can be encapsulated in three steps: (1) developing a metric to equate incidental mortalities of sublegal-sized fish to (LCEs of legal-sized fish within gear types; (2) developing a metric to represent LCEs for gear types in a common currency, troll catch equivalents (TCEs); and (3) estimation of IM associated with LC. ***An abbreviated version of the TM Table 1 is presented below in Table A. The full TM Table 1 is in Report Table II.2.22.*** The average 1985-1995

IM:LC ratios used for calculating the TM limits are shown in Table B and are summarized in Report Table II.2.23. The average AEQs used as the basis for the LCE scalars are summarized in Report Table II.2.24. The scalars for LCEs within gear sectors are also in Report Table II.2.24. The scalars for translating the gear LCEs to TCEs are summarized in Report Table II.2.25.

Table A. Abbreviated TM Table 1 showing potential TM limits in TCEs at the associated AIs for the three AABM fisheries.

AI	SEAK TM	NBC TM	WCVI TM
0.30	75,490	46,714	49,115
0.495	102,509	77,139	81,007
0.50	103,263	77,857	95,550
0.70	131,036	109,000	133,694
0.90	158,809	140,143	171,965
1.00	172,632	155,715	190,973
1.005	174,140	156,553	219,421
1.20	233,582	186,858	262,029
1.205	263,491	187,696	263,050
1.40	300,689	221,954	305,658
1.50	319,791	239,561	327,473
1.505	344,673	263,038	328,621
1.70	384,887	297,056	371,102
1.90	426,233	332,032	414,731
2.00	446,842	349,520	436,673
2.10	467,578	367,008	458,488

The CTC considered several approaches for developing the scalars to translate LC and IM to LCEs, and ***determined that the AEQ-based approach is the best method currently feasible.*** This method is an improvement over the 1:1 value used in the LC regime, because it accounts for size and maturity differences by stock of both LC and IM in the AABM fisheries. However, because the AEQs are based on probability of survival in the absence of fishing, the AEQ approach may not adequately account for differing stock and age distributions harvested by different gear sectors or size limit differences between gear-type sectors. If TM management is implemented by the Commission, it should be recognized that future revisions to the TM Table 1 may occur as better analytical approaches are developed which lead to refinement and improvement in the transfer scalars.

The CTC found that ***the IM:LC ratios have declined between the 1985-1995 IM base period and the recent period managed under the 1999 Agreement (1999-2008) in all AABM commercial fisheries (Section III).*** The changes are summarized in Table B. These declines are due to management changes that reduced IM. A size limit reduction also contributed to the change with the WCVI troll fishery. As a result, TIM in AABM fisheries is proportionally lower under current LC management than was the case during the IM base period.

Table B. Average IM:LC ratios for the 1985-1995 IM base period and for the 1999-2008 period, and significant differences (P <0.05) between the time periods (values in bold) for the component gear sectors in the three AABM fisheries.

Fishery	TIM:LC		SIM:LC		LIM:LC	
	85-95	99-08	85-95	99-08	85-95	99-08
SEAK Troll	**0.34**	**0.15**	**0.24**	**0.10**	**0.10**	**0.06**
SEAK Net	**1.44**	**0.22**	**1.30**	**0.20**	**0.26**	**0.03**
SEAK Sport	0.26	0.24	0.17	0.13	0.09	0.10
NBC Troll	**0.26**	**0.05**	**0.23**	**0.02**	0.03	0.03
NBC Sport	0.18	0.17	NA	NA	0.18	0.17
WCVI Troll	**0.39**	**0.07**	**0.36**	**0.05**	0.03	0.02
WCVI Sport	0.19	0.19	0.05	0.05	0.14	0.14

Because of the declines in IM:LC ratios, ***transitioning to TM limits for Table 1 based on 1985-1995 IM:LC ratios would potentially result in substantial increases in both TM and LC relative to the LC regime in place under the 2008 Agreement for 2009 and 2010 (Section IV.2).*** Under TM management as defined by the 2008 Agreement, the TM limits would include the IM "savings" realized under current management practices, and thus would have a higher TM limit than the TM currently occurring under the LC Table 1. If an AABM fishery attains these higher TM limits, and current rates of IM:LC are assumed, the realized LC will also be higher than what is currently allowed under the LC Table 1. Comparisons of LC and TM under the current LC and proposed TM regimes are shown for select AIs in Table C; see Report Appendix D for the full range of AIs in Table 1.

Table C. LC and TM expected in the AABM fisheries under the current LC regime and under the proposed TM Regime, and potential percentage increase in LC and TM under the TM regime, for low, average, and high values of AIs which approximate the range of AIs observed for each fishery.

AABM Fishery	AI Level (AI)	LC Regime		TM Regime		% Increase	% Increase
		LC_{lc}	TM_{lc}	LC_{tm}	TM_{tm}	LC	TM
SEAK	Low (0.90)	116,500	127,950	144,350	158,809	23.9	24.1
	Average (1.51)	264,400	291,826	312,095	344,673	18.0	18.1
	High (2.20)	378,600	418,362	441,619	488,187	16.6	16.7
NBC	Low (0.80)	104,000	110,750	115,504	124,572	11.1%	12.5%
	Average (1.30)	170,700	181,779	191,862	204,466	12.4%	12.5%
	High (1.80)	262,600	279,644	297,068	314,544	13.1%	12.5%
WCVI	Low (0.50)	74,900	80,797	84,774	95,550	13.2%	15.4%
	Average (0.75)	112,300	121,141	130,045	143,261	15.8%	15.4%
	High (1.00)	149,700	161,485	175,316	190,973	17.1%	15.4%

The TM limits in the TM Table 1 are based on sector allocations as specified in Appendix B of the 2008 Agreement. However, the management objectives and allocations set by the Parties may differ from the allocations used in Appendix B. The CTC evaluated potential LC under a TM regime at different sector allocations over a range of AIs (Section IV.1). ***The CTC found that the change in LC would be relatively small, ranging from 0-3% at average AIs for the AABM fisheries for the range of allocation scenarios examined.*** Additional scenarios could expand the range of potential change in LC but the

effect of adjustments to allocations is much less than the effect of changes in IM:LC ratios from temporal and spatial adjustments to a fishery.

Transitioning to a TM regime would increase the complexity of management and assessment for the respective management agencies and for the CTC (III.1&2). Managers would require gear-specific forecasts of IM to set management regulations to achieve the potential LC. The CTC would continue to report LC and estimates of IM for each gear type within the fishery, but would also need to translate these data into TCEs as the measure of TM.

Under TM management, ***agencies would need to validate encounter estimates from user-reported data (e.g., log books, creel census, mail-out surveys) with direct and independent observations to detect and correct under-reporting biases (Section III.7).*** Costs of such programs are likely to be substantial. Introduction of new monitoring technology could reduce costs but will require consideration on how data are collected and reported. Under LC management, released encounters were reported in the annual reports on catch and escapements by the CTC and accounted for in the calculation of the AI, but they did not affect the LC estimates used to evaluate whether limits under Pacific Salmon Treaty management were exceeded. Under TM management, decreases in reliably estimated incidental mortalities can ultimately result in increased allowable landed catch. This situation creates an incentive to underreport releases and under-scores why fisher-reported data will require validation.

The CTC recommends that empirically-derived relationships of IM:LC ratios from the recent LC management period for estimating IM from LC be used for preseason projections and for post season assessment unless estimates from validated monitoring programs are available post-season. The CTC has developed some preliminary recommendations for predicting IM from LC for each gear sector in each AABM fishery (Section III.4)**.** However, the CTC has not yet developed data standards for assessing whether IM can be reliably predicted, and has not yet assessed whether the predictive relationships meet those standards. Reliability and predictability of estimates of sublegal-sized encounters, as well estimates of incidental mortalities need further review by the CTC. This is due to the greater uncertainty in IM estimates relative to LC and that the IM estimates will become an explicit component of assessment of compliance under the TM regime.

The CTC recommends that these empirically-derived relationships of IM:LC ratios be periodically evaluated through direct observation programs conducted in accordance with standards established by the CTC. In addition, if the management of an AABM fishery is significantly modified (e.g., changes to size limits, implementation of mark selective fisheries (MSF), or time and area regulation), the CTC recommends that: (a) the proposing agency be required to submit methods to be employed to estimate IM for preseason planning for review by the CTC; and (b) agencies be required to conduct direct observation programs in accordance with the standards established by the CTC to estimate IM:LC ratios resulting from the management changes for post season assessment.

For pre- and post-season estimation of TM in LCEs, the CTC will also require estimates of conversion scalars derived from average AEQs from the PSC Chinook Model for computing TCEs. ***The CTC found that average AEQ values from post-season calibrations are adequate to use for calculating LCE scalars and estimating TM for post-season assessments. Average AEQs from the preseason Model calibration are also adequate for preseason estimates for the three SEAK sectors and WCVI troll, but not for NBC troll and WCVI sport***. The CTC may need to develop and apply methods to reduce the error in preseason estimates of average AEQs in NBC troll and WCVI sport fisheries.

The CTC considered how the PSC Chinook Model could be modified to improve TM management and identified Model improvement issues that apply not only to TM management, but to AABM and ISBM in general (Sections V.1 and 2). The AIs generated by the Model are the basis of annual catch limits in

Table 1, whether these limits are defined as LC or TM. The Model has always incorporated estimates of TM in the calculation of cohort sizes and fishery-specific AIs. However, the Model has substantial bias in estimating IM, and currently, does not account for the large temporal decreases in IM under recent management conditions. This could affect the average AEQs for SIMs and LC, and thus the LCE scalars used to construct the TM Table 1. More importantly, inaccurate representation of IM in the model could affect the AIs. ***Thus, changes in the Model to better represent IM could substantially change the time series of AABM AIs in relation to LC that are the basis for Table 1 for LC or TM management. For this reason, the Model improvement work is critical for AABM fisheries management and the construction of Table 1 regardless of whether catch limits are set in terms of LC or TM.***

This report addresses the directives of the 2008 Agreement for transitioning to a TM regime in the AABM fisheries, and provides a technical basis for implementing a TM regime in 2011. The CTC emphasizes that analytical approaches and methods for revising Table 1 from LC to TM, and for implementing and assessing TM management in AABM fisheries, will evolve over time. However, while refinement of LCE scalars used in constructing Table 1 may provide a better "exchange currency" between gear sectors, the change in IM:LC ratios between the 1985-1995 base period and the current period will still result in substantial increases in TM and LC under TM limits relative to the current LC regime. ***The need and priority for the CTC to improve analytical approaches for TM management are dependent on the direction from the Commission regarding transition to a TM regime.***

2010 ANNUAL REPORT OF CATCHES AND ESCAPEMENTS
TCCHINOOK (11)-2 – February 2011.

The June 30, 1999, Pacific Salmon Treaty (PST) Annexes and Related Agreements (Agreement) substantially changed the objectives and structure of the Pacific Salmon Commission's (PSC) Chinook salmon fisheries and assessment of Chinook salmon stocks. The 1999 Agreement replaced the previous ceiling and pass-through fisheries with Aggregate Abundance Based Management (AABM) and Individual Stock Based Management (ISBM) fisheries. The 2008 Agreement replaced the 1999 Agreement and assigned the Chinook Technical Committee (CTC) with several tasks related to implementation of the Agreement (Appendix to Annex IV, Chapter 3).

This report summarizes the 2009 fishery catches by region, available estimates of incidental mortality by fishery and limited commentary on fishery catches where needed. Landed catch is reported in the appendices for each geographic area covered under the PST. An assessment of escapement for stocks with CTC accepted goals is included, and escapement data through 2009 are provided for all escapement indicator stocks.

The escapements of 50 naturally spawning escapement indicator stocks/stock aggregates are reviewed annually. Biologically-based escapement goals have been accepted by the CTC for 24 of the 50 escapement indicator stocks/stock aggregates. For 12 of these, the escapement goal is defined as a range; for the remaining 12, the escapement goal is the point estimate of S_{MSY} (escapement producing maximum sustained yield). In 2009, escapements were within the goal range for 3 stocks, above the range or SMSY point estimate for eight stocks, and below the goal for 14 stocks. Data for stocks without accepted goals are presented to illustrate trends in escapement. The CTC will continue to review escapement goals, as they are provided to the committee.

B. JOINT CHUM TECHNICAL COMMITTEE

2008 POST SEASON SUMMARY REPORT
TCCHUM (10)-2 – June 2010.

This Pacific Salmon Commission (PSC) Joint Chum Technical Committee report presents the information on chum salmon stocks and fisheries in southern British Columbia and Washington for the year 2008 to address the specific provisions and requirements of the 2008 version of Chapter 6, Annex IV of the Pacific Salmon Treaty (PST) (Appendix 1).

The treaty between the governments of Canada and the United States of America (U.S.) concerning Pacific salmon was designed to facilitate co-operation between the two countries in the management, research and enhancement of Pacific salmon stocks. Chapter 6 of Annex IV (Chum Annex) of the PST required that certain fisheries for chum salmon in southern British Columbia (B.C.) and Washington be managed in a specified manner. In each country other fisheries, while not specifically mentioned in the PST, are known to harvest chum salmon originating in the other country. This report presents various aspects of the chum salmonfound in Washington State and in B.C. waters between Vancouver Island and the mainland and off the west coast of Vancouver Island, and discusses the management actions of Canada and the U.S. in relation to the PST requirements.

C. JOINT COHO TECHNICAL COMMITTEE

No reports were finalized for publication during this reporting period.

D. JOINT NORTHERN BOUNDARY TECHNICAL COMMITTEE

TCNB (10)-1 – U.S./CANADA NORTHERN BOUNDARY AREA 2009 SALMON FISHERIES MANAGEMENT REPORT AND 2010 PRELIMINARY EXPECTIOANS – April 2010.

This report reviews:

1) catch, effort, and management actions in the 2009 Northern Boundary Area troll and net fisheries of southern Southeast Alaska Districts 101 to 108 and northern British Columbia Areas 1, 3, 4, and 5;

2) management performance relative to Treaty requirements for pink salmon;

3) preliminary expectations and fishing plans for 2010.

Historical catch and effort data by district or area, gear, species, and week are no longer reported annually in this report. They can be referenced in *Pacific Salmon Commission, Northern Boundary Technical Committee Report, U.S. / Canada Northern Boundary Area 1999 Salmon Fisheries Management Report and 2000 Preliminary Expectations*. Report TCNB (01)-1, January 2001. If these historical numbers are modified, they will be added as an appendix in a future annual report.

2009 Fisheries

The southern Southeast Alaska pink salmon harvest was 26.4 million (Districts 1-8, all harvest code, all gear), slightly over the 10-year average of 25.4 million. For all of Southeast Alaska and Yakutat the pink salmon harvest was 38 million, which was very close to the preseason forecast of 41 million. The total 2009 Southeast Alaska pink salmon escapement index of 12.7 million index fish was ranked as the 14th highest

since 1960, but was below the recent 10-year average of 16.6 million. Biological escapement goals are in place for three sub-regions in Southeast Alaska and pink salmon escapement goals were reached for all three sub-regions in 2009.

Sockeye salmon catches in Alaska boundary area gillnet and purse seine fisheries, including treaty fisheries, were below average in 2009.

Returns of North Coast sockeye stocks were poorer than anticipated in 2009. The preliminary Nass sockeye Total Return to Canada (TRTC) estimate of 411,192 was below the pre-season return estimate of 511,000. Meanwhile, the Skeena total return estimate of 0.99 million was much lower than the pre-season projected return estimate of 2.0 million. Chum escapements were similar to sockeye, with generally low returns to all north coast areas. Pink returns for the north coast aggregate were variable though the aggregate was well above pre-season return estimates. Most notably, Area 3 pink salmon returns appeared weaker than anticipated while Area 4 returns exceeded pre-season estimates.

North coast marine and in-river commercial sockeye management considerations include: aggregate Skeena sockeye abundance, wild Skeena sockeye stocks of concern and the abundance of non-target Skeena salmon species and steelhead. The Area 4 pilot quota sockeye salmon seine demonstration fishery did not occur in 2009 due to poor sockeye returns. In addition, the First Nations in-river economic opportunity demonstration sockeye fishery that was scheduled to take place in the Skeena River in 2009 with sockeye being allocated to in-river fishing sites through gillnet and seine licence transfers did not occur due to the return failure. With the weak return of the Skeena sockeye aggregate in 2009 no commercial Skeena sockeye fisheries occurred, though the Nass area Nisga'a First Nation in-river sockeye sales fisheries did take place in 2009, with a total sockeye sales harvest of 45,542 pieces.

In Canadian Area 1 no terminal commercial net fisheries occurred as no local surpluses were identified. There no longer are commercial net interception fisheries on passing salmon stocks in Area 1.

Area 3 commercial net fisheries were implemented in response to Treaty obligations, current trends in salmon species abundance, in-season return estimates and concerns for non-target species. Commercial gillnet fisheries targeting Nass-bound sockeye were restricted to non-retention/non-possession of steelhead and coho, while extraordinary measures were in place to protect weak returns of chum and Chinook salmon, including expanded time and area closures and requested release of all live chum. Management measured put in place to protect weak Nass (and Skeena) sockeye returns meant Area 3 gillnets fished just 8.0 equivalent fishing days (total hours open divided by 24 hours) for a total of 1,517 gillnet boat days effort. This is much lower than the 1990-99 average of 19.7 equivalent fishing days and 8,705 gillnet boat days. The Area 3 seine fleet was managed according to Nass and Skeena sockeye and pink salmon abundance, along with concerns for non-target species. Chinook, chum and steelhead were managed with a non-retention/non-possession restriction while coho were managed with a similar restriction until Week 33, after which retention was permitted. In addition, brail and sort and operational live box restrictions were associated with this fishery, along with openings being restricted to daylight hours. A peak daily fleet size of 29 seines participated in this fishery with a resulting catch of 9,524 sockeye, 610,050 pink and 1,861 coho salmon during the six week fishing period. As the season progressed it became apparent the Skeena and Nass sockeye returns were weaker than forecast, resulting in sockeye non-retention after Week 32. The final fishing date for seines was 23 August, while the final opening for the gillnet fleet was 21 July.

The final sockeye escapement estimate to the Nass was 243,826, which is above the aggregate escapement target of 200,000. The Meziadin River escapement of 168,404 was below the decadal average (183,000) but above the escapement target (160,000) to the most productive sockeye system in the Nass drainage. Though

the aggregate pink escapement to Area 3 was below expectations, with an aggregate escapement estimate of 640,214, returns to most streams were near or above target levels. Meanwhile, the estimated Nass area chum escapement of 38,366 did not meet the escapement target.

Area 3 Gillnet catch: Sockeye – 111,377, Pink – 192,434, Chum – 47,399, Chinook – 1,554
Area 3 Seine catch: Sockeye – 9,524, Pink – 610,050, Coho - 1,861
Nass Sockeye escapement estimate – 243,826
Nass Pink escapement estimate – 640,214
Nass Area Chum escapement estimate – 38,366

Area 4 net fisheries were restricted in 2009 due to the very poor return of Skeena sockeye. Gillnets were limited to 2 Chinook-directed openings in late June (June 12, 19) while seine openings were limited to 6 pink-directed openings between 9–19 August. Combined gillnet effort for the 2 Chinook openings was average for this fishery with 187.3 boat days with a below average hailed catch of 2,438 pieces. The Area 4 seine fishery operated with non-retention/non-possession of all species but pink salmon. In addition, brail and sort and operational live box restrictions were associated with this fishery and all fishing was restricted to daylight hours to reduce interception of non-target species. Seine effort in Area 4 was minimal, the result of a very productive pink return in Area 6 drawing the seine fleet to that area, with only 32.7 boat days effort fishing 6 openings over a 2 week period (Statistical Weeks 33 and 34). The seine fleet delivered a pink catch of 462,159 pieces, which was below pre-season expectations, though fleet size and resulting effort negatively affected cumulative catch. The preliminary Skeena sockeye escapement estimate of 750,000 is below the spawning target of 900,000. The Skeena aggregate pink escapement estimate of approximately 2.4 exceeded the odd-year escapement target of 2 million while the chum escapement estimate of 992 was well below the escapement target for the Skeena River.

Area 4 Gillnet catch: Sockeye – 132, Chinook – 2,438
Area 4 Seine catch: Pink – 462,159
Skeena Sockeye escapement estimate – 750,000
Skeena Pink escapement estimate – 2.4 million
Skeena Chum escapement estimate – 992

In general, Area 5 net fisheries regulations and management follows that of Area 4. Pre-season pink and sockeye salmon expectations called for moderate opportunities for local pinks, and Skeena pinks and sockeye, for both gillnets and seines. In-season stock assessment led to no opportunities for gillnets and limited seine opportunities on local pink stocks. All seine openings were very poorly attended, with corresponding poor catches.

Area 5 Gillnet catch: no fishery
Area 5 Seine catch: Pink – 132,176
Area 5 Sockeye escapement estimate – 2,600
Area 5 Pink escapement estimate – 164,350
Area 5 Chum escapement estimate – 3,998

The Area 1 pink-directed troll fishery was open from 1–21 July along the A-B line strip. In addition, pink salmon were open to retention on June 15 in conjunction with the Chinook ITQ Demonstration fishery and remained open to retention along northern half of Dixon Entrance until 30 September. Troll effort in Area 1 concentrated mainly on Chinook and coho salmon, with little effort being directed on pink salmon due to poor prices compared, along with a focus on abundant coho and effort directed at attaining Chinook quotas. The preliminary estimated Areas 1/101 troll pink catch was 61,846 pieces.

MANAGEMENT PERFORMANCE

Pacific Salmon Treaty based harvest sharing agreements were renewed in 2008 for the Northern Boundary area fisheries – Alaska District 104 purse seine, Alaska District 101 drift gillnet, Canadian Area 3 net, and Canadian Area 1 troll. The agreements are "abundance based" where the allowable harvest is a percentage of the Annual Allowable Harvest (AAH). The AAH is the total return of applicable stocks minus the lesser of: 1) the actual escapement, or 2) the escapement goal. Catches over or under the AAH are summed over the period of the agreement to allow for annual variation.

The run size of Alaskan pink salmon returning to Districts 101-103 determines the allowable harvests of these stocks in Canada's Area 3 (1-4) net and Area 1 troll fisheries.

In Alaska's District 104 purse seine fishery, the Nass and Skeena sockeye run size determines the AAH of these stocks prior to Statistical Week 31. In the District 104 purse seine fishery the agreement specifies a harvest, from the beginning of the season through Statistical Week 30, of 2.45% of the combined AAH of both the Nass and Skeena River runs. The fishery opens the first Sunday in July; in 2009 the initial opening was July 5 (Week 28). The 2009 pre-Week 31 fishing plan for District 104 was based on returns of local Alaskan stocks as well as the Canadian Department of Fisheries and Oceans (DFO) preseason forecast returns of about 511,000 Nass River sockeye salmon and about 2.3 million Skeena River sockeye salmon. The preseason forecasts result in a total projected return of 2.8 million Nass and Skeena sockeye which, minus an escapement goal of 1.1 million, would result in an AAH of about 1.7 million. Using this forecast, the 2009 pre-Week 31 annual allowable harvest was approximately 41,000 Nass and Skeena sockeye salmon.

In Alaska's District 101 gillnet fishery, the AAH is based solely on the run size of Nass River sockeye salmon. The AAH is calculated as the total run of Nass sockeye salmon minus either the escapement requirement of 200,000 or the actual in-river escapement, whichever is less. In the District 101 (Tree Point) drift gillnet fishery, the agreement specifies a harvest of 13.8 percent of the AAH of the Nass River sockeye run. The return of Nass sockeye was forecast at 511,000 in 2009 which, minus an escapement goal of 200,000, would result in an AAH of about 311,000. Using this forecast the 2009 allowable harvest in the District 101 gillnet fishery was about 43,000 Nass River sockeye salmon

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June which was June 21 (week 26) in 2009. During the early weeks of the fishery, management is based on the run strength of Alaska wild stock chum and sockeye salmon and on the strength of the Nass River sockeye salmon. Beginning in the third week of July, when pink salmon stocks begin to enter the fishery in large numbers, management emphasis shifts by regulation to that species. By regulation, the District 101 Pink Salmon Management Plan sets gillnet fishing time in this district in relation to the District 101 purse seine fishing time when both fleets are concurrently harvesting the same pink salmon stocks.

For the year 2009, Canada was to manage the 3-1 to 3-4 net fishery to achieve an annual catch share of 2.49 percent of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of approximately 39.05 million pinks, the Alaskan Districts 101, 102 and 103 AAH was 28.30 million pinks. The resulting Area 3-1 to 3-4 Canadian commercial net total allowable catch of this AAH was approximately 702,933 pinks of Alaskan Districts 101, 102 and 103 origin.

In the Canadian northern boundary area, pink salmon returns were anticipated to be average to above average for both Area 3 and Area 4, based on brood year return strength. Returns to Area 3 streams were below expectations while as anticipated for Area 4 streams in 2009. The 2009 Canadian pink salmon catch in Sub-areas 3-1 to 3-4 was 404,460 and a preliminary estimate of the Alaska stock component of this catch is

estimated to be 271,910, or 0.96 % of the AAH, well below the allotted 2.49 % of the AAH of 702,933 pieces.

In addition, Canada was to manage the Area 1 troll fishery to achieve an annual catch share of 2.57 percent of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of approximately 39.05 million pinks, the Alaskan Districts 101, 102 and 103 AAH was 28.30 million pinks. The resulting Area 1 Canadian commercial troll total allowable catch of this AAH was approximately 581,601 pinks of Alaskan Districts 101, 102 and 103 origin.

The Canadian commercial troll fishery in Area 1 was open in the northern portion of the Area from July 1 to September 30, with the directed pink fishery along the A-B line strip being open for that time period. Pink salmon directed effort was very minimal and the fishery harvested a total of 60,402 pink salmon, with an estimated 50,839, or 84.2 %, being of Alaskan origin. This equates to 0.18 % of the Alaskan District 101, 102 and 103 pink AAH, well below the annex agreement for 2.57 percent of the Alaskan Districts 101, 102 and 103 pink salmon AAH.

Pink escapements in 2009 were 640,214 in Area 3 and 2.4 million in the Skeena region.

2010 Forecasts

The Southeast Alaska pink salmon harvest in 2010 is predicted to be in the Weak to Average range, with a point estimate of 19 million fish (80% confidence interval 11-32 million fish). The forecast of 19 million pink salmon is 48% of the recent 10-year average harvest of 40 million fish. There are two primary reasons to expect that the harvest in 2010 will be smaller than the recent average: 1) the parent year escapement in 2008 was the smallest since 1990, and 2) escapement indices were extremely poor on the inside waters north of Sumner Strait. In addition, the NOAA Auke Bay Lab's 2009 peak June-July juvenile pink salmon CPUE statistic from upper Chatham and Icy straits in northern Southeast Alaska ranked in the bottom third out of the 12 previous years that NOAA has collected that information. Formal forecasts are not made for species other than pink salmon in Southeast Alaska.

The 2010 Nass sockeye Total Return to Canada (TRTC) is estimated to be 665 thousand, providing a surplus harvest of 325,000 for marine net and Nisga'a in-river commercial opportunities. For the Skeena, the sibling model forecast predicts a 50% probability of approximately 663,450 sockeye returning to the Skeena in 2010, with a 25% probability of the return exceeding 975,000 and a 75% probability the return will exceed 451,000. The Nass and Skeena area pink return predictions of 223,000 and 236,000 will not provide a harvestable surplus in 2010. As a result, no directed Skeena sockeye or pink salmon harvest opportunities are anticipated in 2010.

E. JOINT TRANSBOUNDARY TECHNICAL COMMITTEE

SALMON MANAGEMENT AND ENHANCEMENT PLANS FOR THE STIKINE, TAKU AND ALSEK RIVERS, 2010
TCTR (10)-1. – April 2010

Management of transboundary river salmon to achieve conservation, allocation and enhancement objectives, as stipulated by the Pacific Salmon Treaty (PST), requires a co-operative approach by Canada and the United States. It is important that both Parties have a clear understanding of the objectives and agree upon procedures to be used in managing the fisheries, including the criteria upon which modifications of fishing patterns will be based. This document is intended to facilitate co-operative salmon management, stock assessment, research and enhancement on transboundary stocks of the Stikine,

Taku, and Alsek rivers conducted by the Canadian Department of Fisheries and Oceans (DFO), the Tahltan and Iskut First Nations (TIFN), the Taku River Tlingit First Nation (TRTFN), the Champagne & Aishihik First Nation (CAFN) and the Alaska Department of Fish and Game (ADF&G).

The report contains, by river system and species, the 2010 salmon run outlooks, spawning escapement goals, a summary of harvest sharing objectives, and an outline of management procedures to be used during the conduct of the 2010 fisheries. Numerical forecasts are presented for: Stikine sockeye and Chinook and Taku Chinook, which are required by the PST; Taku sockeye and coho; and Alsek sockeye and Chinook salmon. Outlooks for other stocks are given qualitatively with reference to brood year escapement data where available. The report also contains joint plans for fry plants and egg collections and a detailed list of proposed field projects for 2010, identifying agency responsibility and contacts for the various functions within the projects.

FINAL ESTIMATES OF TRANSBOUNDARY RIVER SALMON PRODUCTION, HARVES AND ESCAPEMENT AND A REVIEW OF JOINT ENHANCEMENT ACTIVITIES IN 2007.
TCTR (11)-1 – February 2011.

Postseason estimates of harvests and escapements of Pacific salmon returning to the transboundary Stikine, Taku, and Alsek Rivers for 2007 are presented and compared with historical patterns. Average, unless stated differently, refers to the 1997-2006 average. Relevant information pertaining to the management of appropriate U.S. and Canadian fisheries is presented and the use of inseason management models is discussed. Final results from transboundary river sockeye salmon *Oncorhynchus nerka* enhancement projects are also reviewed.

Stikine River

The 2007 Stikine River sockeye salmon run was estimated to be 197,000 fish, Approximately 148,000 fish were harvested in various fisheries including test fisheries and an estimated 49,000 fish escaped to spawn, including 7,000 fish that migrated to the Tuya River block that were not harvested. The run and harvest were above the averages. The Tahltan Lake sockeye escapement of 21,000 fish was within the goal range (18,000 to 30,000 fish). The estimated U.S. commercial catch of Stikine River sockeye salmon in Districts 106 and 108, including the Stikine River subsistence fishery, was 87,000 fish. The Canadian inriver commercial and aboriginal fishery catches were 58,000 and 2,000 fish, respectively. The inriver test fishery harvested 1,000 sockeye salmon and there was no marine test fishery in 2007. Weekly inseason run projections from the Stikine Management Model (SMM) ranged from 204,000 to 278,000 sockeye salmon; the final inseason model prediction was 225,000 fish, with a total allowable catch (TAC) of 163,000 fish. Based on the postseason run size estimates and TAC calculations of 62,000 Stikine River fish for each country, Canada harvested 90% and the U.S. harvested 129% of their respective TACs. Broodstock collection and otolith sampling removed 2,800 and 200 sockeye salmon, respectively, from the escapement to Tahltan Lake leaving a spawning escapement of 18,000 fish. The estimated spawning escapement of 21,000 mainstem Stikine River sockeye salmon was within the goal range of 20,000 to 40,000 fish for this stock group.

The 2007 Stikine River Chinook salmon (non-jack salmon) run was estimated at 39,000 fish, of which approximately 24,000 fish were harvested in various fisheries. An estimated 15,000 Stikine River fish escaped to spawn, which was below the escapement goal of 21,000 large Chinook salmon. The run and harvest were below the averages. The Little Tahltan River Chinook salmon escapement of 560 fish was below the 2005 escapement goal of 4,000 fish and was the lowest on record. The estimated U.S. commercial catch of Stikine River Chinook salmon in Districts 106 and 108 gillnet, troll, subsistence, and sport fisheries was 15,000 fish. The Canadian commercial, aboriginal, and sport fishery catches were 10,000, 400, and 0 fish, respectively. There were no inriver or marine test fisheries for Chinook salmon in 2007. Managers used

both the m-r and model estimates to generate inseason estimates after week 22. The inseason run projections were persistent throughout the course of the fishery in predicting a total run size larger than the preseason forecast of 37,000 fish. Weekly inseason run projections from the model ranged from 42,000 to 50,000 Chinook salmon. The final inseason model prediction was 39,000 fish with a TAC of 21,000 fish. The U.S. harvested approximately 132% of their TAC while Canada harvested 99% of their TAC.

The 2007 run size of Stikine River coho salmon cannot be quantified. The U.S. marine harvest of Stikine River coho salmon is also unknown since there is no stock identification program for this species. Mixed stock coho salmon harvest in Districts 106 and 108 were 81,000 and 20,000 fish, respectively. Alaskan hatchery fish comprised approximately 42% of the coho salmon harvest from the two districts. The Canadian inriver coho salmon catch of 50 fish was below average. The aerial survey count of 1,500 fish from six index sites combined was below average.

Taku River

The 2007 Taku River sockeye salmon run was estimated to be 170,000 fish, including an catch of 82,000 fish and an above-border spawning escapement of 88,000 sockeye salmon. The run size was below average but the escapement was above the goal range of 71,000 to 80,000 fish. The U.S. harvested an estimated 65,000 Taku River sockeye salmon in the District 111 commercial fishery and 600 sockeye salmon in the inriver personal use fishery; both were below average. Canadian inriver commercial and aboriginal fishery harvests included 17,000 and 200 sockeye salmon, respectively; both below average. The U.S. harvested an estimated 69% of the total TAC and Canada harvested an estimated 18% of the TAC.

The harvest of large Chinook salmon in the Canadian commercial fishery in the Taku River was 900 fish, which is below average. The harvest in the stock assessment fishery (weeks 18-24) was 1,400 fish. Preseason and then inseason estimates of Chinook salmon abundance did not allow for a directed Chinook salmon fishery this season. The Canadian aboriginal fishery in the Taku River harvested 200 large Chinook salmon which is average. District 111 mixed stock gillnet fishery harvest of 1,200 large Chinook salmon, and was below average. Approximately 19% of the harvest was estimated to be of Alaska hatchery origin. The above border spawning escapement estimated from the mark-recapture program is 18,000 fish.

The estimated above border run of Taku River coho salmon in 2007 is 82,000 fish, which is below average. The Canadian inriver commercial and test fishery harvest included 8,000 coho salmon, which is above average. After upriver Canadian harvest and test fishery catches are subtracted from the inriver run, the above-border-spawning escapement is estimated at 74,000 coho salmon, which exceeds the minimum escapement goal of 38,000 fish. The U.S. harvest of 51,000 coho salmon in the District 111 mixed stock fishery was also below average. Alaskan hatcheries contributed an estimated 2% of the District 111 harvest.

The harvest of 100,000 pink salmon in District 111 was below the odd-year average. No pink salmon were reported retained in the Canadian commercial inriver fishery in 2007. Although spawning escapement is not know the Canyon Island fish wheel catch of 12,000 fish was below average.

The catch of chum salmon in the District 111 fishery was 582,000 summer run fish and 8,000 fall run fish; both were above average. There was non-retention of chum salmon in the Canadian inriver fishery and there was no reported catch in 2007. Although spawning escapement is not known the Canyon Island fish wheel catch of 500 chum salmon was above average.

Alsek River

The Alsek River sockeye salmon harvest of 20,000 fish in the U.S. commercial fishery was above average. The Canadian inriver sockeye salmon harvest was not available. The Klukshu River weir count of 9,000 sockeye salmon was below average but within the goal range of 7,500 to 15,000 fish. The count of 3,000 early run sockeye salmon (count through August 15) was average. The late run count of 6,000 fish was below average.

The Chinook salmon run to the Alsek River appeared to be below average. The U.S. Dry Bay catch of 400 large Chinook salmon was below average. The Canadian recreational fishery catch of 40 fish is below average and the aboriginal fishery catch was not available. The 700 Chinook salmon counted through the Klukshu River weir was also below average and below the goal range of 1,100 to 2,300 Chinook salmon.

Current stock assessment programs prevent an accurate comparison of the Alsek River coho salmon run with historical runs. The U.S. Dry Bay catch of 100 coho salmon was below average, to date, no catches have been recorded for the Canadian inriver aboriginal fishery. The operation of the Klukshu weir does not provide a complete enumeration of coho salmon into this system since it is removed before the run is over; however, it does provide an annual index. The count of 300 coho salmon is below average.

Enhancement

Eggs and milt were collected from the 2007 sockeye salmon escapements at Tahltan, Tatsamenie and Little Trapper lakes. A total of 4 million eggs were collected at Tahltan Lake, 3.7 million at Tatsamenie Lake and 0.95 million at Trapper Lake. (0.1 million of the Trapper eggs were planted in Tunjony Creek).

Outplants of 2006 brood-year sockeye salmon fry in May and June 2007 included, 1.5 million fry into Tahltan Lake, 1.5 million fry into Tuya Lake, 2.1 million fry into Tatsamenie Lake and 0.9 million fry into Trapper Lake. Green-egg to planted-fry survivals were 70%, 83%, 58% and 81% for the Tahltan, Tuya, Tatsamenie and Trapper outplants, respectively. Survival to emergence was about average.

The egg incubation and thermal-marking program was continued at Snettisham Hatchery in 2007. Snettisham hatchery is operated by DIPAC (Douglas Island Pink and Chum, Inc.), a private aquaculture organization in Juneau. A co-operative agreement between ADFG and DIPAC provides for Snettisham hatchery to serve the needs of the joint TBR enhancement projects.

Adult sockeye salmon otoliths were processed inseason by the ADFG otolith lab to estimate the weekly contribution of fish from US/Canada TBR fry planting programs to the District 106, 108, and 111 gillnet fisheries and to Canadian commercial fisheries in the Stikine and Taku Rivers. Final contribution estimates of planted fish to Alaskan harvest were 59,000 planted Stikine River fish to District 106 and 108, and 3,700 planted Taku River fish to District 111. Final estimates of contributions to Canadian fisheries included 30,000 planted fish to Stikine River fisheries and 1,600 planted fish to the Taku River fisheries.

STOCK COMPOSITIONS OF SOCKEYE SALMON CATCHES IN SOUTHEAST ALSASKA DISTRICT 106 AND 108 GILLNET FISHERIES, 1996-2000, ESTIMATED WITH SCALE PATTERN ANALYSIS.
TCTR (11)-2 – Februrary 2011.

Sockeye salmon *Oncorhynchus nerka* are harvested in marine net fisheries throughout Southeast Alaska and northern British Columbia. Drift gillnet fisheries in Alaskan commercial fishing Districts 106 and 108 harvest sockeye salmon of Alaskan origin but also catch sockeye salmon of transboundary Stikine River

and of Canadian Nass and Skeena River origin. Interception of salmon originating in one country as the fish migrate through the territorial waters of the other country has become a research and management concern since the implementation of the U.S./Canada Pacific Salmon Treaty. Cooperative international management of Stikine River sockeye salmon is mandated by this treaty under Annex IV, Chapter 1. Knowledge and control of stock-specific harvests are therefore needed to fulfill requirements of and assess compliance with the harvest sharing guidelines outlined in the treaty. Additional complexity was added to the harvest share agreements with the commencement of a joint U.S./Canada sockeye salmon enhancement program in 1990 In this program gametes are collected by Canada from Tahltan Lake spawners, shipped to Port Snettisham hatchery in the U.S. were the eggs are fertilized, incubated, and hatched and the resulting fry are planted back into Tahltan or Tuya Lakes. Adult salmon returning from this program are managed under different harvest sharing arrangements than the wild Stikine River sockeye salmon.

FISHERIES

U.S fisheries which harvest Stikine sockeye stocks are located in central Southeast Alaska, near the communities of Petersburg and Wrangell, Alaska (Figure 1).

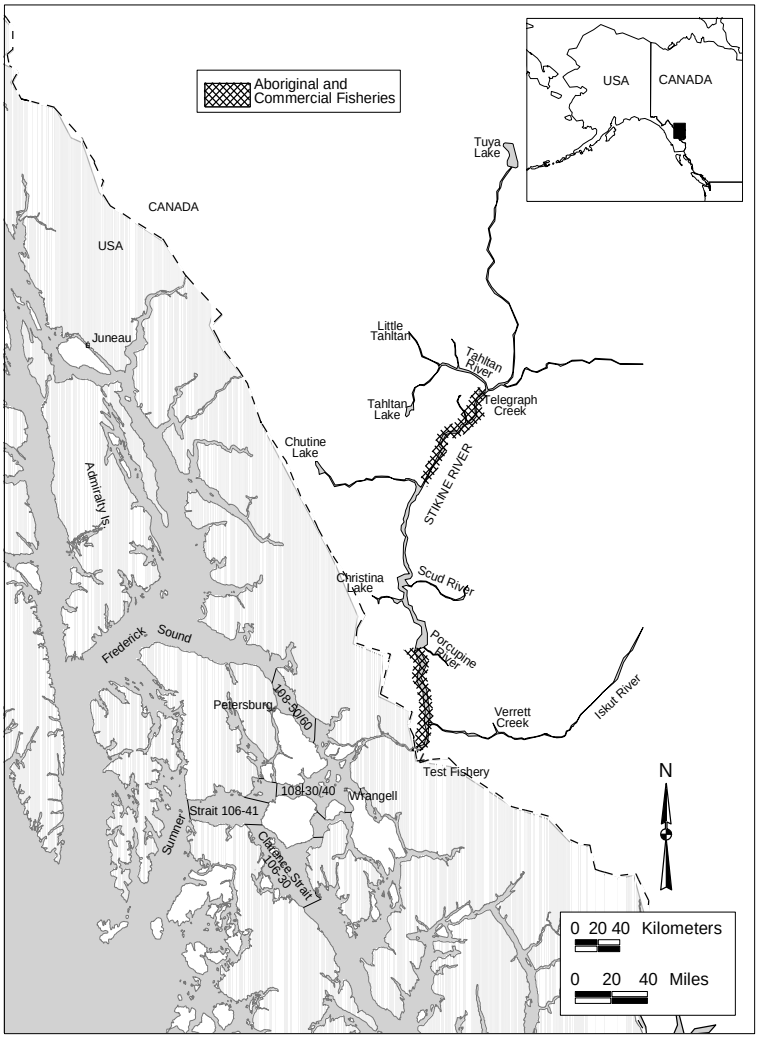


Figure 1: Fishery management districts in central Southeast Alaska and the Stikine River.

Sockeye salmon harvested in the District 106 and 108 commercial gillnet fisheries originate from Southeast Alaska, the transboundary Stikine River, and the Canadian Nass and Skeena Rivers (Figure 2). Sockeye catches in District 106 have averaged 163,865 fish (1983-1995) with an estimated annual Stikine River contribution of 18,031 fish (1983-1995). In District 108, sockeye catches have averaged 31,939 fish with a Stikine River component estimated at 21,899 fish (1985-1995).

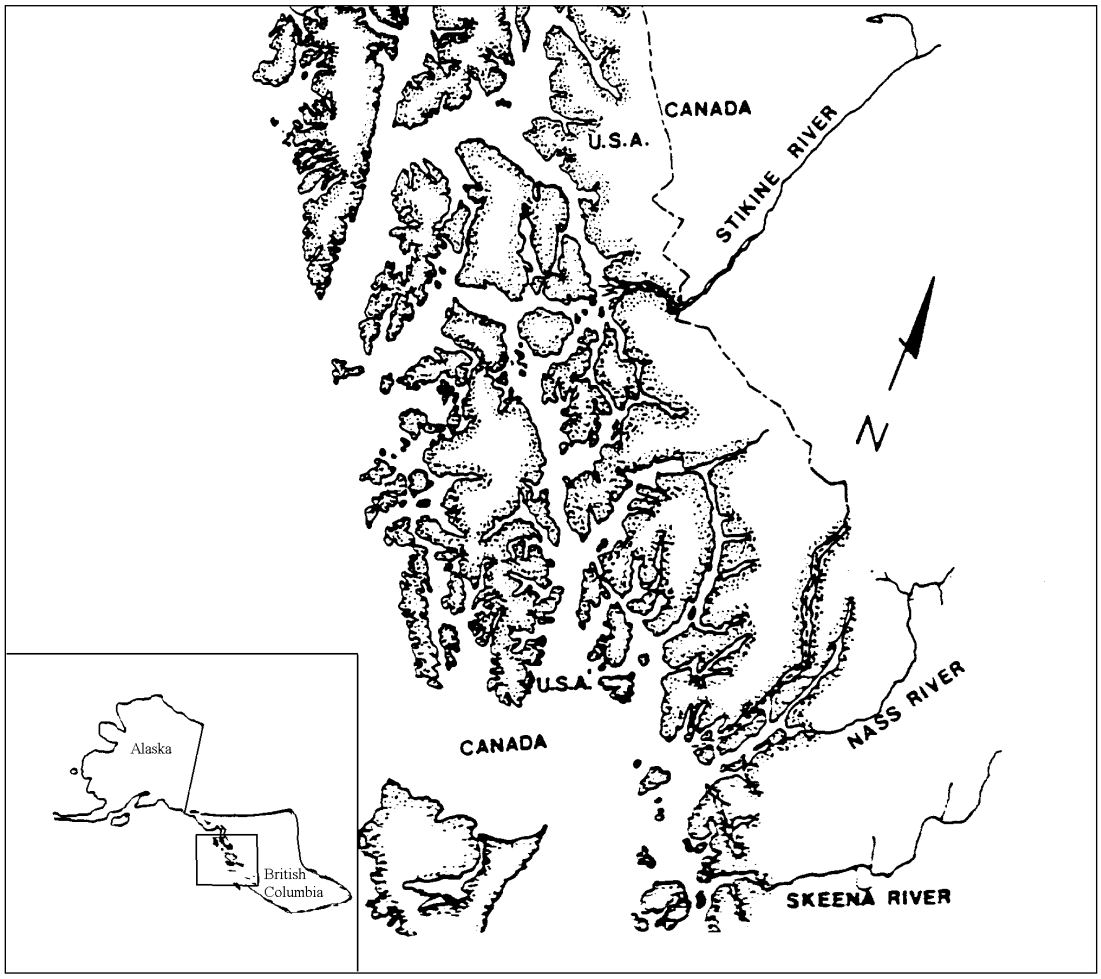


Figure 2: The Canadian Nass and Skeena Rivers and the transboundary Stikine River.

U.S. and Canadian catches of Stikine sockeye stocks are managed based on harvest sharing agreements in the U.S./Canada Pacific Salmon Treaty (TTC 1992). Inseason catch estimates, forecasts, and inriver CPUE are used along with historical migratory timing information to estimate inseason run strength in the SMM. Escapement goals have been established and the run strength minus the desired escapement is used to determine the total allowable catch (TAC). TAC along with the harvest share for each country is calculated in the Stikine Management Model (SMM) (TTC 1990).

STUDY AREA

Sockeye salmon harvested in the District 106 and 108 commercial fisheries originate from lake systems and their tributaries throughout Southeast Alaska, from the transboundary Stikine River, and from the Canadian Nass and Skeena Rivers (Figure 1). Tagging studies have shown that few stocks from other areas pass through District 106 (Hoffman et al. 1983, 1984). In those studies adult sockeye salmon were

tagged in 1982 and 1983 in several Alaskan and Canadian fishing districts to determine migratory pathways and interception rates of various stocks. The majority of terminal area recoveries of fish tagged in District 106 occurred along the northeast coast of Prince of Wales Island and upper Behm Canal; some were recovered in Alaskan systems as far south as the U.S./Canada border and in the Stikine, Nass, and Skeena Rivers. There were few or no recoveries of fish tagged in District 101 or 104 in either the northern Prince of Wales Island lake systems or the Stikine River.

Numerous sockeye salmon producing lakes are scattered throughout the archipelago and mainland of Southeast Alaska. They range in size from small lakes of a few hectares to large systems greater than 500 hectares like McDonald and Klawock Lakes, and include multilake systems like the Sarkar and Galea-Sweetwater complexes (Figure 3).

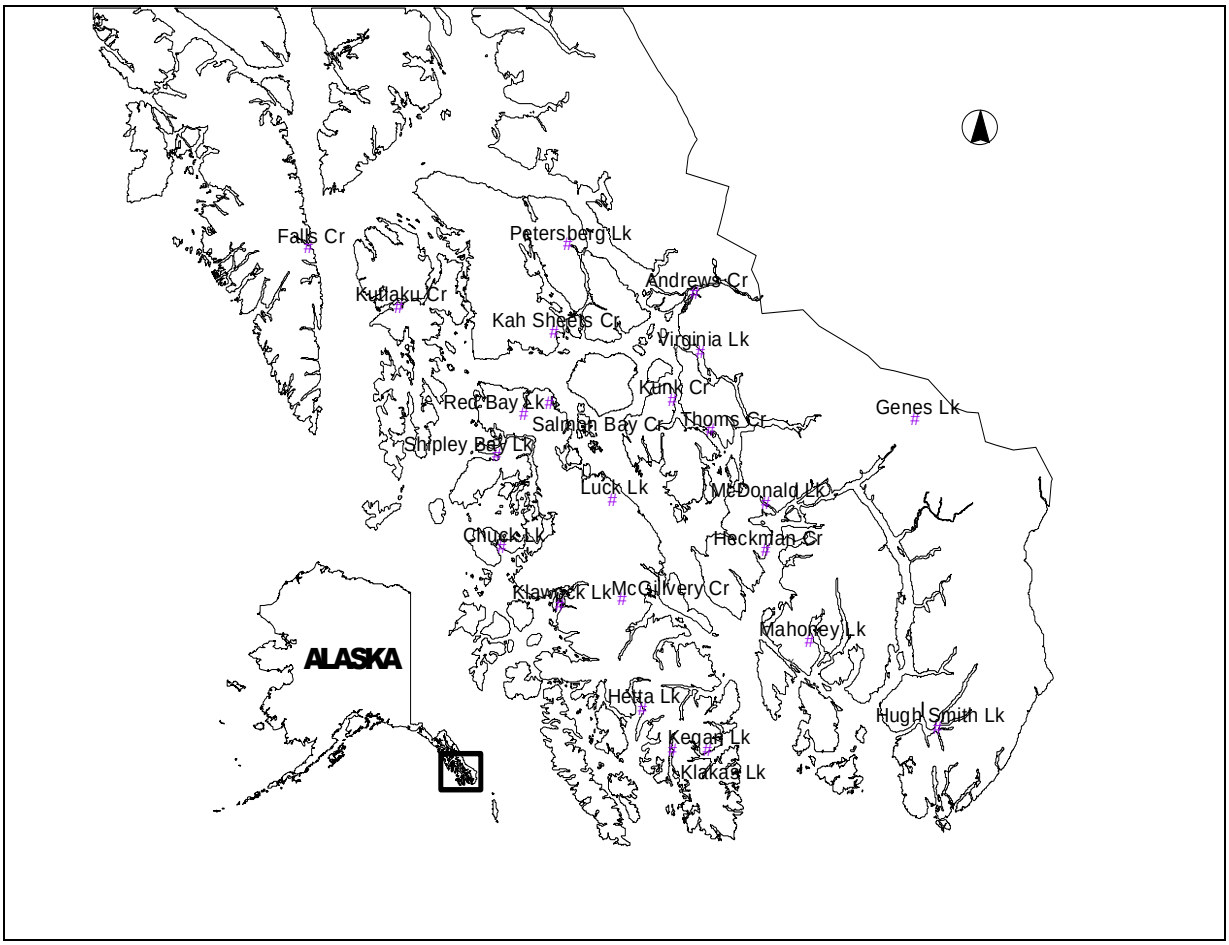


Figure 3: Major sockeye salmon systems of Southeast Alaska sampled for scales used in stock discrimination.

Sockeye salmon production is limited by the quantity and quality of spawning areas, the available rearing area, or other environmental conditions as well as the number of spawners. Sockeye productivity varies greatly, even among systems of roughly equivalent size (McGregor 1983; McGregor et al. 1984; McGregor and McPherson 1986; McPherson and McGregor 1986; McPherson, McGregor, and Bergander 1988, McPherson, McGregor, and Olsen 1988; Rowse and McPherson 1992. Typical small systems, such as Alecks and Kutlaku Lakes on Kuiu Island, produce estimated runs of a few thousand fish. Although the total run size is not known, escapements in two intermediate systems which had enumeration weirs, Karta Lake on eastern Prince of Wales Island and Salmon Bay Lake on northeast Prince of Wales Island,

averaged 18,400 and 18,000 sockeye salmon, respectively (1982 to 1988 average, excluding 1984 when the weirs were not installed). The single largest producer of sockeye salmon in recent years in southern Southeast Alaska has been McDonald Lake in upper Behm Canal. Estimated escapements to this system have ranged from 56,000 in 1983 to 175,000 in 1987 and averaged 113,500 (1981 to 1988 average, excluding 1982 when the weir washed out) (ADF&G data base).

The Stikine River (Figure 1) originates in British Columbia and flows through the Alaskan panhandle into Frederick Sound north of Wrangell. It is therefore a transboundary river, i.e., a river that flows through both Canada and the U.S. Approximately 90% of the river system is inaccessible to anadromous fish because of natural barriers and velocity blocks. The majority of the accessible sockeye spawning habitats are located above the U.S./Canada border. The largest single contributor to the Stikine sockeye run is Tahltan Lake. Sockeye escapements enumerated at the weir have ranged from 1,780 fish in 1963 to 67,326 fish in 1985 and averaged 24,237 fish (1959-1995) (TTC 1997). The remainder of the Stikine River sockeye stocks, referred to as the non-Tahltan Stikine stock group, spawn in small lakes, sloughs, and side channels of the mainstem river and its tributaries, most of which are glacially occluded. Estimates of the non-Tahltan Stikine sockeye escapement have ranged from 6,071 in 1999 to 90,617 in 1985 and averaged 36,298fish (1979-1995) (TTC 1997).

The Nass and Skeena Rivers have contributed substantial numbers of sockeye salmon to the District 106 and 108 harvests in some years. Estimated catches of Nass/Skeena fish have ranged from 8,917 to 112,370 fish and have averaged 51,914 fish (1983-1995) in District 106. In District 108 catches of Nass/Skeena fish have ranged from 0 to 2,207 fish and have averaged 5,153 fish (1986-1995). The Nass River originates in British Columbia and drains into Portland Canal just south of the U.S./Canada border. The Skeena River also originates in British Columbia and drains into the ocean about 50 km south of the Nass River.

STOCK SEPARATION STUDIES

The United States and Canada initiated research programs in 1982 to assess the feasibility of various stock-separation techniques applicable to sockeye salmon stocks harvested by both countries. Several methods of stock separation have been used, including the incidence of the parasite *Myxobolus arcticus*, differences in genotypes, adult tagging studies, and scale pattern analysis. Of these, scale pattern analysis has been used most extensively to determine stock composition of the harvests in Alaskan mixed-stock commercial fisheries (Oliver et al. 1984; Oliver and Walls 1985; Oliver and Jensen 1986; Jensen and Frank 1988, 1993a, 1993b; Jensen et al. 1989, TTC 1998).

Scale pattern analysis has generally proven successful in determining the contribution rates of sockeye stocks to Southeast Alaskan commercial fisheries because of significant and persistent differences in the freshwater and early marine growth among stocks originating in various Alaskan and Canadian systems. The original stock groupings used by ADF&G to estimate stock composition in District 106 and 108 were the Alaska group, composed of samples taken from 22 to 28 Alaska escapements; the Nass/Skeena group, composed of samples taken from inriver test fisheries on the Nass and Skeena Rivers; and the Stikine River group, composed of scale samples collected from the Canadian inriver commercial fishery. The stock groupings were expanded in 1983 by creating separate standards for the Tahltan Lake stock and for the non-Tahltan Stikine stock group. The non-Tahltan group was composed of samples from mainstem river and side slough spawners and Chutine, Skud, and Iskut River spawners. Standards were further refined in 1986 to separate two distinct patterns: Alaska I, typified by Hugh Smith Lake and Luck Lake patterns, and Alaska II, typified by the McDonald Lake pattern. Separate standards for Nass River fish and Skeena River stocks were created in 1990 to facilitate run reconstruction for the two river systems. With the return of adult sockeye salmon to the Tuya Lake an additional standard was needed for that

stock. Thus, seven stock groups, Alaska I, Alaska II, Nass, Skeena, Tahltan, Tuya, and non-Tahltan are currently used in the SPA for Districts 106 and 108.

With the return of adult salmon from the U.S./Canada enhancement program it became necessary to distinguish the planted fish from the wild stocks. Thermal mark analysis is used for determining the wild Tahltan vs. planted Tahltan and Tuya fish.

F. JOINT TECHNICAL COMMITTEE ON DATA SHARING

No reports were finalized for publication during this reporting period.

G. JOINT SELECTIVE FISHERY EVALUATION COMMITTEE

No reports were finalized for publication during this reporting period.

H. HABITAT AND RESTORATION TECHNICAL COMMITTEE

No reports were finalized for publication during this reporting period.

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.

Reports published by the Pacific Salmon Commission after March 31, 2000 including Commission annual reports, annual reports of the Fraser River Panel, Joint Technical Committee reports and technical reports of the Pacific Salmon Commission are also available in full text format on the Commission's website at www.psc.org.

Documents listed here are those which were published during the period from 2009/10 inclusive. For previous publications, please refer to the Pacific Salmon Commission's website at www.psc.org/publications.

A. ANNUAL REPORTS

Pacific Salmon Commission 2007/08 Twenty Third Annual Report. September 2010.

B. REPORTS OF JOINT TECHNICAL COMMITTEES

i. Joint Chinook Technical Committee

TCCHINOOK (11)-1 *Development of the Technical Basis for a Chinook Salmon Total Mortality Management Regime for the PSC AABM Fisheries. February* 2011.

TCCHINOOK (11)-2 *2010 Annual Report of Catches and Escapements. February* 2011.

ii. Joint Chum Technical Committee

TCCHUM (10)-2 *2008 Post Season Summary Report.* June 2010.

iii. Joint Coho Technical Committee

No reports were finalized for publication during this reporting period.

iv. Joint Data Sharing Technical Committee

No reports were finalized for publication during this reporting period.

v. Joint Northern Boundary Technical Committee

TCNB (10)-1 *U.S./Canada Northern Boundary Area 2009 Salmon Fisheries Management Report and 2010 Preliminary Expectations. April*, 2010.

vi. Joint Transboundary Technical Committee

TCTR(10)-1 *Salmon Management and Enhancement Plans for the Stikine, Taku and Alsek Rivers, 2010.* April 2010.

TCTR (11)-1 *Final Estimates of Transboundary River Salmon Production, Harvest and Escapement and a Review of Joint Enhancement Activities in 2007.* February 2011.

TCTR (11)-2 *Stock Compositions of Sockeye Salmon Catches in Southeast Alaska District 106 and 108 Gillnet Fisheries, 1996-2000, Estimated with Scale Pattern Analysis.* February 2011.

vii. Selective Fishery Evaluation Committee

No reports were finalized for publication during this reporting period.

C. REPORTS OF THE FRASER RIVER PANEL

Report of the Fraser River Panel to the Pacific Salmon Commission on the 2006 Fraser River Sockeye Salmon Fishing Season. PSC Staff. March 2011.

D. TECHNICAL REPORT SERIES OF THE PACIFIC SALMON COMMISSION

No reports were finalized for publication during this reporting period.

E. PUBLICATIONS BY PACIFIC SALMON COMMISSION SECRETARIAT STAFF

MacDonald, J.S., Patterson, D.A., Hague, M.J., and Guthrie, I.C. (2010) ***Modeling the influence of environmental factors on spawning migration mortality for sockeye salmon fisheries management in the Fraser River, British Columbia.*** Transactions of the American Fisheries Society 139(3): 768-782.

F. REPORTS OF THE INTERNATIONAL PACIFIC SALMON 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 2009/10 were:

Post Season Report for 2010 Canadian Treaty Limit Fisheries. Canada Department of Fisheries and Oceans. January, 2011.

Preliminary 2010 Post Season Report for United States Salmon Fisheries of Relevance to the Pacific Salmon Treaty. United States Section, Pacific Salmon Commission. January, 2011.

Report of the Auditors for 2010/2011

PART VII
AUDITORS' REPORT AND FINANCIAL STATEMENTS FOR THE PERIOD APRIL 1, 2010 TO MARCH 31, 2011

Financial Statements of

PACIFIC SALMON COMMISSION

Year ended March 31, 2011

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INDEPENDENT AUDITORS' REPORT

To the Commissioners of the Pacific Salmon Commission

We have audited the accompanying financial statements of the Pacific Salmon Commission, which comprise the statement of financial position as at March 31, 2011, the statements of operations and fund balances and cash flows for the year then ended, and notes, comprising a summary of significant accounting policies and other explanatory information. The financial statements have been prepared by management in accordance with the financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 12, 2009.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with the financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 12, 2009; this includes determining that the basis of accounting is an acceptable basis for the preparation of these financial statements in the circumstances, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of the Pacific Salmon Commission as at March 31, 2011, and its results of operations and its cash flows for the year then ended in accordance with the financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 12, 2009.

Basis of Accounting and Restriction on Use

Without modifying our opinion, we draw attention to note 2(a) to the financial statements, which describes the basis of accounting. The financial statements are prepared to assist the Pacific Salmon Commission to meet the requirements of the Treaty Between the Government of Canada and the Government of the United States of America Concerning Pacific Salmon amended and adopted December 23, 2008. As a result, the financial statements may not be suitable for another purpose. Our report is intended solely for the Commissioners and the Governments of Canada and the United States of America and should not be used by any other parties.

KPMG LLP

Chartered Accountants

September 20, 2011
Burnaby, Canada

PACIFIC SALMON COMMISSION

Statement of Financial Position
(Expressed in Canadian dollars)
March 31, 2011, with comparative figures for 2010

		Restricted						
	General Fund	Working Capital Fund	Test Fishing Fund	Special Research and Project Fund	Capital Assets Fund	Total	2011	2010
Assets								
Current assets:								
Cash	$ 760,207	$ -	$ 25,642	$ 1,104,888	-	$ 1,130,530	$ 1,890,737	$ 1,406,985
Accounts receivable	210,592	392	1,872	-	-	2,264	212,856	89,497
Due from Trusts (note 6)	157,578	-	-	-	-	-	157,578	-
Prepaid expenses	32,051	-	-	-	-	-	32,051	34,680
Short-term investments	973,899	101,659	474,442	-	-	576,101	1,550,000	50,000
	2,134,327	102,051	501,956	1,104,888	-	1,708,895	3,843,222	1,581,162
Capital assets (note 3)	-	-	-	-	363,560	363,560	363,560	471,046
Accrued benefit asset (note 5)	215,733	-	-	-	-	-	215,733	211,296
	$ 2,350,060	$ 102,051	$ 501,956	$ 1,104,888	$ 363,560	$ 2,072,455	$ 4,422,515	$ 2,263,504
Liabilities and Fund Balances								
Current liabilities:								
Accounts payable and accrued liabilities	$ 1,259,517	$ -	$ -	$ -	$ -	$ -	$ 1,259,517	$ 237,183
Due to Trusts (note 6)	-	-	-	-	-	-	-	7,086
Accrued benefit liability (note 5)	529,535	-	-	-	-	-	529,535	454,657
Deferred revenue	489,125	-	-	-	-	-	489,125	-
	2,278,177	-	-	-	-	-	2,278,177	698,926
Fund balances:								
Unrestricted (note 4)	71,883	-	-	-	-	-	71,883	330,073
Restricted	-	102,051	501,956	1,104,888	-	1,708,895	1,708,895	763,459
Invested in capital assets	-	-	-	-	363,560	363,560	363,560	471,046
	71,883	102,051	501,956	1,104,888	363,560	2,072,455	2,144,338	1,564,578
	$ 2,350,060	$ 102,051	$ 501,956	$ 1,104,888	$ 363,560	$ 2,072,455	$ 4,422,515	$ 2,263,504

See accompanying notes to financial statements.

Approved on behalf of the Commission:

Paul Moggridge

W. Ron Allen — Digitally signed by W. Ron Allen DN: cn=W. Ron Allen, o=Jamestown S'Klallam Tribe, ou=Administration, email=wallen@jamestownnsn.org, c=US

SEP 2 0 2011

Chair, Standing Committee on Finance and Administration

Vice-Chair, Standing Committee on Finance and Administration

PACIFIC SALMON COMMISSION

Statement of Operations and Fund Balances
(Expressed in Canadian dollars)

Year ended March 31, 2011, with comparative figures for 2010

		Restricted						
	General Fund	Working Capital Fund	Test Fishing Fund	Special Research and Project Fund	Capital Assets Fund	Total	2011	2010
Revenue:								
Contributions from contracting parties (note 6)	$ 3,572,062	$ -	$ -	-	$ -	$ -	$ 3,572,062	$ 3,495,020
Grants	54,969	-	-	$ 3,280,991	-	3,280,991	3,335,960	1,474,361
Interest	9,417	392	1,872	-	-	2,264	11,681	156
Other	38,463	-	-	-	-	-	38,463	35,149
Test fishing	1,137,233	-	-	-	-	-	1,137,233	1,113,468
	4,812,144	392	1,872	3,280,991	-	3,283,255	8,095,399	6,118,154
Expenses:								
Amortization	-	-	-	-	183,916	183,916	183,916	191,145
Salaries and employee benefits	2,854,639	-	-	-	-	-	2,854,639	2,738,490
Travel and transportation	78,957	-	-	-	-	-	78,957	100,889
Rents and communication	118,618	-	-	-	-	-	118,618	114,320
Printing and reproductions	5,093	-	-	-	-	-	5,093	3,569
Contract services	611,441	-	-	-	-	-	611,441	618,350
Foreign exchange	141,679	-	-	-	-	-	141,679	1,001
Materials and supplies	46,015	-	-	-	-	-	46,015	56,166
Test fishing	1,111,591	-	-	-	-	-	1,111,591	1,183,109
Loss on disposal of capital assets	-	-	-	-	229	229	229	4,269
Consultations and workshops	-	-	-	2,363,461	-	2,363,461	2,363,461	1,248,221
	4,968,033	-	-	2,363,461	184,145	2,547,606	7,515,639	6,259,529
Excess (deficiency) of revenue over expenses	(155,889)	392	1,872	917,530	(184,145)	735,649	579,760	(141,375)
Fund balance, beginning of year	330,073	98,022	474,442	190,995	471,046	1,234,505	1,564,578	1,705,953
Interfund transfers	(102,301)	3,637	25,642	(3,637)	76,659	102,301	-	-
Fund balance, end of year	$ 71,883	$ 102,051	$ 501,956	$ 1,104,888	$ 363,560	$ 2,072,455	$ 2,144,338	$ 1,564,578

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Statement of Cash Flows
(Expressed in Canadian dollars)

Year ended March 31, 2011, with comparative figures for 2010

	2011	2010
Cash provided by (used in):		
Operations:		
Excess (deficiency) of revenue over expenses	$ 579,760	$ (141,375)
Items not involving cash:		
Amortization	183,916	191,145
Loss on sale of capital assets	229	4,269
Net benefit plan expense	550,182	421,507
Employer contributions for employee future benefits	(479,741)	(507,781)
Net change in non-cash operating working capital	1,226,065	(965,315)
	2,060,411	(997,550)
Investing:		
Additions to capital assets	(76,809)	(174,662)
Proceeds on sale of capital assets	150	6,975
Purchase of short-term investments	(1,500,000)	-
	(1,576,659)	(167,687)
Increase (decrease) in cash	483,752	(1,165,237)
Cash, beginning of year	1,406,985	2,572,222
Cash, end of year	$ 1,890,737	$ 1,406,985

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Notes to Financial Statements
(Expressed in Canadian dollars)

Year ended March 31, 2011

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1. Nature of organization:

The Pacific Salmon Commission (the "Commission") was established by the Treaty between the Governments of Canada and the United States of America (the "Contracting Parties") to promote cooperation in the management, research and enhancement of Pacific Salmon stocks. The Treaty was ratified on March 18, 1985 and most recently renewed on December 23, 2008. The Commission commenced operations on September 26, 1985.

2. Significant accounting policies:

(a) Basis of accounting:

These financial statements have been prepared in accordance with Canadian generally accepted accounting principles for not-for-profit organizations with the exception that expenses are recognized at the time that the commitment for goods and services are made through purchase orders, rather than at the time the goods or services are delivered. This exception is to comply with Chapter IX, Section D, Rule 11 of the Bylaws.

(b) Fund accounting and revenue recognition:

(i) Revenue recognition:

The Commission follows the restricted fund method of accounting for contributions.

Restricted contributions related to general operations are initially deferred and recognized as revenue of the General Fund in the year in which the related expenses are incurred. All other restricted contributions are recognized as revenue of the appropriate restricted fund.

Unrestricted contributions are recognized as revenue of the General Fund in the year they are received or receivable, if the amount to be received can be reasonably estimated and collection is reasonably assured.

The Fund classifications are as follows:

(i) The General Fund includes funds provided annually through contributions from the Contracting Parties. By agreement of the Contracting Parties, any unexpended balance remaining at the end of one fiscal year may be used to offset contributions in the following year or may be used to offset a shortfall between contributions and approved expenses in the following year. As a result all amounts are recognized as revenue once received or receivable.

(ii) The Working Capital Fund represents monies contributed by the Contracting Parties to be used temporarily pending receipt of new contributions from the Contracting 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 unrestricted income.

2. Significant accounting policies: (continued)

(b) Fund accounting and revenue recognition (continued):

(iii) The Test Fishing Fund is established as a revolving fund in which a portion of net test fishing revenues realized in years of high abundance are reserved, to be used to support test fishing programs in years of low abundance and when conservation concerns are an issue.

(iv) The Special Research and Project Fund represents monies set aside to fund additional programs as determined by the Contracting Parties, including studies related to Coho Salmon, Bilateral Workshop for Genetics Analysis Pacific Salmonids Group and US Grant Funds for Chinook Technical Committee Support.

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

(c) Financial instruments:

The Commission accounts for its financial instruments in accordance with Canadian Institute of Chartered Accountants ("CICA") Handbook Section 3855, *Financial Instruments - Recognition and Measurement* and CICA Handbook Section 3861, *Financial Instruments - Disclosure and Presentation*.

Under Handbook Section 3855, all financial instruments are classified into one of the following five categories: held for trading, held-to-maturity investments, loans and receivables, available-for-sale financial assets, or other financial liabilities. All financial instruments, including derivatives, are included on the statement of financial position and are measured at fair market value, with the exception of loans and receivables, investments held-to-maturity and other financial liabilities, which are measured at amortized cost. Measurement in subsequent periods depends on whether the financial instrument has been classified as held for trading, available-for-sale, held-to-maturity, loans and receivables, or other financial liabilities.

The Commission's financial instruments are cash, accounts receivable, short-term investments, accounts payable and accrued liabilities and due to and due from Trusts.

The Commission continues to apply the financial instrument disclosure and presentation standards in accordance with CICA Handbook Section 3861 as permitted for not-for-profit organizations.

The Commission classifies its cash and short-term investments as held for trading, meaning that the financial assets are measured initially at fair value with transaction costs recognized immediately in the statement of operations. These assets are subsequently measured at fair value with gains and losses recognized in the statement of operations.

The Commission classifies its accounts receivable as loans and receivables which are recorded at amortized cost. The Commission classifies its accounts payable and accrued liabilities, and due to and due from Trusts as other liabilities which are recorded at amortized cost.

2. Significant accounting policies: (continued)

(d) Capital assets:

Capital assets are stated at cost less accumulated amortization. Costs of repairs and replacements of a routine nature are charged as a current expense while those expenses which improve or extend the useful life of the assets are capitalized. Amortization is provided using the straight-line method of rates sufficient to amortize the costs over the estimated useful lives of the assets.

Automobiles	5 years
Boats	5 years
Computer equipment and software	3 years
Equipment	5 years
Furniture and fixtures	10 years
Leasehold improvements	Over life of lease

(e) Income taxes:

The Commission is a non-taxable organization under the Foreign Missions and International Organizations Act (1991).

(f) Post-employment benefits:

The Commission provides certain employee future benefits, including a defined benefit pension plan, which is funded by the Commission on an annual basis, and severance, life insurance and medical benefits, which are funded by the Commission as they become due.

The Commission accrues its obligations under employee benefit plans and the related costs as benefits are earned, net of returns on plan assets.

The Commission's policies are as follows:

(i) The cost of retirement benefits earned by employees is actuarially determined using the projected benefit method prorated on service and management's best estimate of salary escalation and retirement ages of employees.

(ii) The expected interest cost on any prior service obligation is calculated using management's estimate for the long-term rate of return.

(iii) The expected return on plan assets is calculated at a market-related value for the assets.

(iv) Any cumulative unrecognized actuarial gains and losses in excess of 10% of the projected benefit obligation will be amortized over the expected average remaining service life of the employee group covered by the program.

(v) As at January 1, 2011, the Commission had an unamortized transitional obligation of $6,719 (2010 - $10,165), which is being amortized over the average remaining service period of covered employees. The average remaining service life of the related employee group is 15 years and the average remaining service life of the employee group of the supplemental executive retirement plan is 2 years.

(Expressed in Canadian dollars)

2. Significant accounting policies (continued):

(g) 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 year-end date are translated to equivalent Canadian amounts at the rate of exchange in effect at that date. Foreign exchange gains and losses resulting from translation are included in the determination of excess or deficiency of revenue over expenses.

(h) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant areas requiring the use of management estimates relate to the determination of the valuation of accounts receivable, useful lives of capital assets for amortization and accrued liabilities. Actual results could differ from those estimates.

(i) Future accounting changes:

In December 2010, the CICA, in conjunction with the Accounting Standards Board ("AcSB"), issued Part III – Accounting Standards for not-for-Profit Organizations ("Part III") of the CICA handbook. Part III is effective for fiscal years commencing on or after January 1, 2012 and provides Canadian private sector not-for-profit organizations with a new financial reporting framework.

The Commission has elected to adopt Part III effective April 1, 2012, and is evaluating the impact of adopting the new accounting standards for not-for-profit organizations; differences on adoption are expected to be minimal.

3. Capital assets:

	Cost	Accumulated amortization	2011 Net book value	2010 Net book value
Automobiles	$ 226,544	$ 179,218	$ 47,326	$ 70,887
Boats	134,688	124,504	10,184	13,400
Computer equipment	754,765	667,757	87,008	82,658
Computer software	206,349	194,977	11,372	11,396
Equipment	1,328,029	1,188,497	139,532	214,663
Furniture and fixtures	308,331	287,719	20,612	22,693
Leasehold improvements	133,519	85,993	47,526	55,349
	$ 3,092,225	$ 2,728,665	$ 363,560	$ 471,046

(Expressed in Canadian dollars)

4. General fund balance:

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

	2011	2010
Continuing operations	$ 39,832	$ 295,393
Reserve for prepaid expenses	32,051	34,680
	$ 71,883	$ 330,073

5. Employee future benefits:

The Commission and its employees contribute to the Pension Plan of the International Fisheries Commissions Pension Society for Employees of Participating Commissions with Headquarters in Canada, a multi-employer defined benefit plan. The plan covers 68 employees, of which 40 are current or past employees of the Commission. The Commission also provides employee future benefits including severance, life insurance and medical benefits.

The Commission's liabilities are based on an actuarial valuation using an early measurement date of January 1, 2011.

	Pension plan		Severance, life insurance and medical benefits	
	2011	2010	2011	2010
Reconciliation of accrued benefit obligation:				
Opening fair value of accrued benefit obligation	$ (9,054,000)	$ (6,885,000)	$ (654,200)	$ (533,900)
Current service cost	(357,625)	(282,201)	(35,600)	(30,100)
Benefits paid	259,460	245,853	9,269	58,869
Interest cost	(529,068)	(493,099)	(39,054)	(37,420)
Actuarial loss	(779,767)	(1,639,553)	(52,615)	(111,649)
Ending fair value of accrued benefit obligation	$(10,461,000)	$ (9,054,000)	$ (772,200)	$ (654,200)

(Expressed in Canadian dollars)

5. Employee future benefits (continued):

	Pension plan		Severance, life insurance and medical benefits	
	2011	2010	2011	2010
Reconciliation of plan assets:				
Opening fair value of plan assets	$ 6,651,452	$ 5,529,680	$ -	$ -
Expected return on plan assets	561,219	817,724	-	-
Employer contributions	470,472	448,912	9,269	58,869
Employee contributions	100,925	100,989	-	-
Benefits paid	(259,460)	(245,853)	(9,269)	(58,869)
Ending fair value of plan assets	$ 7,524,608	$ 6,651,452	$ -	$ -
Net unfunded obligation	$ (2,936,392)	$(2,402,548)	$ (772,200)	$ (654,200)
Unamortized transitional (asset) obligation	(6,719)	10,165	-	-
Unamortized past service costs	-	-	3,412	-
Unamortized net actuarial loss	3,158,844	2,603,679	239,253	199,543
Accrued benefit asset (liability)	$ 215,733	$ 211,296	$ (529,535)	$) (454,657)

The significant actuarial assumptions adopted in measuring the Commission's accrued pension benefit liability are as follows:

	2011	2010
Discount rate	4.9%	5.7%
Expected long-term rate of return on plan assets	7.0%	7.0%
Rate of compensation increase	3.0%	3.5%

The plan asset portfolio currently comprises equity investments and debt. Equity investments are 59.79% (2010 - 59.01%) of the portfolio and include Canadian and International investments. Debt is 40.21% (2010 - 40.99%) of the portfolio and comprises short-term debt, bonds and mortgages. The asset mix is reviewed periodically and may vary in the future.

(Expressed in Canadian dollars)

5. Employee future benefits (continued):

The Commission's net benefit plan expense is as follows:

	2011	2010
Current service cost (less employees contributions)	$ 292,300	$ 211,312
Interest cost	568,122	530,519
Expected return on plan assets	(479,198)	(397,719)
Amortization of transitional obligation	16,884	16,884
Amortization of past service cost	244	244
Amortization of net actuarial loss	151,830	60,267
Net benefit plan expense	$ 550,182	$ 421,507

The net benefit plan expense is included in salaries and employee benefits on the statement of operations and fund balances.

6. Related parties:

(a) Contracting Parties:

During the year ended March 31, 2011, the Commission received operating contributions from the Contracting Parties totaling $3,572,062 (2010 - $3,495,202). The Commission received $362,190 (2010 - nil) of operating contributions from the Government of the United States of America relating to fiscal year March 31, 2012; the amount received has been recorded as deferred revenue.

The Commission received $1,141,178 (2010 - $887,918) of contributions from the Government of Canada for Salmon Test Fisheries activities and fisheries management. Under the terms of the agreement any unspent funds must be repaid to the Government of Canada. The unspent amount of $513,537 (2010 - nil) has been recorded within accounts payable.

The office and warehouse premises of the Commission are provided by the Government of Canada with no charge. The Commission incurred no expenses to the Contracting Parties during the year.

(b) The Trusts:

During the fiscal year ended March 31, 2011, the Commission received funding for projects from the Trusts totaling $2,934,850 (2010 - $135,525); of this amount, $2,807,915 (2010 - $135,525) was recorded as revenue to match expenses incurred from the projects, the remaining balance of $126,935 (2010 - nil) was deferred. As at March 31, 2011, the Commission had a receivable from the Trusts of $157,578 (2010 - $7,086 payable).

7. Trust funds:

The Commission administers and holds in trust the following funds which are not included in the Commission's financial statements:

(a) Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund:

Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund ("Northern Boundary") was created by the Governments of the United States of America and Canada to manage its interest in the Commission to promote cooperation in the management, research and enhancement of Pacific Salmon stocks. The Northern Boundary is a non-taxable organization under the Foreign Missions and International Organizations Act (1991) and is not subject to income tax. The income earned on these contributions is distributed by the Commission as directed by the Northern Enhancement Committee.

(b) Southern Boundary and Transboundary River Restoration and Enhancement Trust Fund:

Southern Boundary and Transboundary River Restoration and Enhancement Trust Fund ("Southern Boundary") was created by the Governments of the United States of America and Canada to manage its interest in the Commission to promote cooperation in the management, research and enhancement of Pacific Salmon stocks. The Southern Boundary is defined as a non-taxable organization under the Foreign Missions and International Organizations Act (1991) and is not subject to income tax. The income earned on these contributions is distributed by the Commission as directed by the Southern Enhancement Committee.

(c) Payroll Trust Funds:

The Commission administers and holds trust funds on behalf of the Government of the United States to distribute U.S. section salary under a Memorandum of Understanding. These amounts have been excluded from the statement of financial position and statement of operations and fund balances of the Commission.

(d) U.S. Expenditures Trust Funds:

The Commission administers and holds trust funds on behalf of the Government of the United States of America. They are to be expended at the direction of the Government of the United States of America. These amounts have been excluded from the statements of financial position and statement of operations and fund balances of the Commission.

(Expressed in Canadian dollars)

7. Trust Funds (continued):

(e) Summary of trust fund balances:

	Northern Boundary	Southern Boundary	US Payroll Trust Funds	US Expenditure Trust Funds	2011 Total	2010 Total
Assets	$ 103,466,418	$ 84,916,593	$ 34,417	$ 370,223	$ 188,787,651	$ 184,565,151
Liabilities and fund balances						
Liabilities	$ 205,523	$ 162,223	$ 34,417	$ 370,223	$ 772,386	$ 1,134,069
Fund balances	103,260,895	84,754,370	-	-	188,015,265	183,431,082
	$ 103,466,418	$ 84,916,593	$ 34,417	$ 370,223	$ 188,787,651	$ 184,565,151

	Northern Boundary	Southern Boundary	US Payroll Trust Funds	US Expenditure Trust Funds	2011 Total	2010 Total
Fund balance, beginning of year	$ 100,441,494	$ 82,989,588	$ -	$ -	$ 183,431,082	$ 161,382,975
Revenue	8,154,384	6,753,212	-	-	14,907,596	35,621,841
Expenses	5,334,983	4,988,430	-	-	10,323,413	13,573,734
Fund balance, end of year	$ 103,260,895	$ 84,754,370	$ -	$ -	$ 188,015,265	$ 183,431,082

Cash flow provided by (used in):

	Northern Boundary	Southern Boundary	US Payroll Trust Funds	US Expenditure Trust Funds	2011 Total	2010 Total
Operations	$ (3,930,829)	$ (3,830,554)	$ -	$ (348,305)	$ (8,109,688)	$ 1,871,765

8. Capital management:

The Commission receives its principal source of capital through contributions received from the Contracting Parties. The Commission defines capital to be net assets.

The Commission's objective when managing capital is to fund its operational requirements and capital asset additions. The Commission makes adjustments to expenditures based on available government funding and economic conditions. Currently, the Commission's strategy is to monitor expenditures to preserve capital in accordance with available and budgeted funding.

The Commission is not subject to debt covenants or any other capital restrictions with respect to operating funding. Funding received for designated purposes must be used for the purpose outlined in the Treaty, Bylaws, budget, and funding instructions. The Commission has complied with the external restrictions on the funding provided.

9. Contractual obligations:

The Commission has entered into a number of project grant contracts as at March 31, 2011 for the future funding of research projects to be completed subsequent to the year end.

These contractual obligations are funded in installments and payments are due based on conditions included in the contract being satisfied. As such, no liability has been accrued in the financial statements as the Commission is not liable until these conditions have been met.

The research project contractual obligations are $747,670 (2010 - $347,036) as at March 31, 2011.

10. Financial instruments:

(a) Credit risk:

Credit risk is the risk that a third party to a financial instrument might fail to meet its obligations under the terms of the financial instrument. For cash and accounts receivable, the Commission's credit risk is limited to the carrying value on the statement of financial position. Management does not believe that the Commission is subject to any significant concentration of credit risk.

(b) Liquidity risk:

Liquidity risk is the risk that an entity will not be able to meet its obligations associated with financial liabilities.

The Commission manages liquidity risk by maintaining adequate cash and available credit facilities with its banking provider. The Commission monitors the cash flow to ensure a sufficient continuity of funding from the contracting parties.

(c) Interest rate risk:

The Commission is not exposed to significant interest risk as it does not have amounts payable that are charged interest.

11. Comparative figures:

Certain comparative figures have been reclassified to conform with the financial statement presentation adopted in the current year.

Combined Financial Statements of

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND

and

SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Year ended March 31, 2011

KPMG Enterprise™
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Burnaby BC V5H 4N2
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INDEPENDENT AUDITORS' REPORT

To the Trustees of Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and Southern Boundary Restoration and Enhancement Trust Fund (the "Trustees")

We have audited the accompanying combined financial statements of Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and the Southern Boundary Restoration and Enhancement Trust Fund (the "Trusts"), which comprise the combined statement of financial position as at March 31, 2011, the combined statements of operations, fund balances and cash flows for the year then ended, and notes, comprising a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Combined Financial Statements

Management is responsible for the preparation and fair presentation of these combined financial statements in accordance with the basis of accounting in note 2 to the combined financial statements: this includes determining that the basis of accounting is an acceptable basis for the preparation of these combined financial statements in the circumstances; and for such internal control as management determines is necessary to enable the preparation of combined financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these combined financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the combined financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the combined financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the combined financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the combined financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the combined financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the combined financial statements present fairly, in all material respects, the financial position of Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and Southern Boundary Restoration and Enhancement Trust Fund as at March 31, 2011 and its combined results of operations and its combined cash flows for the year then ended in accordance with the basis of accounting in note 2 to the combined financial statements**.**

Restriction on Use

Without modifying our opinion, we draw attention to note 2 to the combined financial statements, which describes the basis of accounting. The combined financial statements are prepared for the Trusts to meet their reporting requirements.

Our report is intended solely for the Trustees, the Government of Canada and the Government of the United States of America and should not be used by any other parties or for any other purpose.

KPMG LLP

Chartered Accountants

September 20, 2011
Burnaby, Canada

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND
and
SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Combined Statement of Financial Position
(Expressed in Canadian dollars)

March 31, 2011, with comparative figures for 2010

	Northern Boundary	Southern Boundary	2011 Total	2010 Total
Assets				
Current assets:				
Cash and cash equivalents	$ 600,859	$ 541,902	$ 1,142,761	$ 7,903,164
Due from Pacific Salmon Commission (note 8)	-	-	-	7,342
Interest receivable	7,897	2,011	9,908	150
Short-term investments	2,000,000	500,000	2,500,000	-
	2,608,756	1,043,913	3,652,669	7,910,656
Investments (note 3)	100,857,662	83,872,680	184,730,342	175,695,805
	$ 103,466,418	$ 84,916,593	$ 188,383,011	$ 183,606,461
Liabilities and Fund Balance				
Current liabilities:				
Accounts payable and accrued liabilities	$ 120,150	$ 90,018	$ 210,168	$ 175,123
Due to Pacific Salmon Commission (note 8)	85,373	72,205	157,578	256
Fund balance	103,260,895	84,754,370	188,015,265	183,431,082
	$ 103,466,418	$ 84,916,593	$ 188,383,011	$ 183,606,461

See accompanying notes to combined financial statements.

Contractual obligations (note 4)
Minimum fund balance (note 5)

Approved on behalf of the Trustees:

U.S. Co- Chair Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund

Can Co- Chair Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund

U.S. Co- Chair Southern Boundary Restoration and Enhancement Fund

Can Co- Chair Southern Boundary Restoration and Enhancement Fund

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND
and
SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Combined Statement of Operations and Fund Balance
(Expressed in Canadian dollars)

Year ended March 31, 2011, with comparative figures for 2010

	Northern Boundary	Southern Boundary	2011 Total	2010 Total
Investment income	$ 8,150,419	$ 6,753,212	$ 14,903,631	$ 35,621,841
Other	3,965	-	3,965	-
	8,154,384	6,753,212	14,907,596	35,621,841
Expenses:				
Administrative services (note 6)	137,192	137,192	274,384	266,964
Travel and accommodation	14,626	7,484	22,110	21,650
Rents and communications	526	862	1,388	461
Contract services	16,570	26,751	43,321	51,466
Investment management services	562,335	473,766	1,036,101	960,400
Project grants	3,313,314	3,233,638	6,546,952	2,378,441
Materials and supplies	548	620	1,168	530
	4,045,111	3,880,313	7,925,424	3,679,912
Foreign exchange loss	1,289,872	1,108,117	2,397,989	9,893,822
Excess of revenue over expenses	2,819,401	1,764,782	4,584,183	22,048,107
Fund balance, beginning of year	100,441,494	82,989,588	183,431,082	161,382,975
Fund balance, end of year (note 5)	$ 103,260,895	$ 84,754,370	$ 188,015,265	$ 183,431,082

See accompanying notes to combined financial statements.

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND
and
SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Combined Statement of Cash Flows
(Expressed in Canadian dollars)

Year ended March 31, 2011, with comparative figures for 2010

	Northern Boundary	Southern Boundary	2011 Total	2010 Total
Cash provided by (used in):				
Operations:				
Excess of revenue over expenses	$ 2,819,401	$ 1,764,782	$ 4,584,183	$ 22,048,107
Non-cash item:				
Unrealized gain on investments	(5,082,171)	(4,203,414)	(9,285,585)	(34,011,449)
Gain on sale of investments	(3,059,310)	(2,546,448)	(5,605,758)	(1,609,656)
Loss on foreign exchange	1,288,812	1,067,014	2,355,826	9,717,804
Change in non-cash operating working capital:				
Due from (to) Pacific Salmon Commission	85,127	79,537	164,664	(6,869)
Interest receivable	(7,819)	(1,939)	(9,758)	127
Accounts payable and accrued liabilities	25,131	9,914	35,045	6,228
	(3,930,829)	(3,830,554)	(7,761,383)	(3,855,708)
Investing:				
Purchase of short-term investments	(2,000,000)	(500,000)	(2,500,000)	-
Proceeds from sale of investments	1,681,226	1,819,754	3,500,980	5,727,473
	(318,774)	1,319,754	1,000,980	5,727,473
Increase (decrease) in cash and cash equivalents	(4,249,603)	(2,510,800)	(6,760,403)	1,871,765
Cash and cash equivalents, beginning of year	4,850,462	3,052,702	7,903,164	6,031,399
Cash and cash equivalents, end of year	$ 600,859	$ 541,902	$ 1,142,761	$ 7,903,164

See accompanying notes to combined financial statements.

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND
and
SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND
Notes to Combined Financial Statements
(Expressed in Canadian dollars)

Year ended March 31, 2011

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1. Nature of organization:

The Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and the Southern Boundary Restoration and Enhancement Trust Fund (the "Trusts") were created by the Governments of the United States of America and Canada (the "Contracting Parties") to promote cooperation in the management, research and enhancement of Pacific salmon stocks.

2. Significant accounting policies:

(a) Basis of presentation and accounting:

These financial statements have been prepared in accordance with the significant accounting policies set out below. These financial statements differ from Canadian generally accepted accounting principles as they are presented on a combined basis in order to reflect the common administration of the Trusts by the management of the Pacific Salmon Commission.

These combined financial statements present the financial position and results of operations of the Trusts in accordance with Canadian generally accepted accounting principles ("Canadian GAAP"), except as described above.

(b) Financial instruments:

The Trusts account for their financial instruments in accordance with Canadian Institute of Chartered Accountants ("CICA") Handbook Section 3855, *Financial Instruments - Recognition and Measurement,* and CICA Handbook Section 3861, *Financial Instruments - Disclosure and Presentation*.

Under Handbook Section 3855, all financial instruments are classified into one of the following five categories: held for trading, held-to-maturity investments, loans and receivables, available-for-sale financial assets, or other financial liabilities. All financial instruments, including derivatives, are included on the statement of financial position and are measured at fair market value, with the exception of loans and receivables, investments held-to-maturity and other financial liabilities, which are measured at amortized cost. Measurement in subsequent periods depends on whether the financial instrument has been classified as held for trading, available-for-sale, held-to-maturity, loans and receivables, or other financial liabilities.

The Trusts' financial instruments are cash and cash equivalents, due from (to) Pacific Salmon Commission, interest receivable, investments, and accounts payable and accrued liabilities. The Trusts classify their cash and cash equivalents and investments as held for trading, with the financial assets measured initially at fair value with transaction costs recognized immediately in the statement of operations. These assets are subsequently measured at fair value with gains and losses recognized in the statement of operations.

2. Significant accounting policies (continued):

(b) Financial instruments (continued):

The Trusts classify their due from (to) Pacific Salmon Commission and interest receivable as loans and receivables (other financial liabilities) which are recorded at amortized cost. The Trusts classify their accounts payable and accrued liabilities as other liabilities which are recorded at amortized cost.

The fair values of amounts due to and from Pacific Salmon Commission are not practicable to determine due to their related party nature and terms and the limited amount of comparable market information available.

The Trusts have elected to continue to apply the provisions of Section 3861 – *Financial Instrument Disclosure and Presentation,* as permitted for not-for-profit organizations.

(c) Cash and cash equivalents:

Cash and cash equivalents are comprised of cash on hand and short term deposits with original maturities of three months or less.

(d) Revenue recognition:

The trusts follow the deferral method of accounting for contributions. Accordingly, funding received for specific purposes are deferred and recognized in the period in which the related expenses are incurred.

(e) Income taxes:

The Trusts are non-taxable organizations under the Foreign Missions and International Organizations Act (1991).

(f) Foreign exchange translation:

Transactions originating in foreign currencies are translated at the exchange rate in effect at the transaction dates. Monetary items and non-monetary assets that are carried at market, denominated in foreign currency at the year-end date, are translated to equivalent Canadian amounts at the exchange rate in effect at the year-end date. Foreign exchange gains and losses resulting from translation are included in the determination of excess or deficiency of revenue over expenses.

(Expressed in Canadian dollars)

2. Significant accounting policies (continued):

(g) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results may differ from these estimates.

(h) Contractual obligations:

Contractual obligations are funded in instalments and payments are due based on conditions included in the contract being satisfied. Expenses and liabilities are recognized in the financial statements as these conditions are met.

(i) Future accounting standards:

In December 2010, the CICA, in conjunction with the Accounting Standards Board ("AcSB"), Issued Part III - Accounting Standards for Not-for-Profit Organization ("Part III") of the CICA handbook. Part III is effective for fiscal years commencing on or after January 1, 2012 and provides Canadian private sector not-for profit organizations with a new financial reporting framework.

The Trusts have elected to adopt Part III effective April 1, 2012, and is evaluating the impact of adopting the new accounting standards for not-for-profit organizations; differences on adoption are expected to be minimal.

3. Investments:

Investments consist of mutual funds under the supervision of a custodian and consist of the following managed funds:

	Northern Boundary	Southern Boundary	2011 Total	2010 Total
International Equity Fund	$ 18,919,125	$ 15,733,067	$ 34,652,192	$ 32,612,810
US Equity Fund	29,678,050	24,680,005	54,358,055	52,861,461
Global Equity Fund	23,181,318	19,277,489	42,458,807	39,583,932
Canadian Bond	29,079,169	24,182,119	53,261,288	50,637,602
	$ 100,857,662	$ 83,872,680	$184,730,342	$175,695,805

4. Contractual obligations:

The Trusts have entered into a number of project grant contracts as at March 31, 2011 for the future funding of research projects to be completed subsequent to the year end.

These contractual obligations are funded in installments and payments are due based on conditions included in the contract being satisfied. As such, no liability has been accrued in the financial statements as the Trusts are not liable until these conditions have been met.

The research project contractual obligations of Northern Boundary are $787,159 (2010 - $789,592) and of the Southern Boundary are $505,634 (2010 - $720,609) as at March 31, 2011.

5. Minimum fund balances:

In line with Chapter IX – 'Financial Regulations' Section F of the Pacific Salmon Commission By-laws, the total expenditures of the Trusts should not exceed the total income from the Principal. The Principal was the amount provided at the point of constitution of the Trusts and was US $74,837,400 from the Government of the United States of America and CAD $250,000 from the Government of Canada in the Northern Boundary and US $64,902,400 from the Government of the United States of America and CAD $250,000 from the Government of Canada in the Southern Boundary. As at March 31, 2011, the Northern and Southern Funds were in excess of the minimum balances.

6. Administrative services:

The Commission charges fees for administrative services to the Trusts representing an allocation of Commission salaries and benefits expenses incurred on behalf of the Trusts.

7. Capital disclosures:

The Trusts' capital consists of their fund balances. The Trusts' objective when managing capital is to safeguard their assets and to ensure that adequate capital is managed for future requirements. The procedures in place to achieve these goals include establishing effective internal controls, the review and approval of annual budgets and ongoing review of interim financial statements by the board of directors.

8. Related parties:

The Trusts' only related parties are the Commission and the Contracting Parties. During the fiscal year ended March 31, 2011, the Trusts' provided funding for projects totaling $2,807,915 (2010 - $135,525) to the Commission.

As at March 31, 2011, the Trusts have a payable to the Commission of $157,578 (2010 - $256 payable and receivable of $7,342).

9. Financial instruments:

(a) Credit risk:

Credit risk is the risk that a third party to a financial instrument might fail to meet its obligations under the terms of the financial instrument. For cash and cash equivalents, investments, due to the Pacific Salmon Commission and interest receivable, the Trusts' credit risk is limited to the carrying value on the statement of financial position. Management does not believe that the Trusts' are subject to any significant concentration of credit risk.

(b) Liquidity risk:

Liquidity risk is the risk that an entity will not be able to meet its obligations associated with financial liabilities.

The Trusts manage liquidity risk by maintaining adequate cash and investment revenues. The Trusts monitor the cash flows in to ensure that the fund balances are maintained at a sufficient level in line with the Treaty.

(c) Interest rate risk:

The Trusts are not exposed to interest rate risk as there are no liabilities that incur interest.

Appendices

Appendix A

Appointment of Officers for 2010/2011

Effective December 1, 2010 a new slate of officers for the Pacific Salmon Commission was identified as follows:

OFFICE	COUNTRY	REPRESENTATIVE
Commission Chair	Can	Sue Farlinger
Commission Vice-Chair	U.S.	Olney Patt,Jr.
Fraser River Panel Chair	Can	Barry Rosenberger
Fraser River Panel Vice-Chair	U.S.	Lorraine Loomis
Northern Panel Chair	Can	Mel Kotyk
Northern Panel Vice-Chair	U.S.	Gordy Williams
Southern Panel Chair	Can	Don Radford
Southern Panel Vice-Chair	U.S.	John Long
Transboundary Panel Chair	Can	Frank Quinn
Transboundary Panel Vice-Chair	U.S.	John Clark
Stan. Comm. on F&A - Chair	Can	Paul Macgillivray
Stan. Comm. on F&A - Vice-Chair	U.S.	Ron Allen
Stan. Comm. on Scientific Cooperation - Chair	Can.	Laura Richards
Stan. Comm. on Scientific Cooperation - Vice-Chair	U.S.	Steve Pennoyer
Technical Committee on Data Sharing - Co-Chair	Can	Chuck Parken
Technical Committee on Data Sharing - Co-Chair	U.S.	Norma Jean Sands
Fraser River Panel Technical Committee - Co-Chair	Can	Ann-Marie Huang
Fraser River Panel Technical Committee - Co-Chair	U.S.	Gary Graves
Northern Boundary Technical Committee - Co-Chair	Can	Dave Peacock
Northern Boundary Technical Committee - Co-Chair	U.S.	Glen Oliver
Transboundary Technical Committee - Co-Chair	Can	Steve Smith
Transboundary Technical Committee - Co-Chair	U.S.	Scott Kelly
Enhancement Subcommittee of the Transboundary Technical Committee - Co-Chair	Can	Briar Young
Enhancement Subcommittee of the Transboundary Technical Committee - Co-Chair	U.S.	Ron Josephson
Joint Chinook Interface Group Co-Chair	Can.	Gerry Kristianson
Joint Chinook Interface Group Co-Chair	U.S.	Dave Bedford
Joint Technical Committee on Chinook - Co-Chair	Can	Chuck Parken
Joint Technical Committee on Chinook - Co-Chair	U.S.	John Carlile
Joint Technical Committee on Coho - Co-Chair	Can	Arlene Tompkins
Joint Technical Committee on Coho - Co-Chair	U.S.	Gary Morishima
Joint Technical Committee on Chum - Co-Chair	Can	Pieter Van Will
Joint Technical Committee on Chum - Co-Chair	U.S.	Kit Rawson
Joint Technical Committee on Habitat and Restoration Co-Chair	Can.	Ed Woo
Joint Technical Committee on Habitat and Restoration Co-Chair	U.S.	Thom Hooper
Selective Fishery Evaluation Committee - Co-Chair	Can	Gayle Brown
Selective Fishery Evaluation Committee - Co-Chair	U.S.	Gary Morishima

Appendix B

Approved Budget FY 2011/2012

1	**INCOME**	C$
A.	Contribution from Canada	$1,879,636
B.	Contribution from U.S.	$1,879,636
	Sub total	$3,759,273
C.	Carry-over from 2009/2010	$135,313
D.	Interest	$15,000
E.	Other income	$0
F.	Total Income	$3,909,586
2	**EXPENDITURES**	
A.	1. Permanent Salaries and Benefits	$2,593,236
	2. Temporary Salaries and Benefits	$289,173
	3. Total Salaries and Benefits	$2,882,410
B.	Travel	$134,627
C.	Rents, Communications, Utilities	$148,176
D.	Printing and Publications	$13,800
E.	Contractual Services	$579,366
F.	Supplies and Materials	$60,478
G.	Equipment	$90,730
H.	Total Expenditures	$3,909,586
3	**BALANCE (DEFICIT)**	$0

Appendix C

Northern Fund Projects for 2010/2011

Northern Fund 2010 Approved on-going Project Proposals					
Description	Proponent	Org	Area	2010 Total $ in US$	2010 Total $ in Can$
Enhancement					
Snootli Hatchery Chinook Augmentation	Hilland	DFO	NBC		$ 62,437
Tatsamenie Sockeye Rearing	Mercer	B. Mercer & Assoc	TBR		$ 42,000
Sockeye Outplanting to Hanging Lakes: Outplanting to Batchellor Lake and Initiate Outplanting to Red Bluff	Picard	Gitga'at First Nation	NBC		$ 192,850
Trapper Lake Sockeye Enhancement 2009 Project Year	Mercer	B. Mercer & Assoc	TBR		$ 18,000
Lakelse Lake Sockeye Recovery Plan: Fry Outplant Year 4	Miller	DFO	NBC		$ 94,296
Determining the Trend of Chum Population Dynamics in Area 5 and Measuring the Success of Small Hatcl	Lemon	Oona River Resource	NBC		$ 25,287
Habitat					
Lakelse Lake Sockeye Rehabilitation	Miller	DFO	NBC		$ 42,000
Information					
Skeena River Recreational Chinook Creel Survey	Reagan	DFO	NBC		$ 105,000
Transboundary Chinook and sockeye DNA stock ID baseline sample collection and analyses	Johnston	DFO	TBR		$ 70,000
Forecasting SEAK pink salmon harvest from juvenile salmon data: calibration and extension of models	Orsi/Sturdevan	NOAA	SEAK	$ 49,760	
Salmon stock identification using DNA technology	Beacham	DFO	TBR, NBC		$ 90,000
Stikine River Coded Wire Tagging Augmentation	Etherton	DFO	NBC		$ 67,500
Morice Chinook CWT Group 2009	O'Neill	Toboggan Creek Salr	NBC		$ 30,000
Taku River Coho Salmon Escapement and Smolt Tagging Augmentation 2009	Jones	ADFG	SEAK	$ 75,000	
Chickamin River Chinook Salmon Escapement Sampling 2009	Johnson	ADFG	SEAK	$ 105,560	
Estimating the Chinook salmon stock composition of Southeast Alaska fisheries, 2009	Gilk	ADFG	SEAK	$ 62,250	
Northern and Transboundary sockeye matched scale-tissue sampling 2009	Reynolds	ADFG	SEAK	$ 203,744	
Northern Boundary Area Sockeye Salmon Genetic Stock Identification 2009	Guyon	NOAA	SEAK	$ 201,500	
Genetic changes associated with in-basin supplementation of a population of sockeye; Phase 2	Smoker	UAF	SEAK	$ 20,000	
Middle Nass Mark-Rate Sampling Program for Coho Salmon: Seaskinnish Weir Program - Year 3 (Final)	Stephens	Nisga'a Fisheries Dep	NBC		$ 75,000
Stock composition of Stikine and Taku inriver fisheries - sample collection	Johnston	DFO	TBR		$ 44,300
Taku River Coho Salmon Escapement and Smolt Tagging Augmentation	Boyce	DFO	TBR	$ 49,630	
Reinstallation of Slamgeesh Lake Smolt Trap	Gottesfeld	Gitksan Watershed A	NBC		$ 25,000
Skeena Sockeye Lakes Hydroacoustic Surveys - 2009	Gottesfeld	Skeena Fisheries Co	NBC		$ 32,999
Rivers Inlet Coho Enhancement	Stevenson	Rivers Smith Salmon	NBC		$ 44,750
Habitat-Based Chinook Escapement Goal Calibration: Clear rivers in northern BC	Winther	DFO	NBC		$ 27,000
			Total Expenditures in US $	$ 1,800,789	

Appendix D

Southern Fund Projects for 2010/2011

Southern Fund 2010 Approved on-going Project Proposals					
Description	Proponent	Org	Area	2010 Total $ in US$	2010 Total $ in Can$
Goal 1 - Improve the Management of Fisheries Relevant to the Pacific Salmon Treaty					
Estimate spawning escapement, juvenile production, and contribution to fisheries of Coweeman River fall Chinook	Sharpe	WDFW	CR	$ 101,112	
Habitat-Based Chinook Escapement Goal Calibration: large, clear rivers and large, low visibility rivers in the interior	Chamberlain	DFO	FR		$ 105,000
WCVI Chinook AUC Index and Habitat-Based Escapement Goal Calibrations, British Columbia - Year 2 of 5	Dunlop	Nuu-chah-nulth Tribal Council	WCVI		$ 247,643
Coldwater River Resistivity Counter Calibration - Year 2 of 3	Sampson	Nicola Tribal Association	FR		$ 30,600
Calibration of assessment methods for Fraser sockeye spawning populations between 25K-75K	Benner	DFO	FR		$ 77,000
In-Season Estimation of Salmon Species Composition using DIDSON Sonar Image Data Collected at Mission - Year 2 o	Li	Vitech Innovative Research	FR		$ 29,500
Implementation of an offshore sub-sampling system with side-scan sonar for in-season use at the PSC Mission Hydr	Xie	PSC	FR		$ 59,002
Assessment of a live capture, mark-recapture and biosampling program for Fraser salmon and steelhead - Year 3	English	LGL	FR		$ 275,832
Collection of GSI Baseline Data for WCVI Chinook Stocks - Year 2 of 3	Lane	Nuu-chah-nulth Tribal Council	WCVI		$ 38,720
Chinook Baseline Expansion with SNP Markers - Year 3 of 3	Narum	CRITFC	CR	$ 62,000	
Sampling and processing of Chinook Double Index CWT recoveries in southern BC commercial fisheries - Year 3 of 4	Fraser	DFO	NCVI GB		$ 24,000
Estimates of the abundance of hatchery chinook in wild spawning populations - Year 4 of 5	Dobson	DFO	WCVI		$ 69,000
Update FRAM Program to Visual Studio Net	Packer	WDFW	PNW	$ 92,327	
Update Coho FRAM Base Period Support Programs (RRTERM and MSM) used for Coho Cohort Analyses	Packer	WDFW	PNW	$ 57,704	
Update Coho FRAM Base Period for Mark-Selective Fishing Years (1998-2009), Phase I (WDFW Component)	Packer	WDFW	PNW	$ 37,564	
Update Coho FRAM Base Period for Mark-Selective Fishing Years (1998-2009), Phase I (DFO Component)	Tompkins	DFO	PNW	$ 14,960	
Update Coho FRAM Base Period for Mark-Selective Fishing Years (1998-2009), Phase I (NWIFC Component)	Patton	NWIFC	PNW	$ 8,561	
Update Coho FRAM Base Period for Mark-Selective Fishing Years (1998-2009), Phase I (ODFW Component)	Foster	ODFW	PNW	$ 9,311	
Update Coho FRAM Base Period for Mark-Selective Fishing Years (1998-2009), Phase I (USFWS Component)	Cook-Tabor	USFWS	PNW	$ 5,508	
Goal 2 - Address Priority Stocks of Interest					
Collection of DNA Based Stock Composition Data from the WCVI Chinook Troll Fishery - Year 5	Dobson	DFO	WCVI		$ 82,000
Southern Study Area Chum Stock Distribution Assessment of 2009 Washington San Juan Islands - Pt. Roberts and Brit	Kirby	NWIFC	PS	$ 72,422	
Water Storage Feasibility on East Coast Vancouver Island - Year 3 of 5	BCCF	BCCF	GB		$ 30,000
Nahmint River side-channelconstruction and adult holding facility installation. Year 2.	Beach (French)	Nuuchahnulth Tribal Council	WCVI		$ 105,576
Georgia Basin Salmonid Habitat Restoration Project: Year 2 or 3	Wright	SeaChange Marine Conservation	GB		$ 50,556
Cowichan River -Stoltz Bluff Remediation Monitoring - Year 3 of 4	Wightman	BCCF	GB		$ 30,000
Campbell River mainstem chinook enhancement - Year 6 of 6 year brood cycle	Fisher (Herkes)	Tyee Club of BC	GB		$ 10,460
South Fork Nooksack Chinook captive brood implementation	Busack (Blakensh	WDFW	PS	$ 70,574	
DNA Sampling of Cultus Lake Sockeye in 2009	Latham	PSC	FR		$ 11,466
Goal 3 - Improve Collaboration between the Parties, Relevant Agencies and Stakeholders					
Goal 4 - Gain Better Understanding and Incorporate Ecosystem Factors into Underlying Science and Management Processes					
OSCURS for the 21st century: Year 2 of 3	Thomson	DFO	PNW		$ 85,000
Optimizing the production of chinook salmon in the Strait of Georgia as the ecosystem change - Year 2 of 2	Beamish	DFO	GB		$ 138,000
Stage-specific growth and survival during early marine life of Puget Sound Chinook salmon in the context of tempor	Beauchamp	UW	PS	$ 96,000	
			Total expenditures in US $	$ 2,051,230	

Appendix E

Pacific Salmon Commission Secretariat Staff as of March 31, 2011

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Executive Secretary

Teri Tarita
Records Administrator/Librarian

Vicki Ryall
Meeting Planner

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Restoration & Enhancement Funds

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Catherine Michielsens
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Catherine Ball
Scale Lab Assistant (Term)

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Head, Stock Identification Group

Jim Cave
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Test Fishing Biologist

Bruce White
Stock Identification Biologist, Pinks

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Zac Semeniuk
Salmon Technician

Andrew Gray
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Maxine Forrest
Senior Scale Analyst

Fiona Martens
Hydroacoustic Technician

Julie Sellars
Assistant Scale Analyst

Jacqueline Nelitz
Hydroacoustic Technician

Holly Anozie
Scale Lab Assistant

Appendix F

Membership Lists for Standing Committees, Panels, Joint Technical Committees and other Appointments as of March 31, 2011

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Mr. David Whorley

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Mr. Steve Pennoyer (Vice-Chair)
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Mr. David Bedford (Co-Chair)
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Mr. William Templin
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Mr. Mike Matylewich
Dr. Gary S. Morishima
Mr. George Nandor
Mrs. Amy Seiders

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Ms. Brenda Ridgway
Mr. Timothy Frawley
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Mr. Gilbert Lensegrav
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Dr. Jeffrey P. Koenings
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