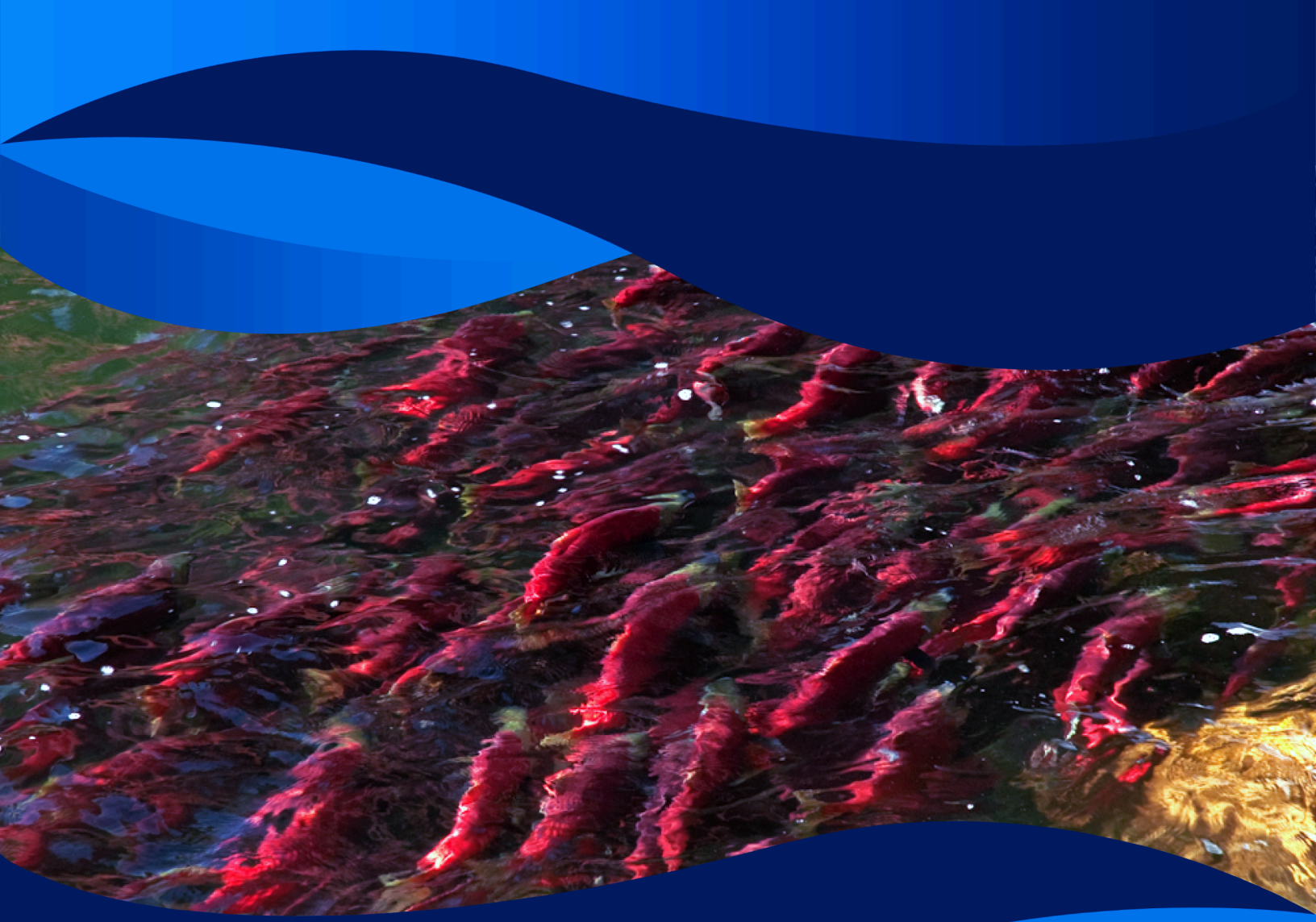

PACIFIC SALMON COMMISSION

2022/2023 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

Thirty-Eighth Annual Report 2022/2023

Vancouver, B.C.
Canada

December 2023

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PACIFIC SALMON COMMISSION

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

600 – 1155 ROBSON STREET
VANCOUVER, B.C. V6E 1B5
TELEPHONE: (604) 684-8081
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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 Executive Secretary of the Pacific Salmon Commission to present my compliments to the Parties and to transmit the Thirty-Eighth Annual Report of the Commission.

This report summarizes the activities of the Commission for the fiscal year April 1, 2022 to March 31, 2023. It reports on the results of the 2022 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, 2022 to March 31, 2023.

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

Sincerely,

Mr. John Field

Executive Secretary

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PACIFIC SALMON COMMISSION

OFFICERS

2022/2023

Chair	Ms. Rebecca Reid
Vice-Chair	Mr. W. Ron Allen

COMMISSIONERS

Canada	**United States**
Dr. Katrina Connors	Mr. Phil Anderson
Ms. Susan Farlinger	Mr. William F. Auger
Chief Russ Jones	Mr. Rick Klumph
Mr. John McCulloch	Mr. David T. Moore
Mr. Murray Ned	Mr. McCoy Oatman
Mr. Martin Paish	Dr. Scott Rumsey
Mr. Andrew Thomson	Mr. Douglas Vincent-Lang

SENIOR SECRETARIAT STAFF

Executive Secretary	Mr. John Field
Director of Finance	Ms. Ilinca Manisali
Chief, Fisheries Management Programs	Ms. Fiona Martens
Chief, Fisheries Management Science	Dr. Catherine Michielsens

Table of Contents

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 American 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 provisions 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, 2022 to March 31, 2023, the Commission met on three occasions:

1. **Fall Session**
   October 18-20, 2022. Salmon Arm, B.C.

2. **Post-Season Meeting of the Commission and Panels**
   January 9-13, 2023. Vancouver, B.C.

3. **Annual Meeting of the Commission**
   February 13-17, 2023. Portland, OR.

This, the Thirty-Eighth Annual Report of the Pacific Salmon Commission, provides a synopsis of the activities of the Commission and its subsidiary bodies during its thirty-eighth fiscal year of operation, April 1, 2022 to March 31, 2023.

Activities of the Commission

FALL SESSION OF THE PACIFIC SALMON COMMISSION

October 17-21, 2022, Salmon Arm, B.C.

The meeting was held in three sittings.

Mr. Field presented the Executive Secretary's Report, which included an update about the International Year of the Salmon Initiative, a review of Commission and Party deliverables under the current Pacific Salmon Treaty agreement, and a report about the draft MOU/Framework for cooperation with the North Pacific Marine Science Organization (PICES).

The Commission adopted the Parties' Final 2021 Post-Season Reports

The Commission received and accepted the Mark-Selective Fisheries Fund Committee report and the recommendations within.

The Commission received a report from the Chinook Interface Group (CIG).

The report included sections and recommendations about the calendar year exploitation rate (CYER) metric, Chapter 3, paragraph 7(b) and communication with the Alaska Department of Fish and Game, the timeline for the review of AABM and ISBM fisheries annually, the CTC Summary Report, the Southern Endowment Fund memo regarding calls for proposals in 2023, the MSF Fund Committee recommendations, and the SEAK CPUE methodology review.

The Commission accepted the report, including its primary recommendations.

The Commission reviewed the Panel and Committee annual work plans, including the status of tasks in 2019 Chapter implementation plans and issued instructions to the Panels and Committees.

The Commission accepted the slate of officers for 2022/23.

POST-SEASON MEETING OF THE COMMISSION AND PANELS

January 9-13 2023, Vancouver, B.C.

The Commission met in two sessions during the week.

Dr. Sonia Batten, North Pacific Marine Science Organization (PICES) Executive Secretary, delivered a presentation to the Commission about PICES, potential interactions with the Pacific Salmon Commission, and about the Basin Scale Events to Coastal Impacts (BECI) Project.

Executive Secretary John Field presented an update from the Management Entities Work Group. The Commission agreed to suspend the Work Group after it accepted its report.

The Commission received an update about Chinook Issues and tasks under Chapter 3, paragraphs 7b(i) and 7b(ii) from the Chinook Interface Group (CIG). The Commission accepted the report and its primary recommendations.

The Commission accepted the Parties' 2022 preliminary post-season reports.

The Commission received national reports on 2022 Chinook fisheries held in Canada, the Southern United States, and Alaska.

Chief Joe Alphonse, Chief of the Tl'etinqox-t'in Government, appeared before the Commission to express concern about the salmon runs of the Chilcotin Nation, focusing on Chilko Lake sockeye and the impacts of the Alaska District 104 fishery on the stock.

The Commission received an update from the Committee on Scientific Cooperation (CSC) and the CSC Liaison Group about progress made compiling the CSC report on the assessment and management frameworks of the Pacific Salmon Treaty and their robustness to environmental change.

The Commission received progress reports on work plans from the Northern, Southern, and Fraser River panels.

PACIFIC SALMON COMMISSION ANNUAL MEETING

February 13-17 2023, Portland, Oregon

The Commission met three times during the week.

The Commission accepted reports on work plans from the Selective Fishery Evaluation Committee (SFEC), Data Sharing Technical Committee, Coded Wire Tagging and Recovery/Catch and Escapement Improvement Indicator Committee (C2), and Mark Selective Fishery Fund Committee.

Ms. Sandra Davies and Mr. Lowell Fair, Chair and Vice Chair of the Northern Panel, presented the "Chapter 2 – Northern Boundary Area – Review of Performance: Joint Analysis by the Bilateral CAN/U.S. Northern Panel and NBTC".

The Commission accepted the report, noting that the Northern Panel successfully summarized areas of agreement, disagreement, and proposed future technical work in the review of Chapter 2 performance.

The Commission agreed to accept the Standing Committee on Scientific Cooperation (CSC) 2023-2024 Work Plan presented by Committee Chair Dr. Brendon Connors.

The Commission accepted a report from the Transboundary Panel about work plan progress noting that the Transboundary Panel's recommended mainstem Stikine and Tahltan Lake sockeye management objectives and escapement goal ranges were accepted as presented and would be implemented starting in the 2023 season.

The Commission received and agreed to accept a report from the Southern Panel noting that the Panel's recommended process for implementing Chapter 5, paragraphs 11(b) and (c) was accepted.

The Fraser River Panel delivered a report to the Commission that included information about the Fraser Panel Bilateral Response to the PSC Secretariat report entitled "Review of Fraser River sockeye run size

recommendations and fisheries proposals of August 18, 2022, and subsequent consequences". The Commission agreed to accept the report.

The Chinook Interface Group (CIG) presented its meeting summary report to the Commission. The Commission accepted the report and the recommendations within, including the progress report on the CTC's work plan.

The Commission discussed the annual catch limit for the SEAK AABM and agreed to accept the CIG recommendations to address SEAK AABM catch limits and the CPUE methodology.

The Commission adopted the report of the Standing Committee on Finance and Administration (F&A), including the proposed budget for FY2023/2024 and proposed bylaw amendments.

Ms. Sascha Bendt, Restoration and Enhancement Funds Manager, presented the 2022 Grant Programs Update to the Commission, which included a summary of the "Annual Report of the Southern Boundary Restoration and Enhancement Fund and the Northern Boundary and Transboundary Rivers Restoration and Enhancement Fund for the year 2022," and a re-cap of the activities of the Yukon Panel Restoration and Enhancement Fund.

Activities of the Standing Committees

MEETINGS OF THE STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

The Standing Committee on Finance and Administration met by hybrid mode (in person/teleconference) on December 20, 2022, January 11, 2023, and February 14, 2023. The Committee addressed several issues and made recommendations for the Commission's consideration as noted below.

BUDGET PROPOSAL FOR FY 2023/2024

The Committee reviewed the proposed budget for FY 2023/2024 as amended on February 14, 2023 (Attachment I).

The Committee understood that the proposed budget for FY 2023/2024 and forecast budgets for FY's 2024/2025 and 2025/2026 incorporated the salary and benefits cost of a Publications Manager position, while the funding for the position would be as follows:

a) For FY 2023/2024: a pilot project using a pending grant from Northern and Southern Funds (NEF SEF) included in the "Other Revenue" section of the budget. This would not proceed unless the grant is approved; and

b) FY 2024/2025 and FY 2025/2026: the unencumbered salary and benefits cost of the current Librarian who is planning to retire in Spring 2024. This would not increase costs to the Parties since it uses an existing equivalent budgeted salary and benefits.

As in the prior year, the Committee agreed to a budget presentation that included annual contributions from the Parties calculated such that the cumulative deficit/surplus at the end of the fiscal year would be NIL. The Committee agreed to include a footnote to the budget schedule that addressed the mechanism through which Canada would process its dues, with the understanding that the final amount contributed from each Party will be equal for each fiscal year.

Accordingly, the Committee recommends that the Commission adopt the proposed budget for FY 2023/2024 as shown in Attachment I.

TEST FISHING

Test fishing finances remained a significant issue for the Parties, after record-low return of Fraser River sockeye and pink salmon over the last several years. The low returns have precluded the capture and sale of adequate numbers of fish to recover test fishing costs in those years, and the Parties have made supplementary financial contributions to the Test Fishing Revolving Fund (TFRF) to help offset the test fishing costs.

The Committee understood that ahead of the 2023 season, the Parties will be invoiced by the PSC Secretariat in order to replenish the TFRF, in a manner consistent with the Test Fishing Regulations adopted in February 2022:

- Canada: 50% of the test fishing deficit incurred in the 2022 season, and
- U.S.A: 50% of the projected 2023 deficit, as determined based on a test fishing schedule agreed upon by the Fraser River Panel (FRP) based on the adopted run size as of February 2023.

BYLAW AMENDMENTS TO IMPLEMENT PUBLIC PARTICIPATION POLICY

The Committee has reviewed and recommends that the Commission approve the bylaw amendments to address public observation and participation in PSC bodies, as outlined in Appendix D.

WORKFORCE STRATEGY

The Committee reviewed the draft document "Secretariat workforce planning" as revised on December 5, 2022, prepared by the Secretariat. Previous versions of this document had been presented to the F&A Committee for consideration at its December 2020 and December 2021 meetings. The revised document provided up-to-date information on current and expected staffing changes, elaborated on staff diversity and inclusion initiatives, and offered recommendations on dealing with staff recruitment and retention issues at the Secretariat.

The Canadian Section provided comments to the document and briefly described them. The Committee agreed to revisit the document at its October 2023 meeting, once the U.S. Section has the opportunity to consider Canada's comments and prepare their own comments/ edits. The Committee intends to finalize and recommend the document to t the Commission for adoption in October 2023.

EXTERNAL PERFORMANCE REVIEW OF THE COMMISSION

The Committee reviewed the discussion paper "Considerations for a second PSC performance review" as revised on December 6, 2022 and supplementary memo (Attachments III, IV). The paper provided background to the issue of a performance review, outlined the process undertaken for the 2011-2012 performance review, and provided examples of current issues that would benefit from a third-party independent review.

The Committee agreed to hold further discussions on the issue of a performance review, with the view to determining the potential scope of such a review as allowed within a pre-determined budget.

COMMITTEE SHAREPOINT SITE

The Committee received a briefing from the Executive Secretary about the new SharePoint site for committee records management and meeting material distribution. This site will provide a single source of truth for members' reference and research, ensure daily backup for disaster recovery, and improve national access to committee records.

MEETINGS OF THE STANDING COMMITTEE ON SCIENTIFIC COOPERATION

The Commission authorized the CSC to work on environmental change and its ramifications for management and assessment of salmon stocks covered under the PST in 2020. This assignment grew, in part, out of entries in the October 2019, 2020, and 2021 Chinook Technical Committee (CTC) and Southern Panel's Work Plans that included actions for consideration by the CSC regarding this topic.

PROGRESS TO DATE

The CSC formulated a plan in September 2020 to begin addressing the topic above. The CSC, with guidance and approval from the Liaison Group, recommended that the first step in this process be to inventory, at a high-level, of the stock assessment and management frameworks in place for each chapter of the PST, and the general extent to which they meet treaty and management objectives. Since then, the CSC has worked to document the assessment and management frameworks of each chapter of the PST, using standardized templates, to determine how they consider environmental variability, changing survival, uncertainty, management risk/strategy and significant challenges facing them. The CSC drafted 10 templates covering all chapters of the PST, distributed them to the appropriate PSC Panel or Technical Committee through the Secretariat, with instructions and a timeline to correct anything portrayed incorrectly or missing. This was designed to reduce the workload on the PSC Panels and Technical Committees, and to have a reasonably consistent format for reading and reporting. To date the CSC has received eight returned templates (highlighted in bold in Table 1), which are nearly complete for publication. The remaining two are expected to be reviewed bilaterally during the final PSC review period and returned by March 31, 2023.

Template/inventory	**CSC leads**	**Status**
Chapter 1 – Taku TBR Chinook, sockeye, coho	Scott	Template reviewed by TC & P, final edits by CSC, provisional final draft completed.
Chapter 2 – Nass & Skeena River sockeye	Catherine, Scott	Template reviewed by TC & P, final edits by CSC, provisional final draft completed.
Chapter 3 – Chinook (all stocks & fisheries)	Scott, Diana, Brian	Template reviewed by TC & P, final edits by CSC, provisional final draft completed.
Chapter 4 – Fraser sockeye (all stocks & fisheries)	Catherine	Template reviewed by TC & P, final edits by CSC, provisional final draft completed.
Chapter 4 – Fraser pinks (all stocks & fisheries)	Catherine	Template reviewed by TC & P, final edits by CSC, provisional final draft completed.
Chapter 5 – Southern Coho (all stocks & fisheries)	Catherine	Template reviewed by TC & P, final edits by CSC, provisional final draft completed.
Chapter 1 – Alsek TBR Chinook, sockeye, coho	Scott	Anticipate receiving TC & P comments by March 31, 2023.
Chapter 1 – Stikine TBR Chinook, sockeye, coho	Scott	Template reviewed by TC & P, final edits by CSC, provisional final draft completed.
Chapter 6 – Southern Chum	Catherine	Anticipate receiving final TC & P comments by March 31, 2023.
Chapter 8 Yukon River (Chinook and Chum)	Brendan	Template reviewed by TC & P, final edits by CSC, provisional final draft completed

In 2021 the CSC also worked with the southern CoTC, Southern Panel and the PSC Secretariat to co-host a workshop titled “Introduction to using environmental indicators to inform salmon management”. This workshop was attended by approximately 155 PSC family members, a 51-page PSC report was produced, and a recording of the workshop is available on the PSC website.

The workshop highlighted that there is an urgent need to develop effective strategies across the PSC to address environmental change. Several recommendations were formulated from the workshop presentations and panel discussion, responses to a post-workshop questionnaire, and discussions within the Organizing Committee, including:

- Examine current practices (e.g., systematically evaluate if and how environmental indicators could be beneficial if included in the work of Technical Committees),
- Share information (e.g., coordinate information sharing on indicators and methods across the Committees and the broader PSC family),
- Build technical capacities (e.g., capacity-building workshops for Tech Committees including opportunities for incorporation of Indigenous Knowledge and ways of knowing), and
- Maintain momentum by hosting future workshops (e.g., in-depth methodologies for developing and using environmental indicators and broader, bigger picture topics for improved salmon assessment and management).

There was also broad consensus that Technical Committees and Panels should support the CSC as it synthesizes the extent to which current PSC assessment models and management frameworks are responsive to environmental change and develops recommendations and options for if and how PSC management approaches could be adapted to be more robust to it. The Southern Panel has hosted and developed a ‘PSC Seminar Series’ on these issues, held each month, in cooperation with the CSC and other interested PSC family members. The CSC co-chairs present the 10th installment of that series February 14, 2023, at the PSC’s Annual Meeting, covering the current project and report described above.

MEETINGS OF THE NORTHERN AND SOUTHERN FUND COMMITTEES

This section summarizes the meetings and business of the Northern and Southern Fund Committees between April 1, 2022, and March 31, 2023. A more detailed account of the meetings held in 2022 is provided in the 2022 Annual Report of the Endowment Fund Committees to the Commission, available for download from the PSC website. A more detailed account of the meetings held in 2023 will also be published in due course as part of the Committees’ 2023 report.

JOINT FUND COMMITTEE

The Northern and Southern Fund Committees have agreed that given the congruent nature of their agendas, their decision to combine the funds into a single master account for investment management purposes, and the efficiencies involved with respect to interaction with investment advisors and managers, it is appropriate to meet as a Joint Fund Committee to conduct investment related business.

The Joint Fund Committee met twice during the period covered by this report: once in May and once in November.

Joint Fund Committee meetings

The following information provides a summary of Joint Fund Committee (in this section, 'Committee') activities undertaken in this period.

On May 4, 2022, the Committee met to review investment performance and to conduct related business. Additional items discussed related to fund administration expenses in the prior fiscal year and approval of an administration budget for the coming fiscal year; establishment of a Finance Sub Committee; amendments to honoraria payment policy; developing bilaterally recognized standards for projects involving Genetic Stock Identification; a workplan for the Fund Manager; recruitment process for the Fund Manager position; and a review of Secretariat staff support over the prior year.

On November 16 and 17, 2022, the Committee met to review investment performance, to receive presentations from and interview investment managers (PH&N Institutional, IFM, and Axium Infrastructure), and to conduct related business. Additional items discussed related to communications opportunities; an update from the newly formed Finance Sub Committee; reviewing the PSC secretariat proposal to restructure administrative service costs; and items of mutual interest to both the Northen and Southern Fund Committees.

JOINT FUND COMMITTEE FINANCE SUB COMMITTEE

The Joint Fund Committee Finance Sub Committee was initiated at the spring 2022 Joint Fund Committee meeting as a venue to have more detailed discussion on annual financial statements and create administrative efficiencies in the Joint Fund Committee process.

The Finance Sub Committee met twice during this period.

Joint Fund Committee Finance Sub Committee meetings

The following information provides a summary of Finance Sub Committee (in this section, 'Sub Committee') activities undertaken in this period.

On October 25, 2022, the Sub Committee met to discuss; the results of the fiscal year 2021/22 audit of the Endowment Funds; the role of the Sub Committee; further review of the PSC secretariat proposal to restructure administrative costs; and review of the approach towards PSC secretariat short-term funding requests.

On March 29, 2023, the Sub Committee met to discuss; an investment manager invoicing error and procedures implemented to avoid future discrepancies; recommended modifications to an investment manager fee schedule; review the current year administration expenses; discuss an approach to the PSC secretariat proposal to restructure administrative costs; and selected a facilitator and strategist for the Joint Fund Committee Communications Strategy project.

NORTHERN FUND COMMITTEE MEETINGS

The Northern Fund Committee met three times during this period.

1. On May 3, 2022, the Committee met to develop a Call for Proposals for projects due to start in 2023. The Committee also formally adjusted their spending policy; and adopted an internal policy document detailing procedures regarding the consequences of overdue project reporting and restricting proponent submission of new projects where there are outstanding (overdue) reporting requirements.

2. On September 27 and 28, 2022, the Committee met to review project concepts submitted in response to the 2023 Call for Proposals. The Committee also discussed; overdue project reports and ways to address delinquent reporting; agreed on changes to the detailed proposal application form; and reviewed actual (vs. budgeted) expenditures on Northern Fund projects.
3. On February 20 and 21, 2023, the Committee met to make decisions about the projects to support in 2023. The Committee also discussed / reviewed the compliance of projects and their reporting requirements along with projects where proponents had self-identified reporting deadlines and implemented changes for 2023 contracts; updates on the communications strategy project; and plans for a field trip in 2023.

There was a change in the membership of the Northern Fund Committee in 2022. Mr. Andrew Gray was temporarily appointed to the US Section of the Committee on August 29, 2022, serving at the US Government representative until a permanent replacement for Mr. Doug Mecum is confirmed.

SOUTHERN FUND COMMITTEE MEETINGS

The Southern Fund Committee met five times during this period.

1. On May 5, 2022, the Committee met to develop a Call for Proposals for projects due to start in 2023. The Committee also formally adjusted their spending policy; received a report detailing outstanding project reports; and discussed possible field trips.
2. On July 18 and 19, 2022, five members of the Committee along with Fund staff, undertook a field trip to tour project sites on the Skagit River watershed in Washington State.
3. On September 7, 2022, the Committee met to review project concepts submitted in response to their 2023 Call for Proposals. The Committee also discussed their procedures for reviewing proposals and eligibility of proponents with overdue reporting; and agreed on minor changes to the detailed proposal application form and guidelines.
4. On November 15, 2022, the Committee met to receive an update on stage two detailed proposal submissions and next steps. The Committee also received an update from Southern Fund Finance Sub Committee members.
5. On February 23, 2023, the Committee met to select projects to support in 2023. The Committee also discussed, clarification of holdback payment to project proponents and updates on the communications strategy project.

Activities of the Panels

FRASER RIVER PANEL

At the January meeting the Panel received reports reviewing the 2022 fishing season, in particular the report drafted by PSC staff addressing Canada's request to review run size recommendations and fisheries proposals on August 18, 2022 and subsequent consequences. In addition to this report, an overview of the Mission program and estimates, Total Allowable Catch (TAC) calculations and allocation status, and test fishing program expenses and revenues were reviewed. Canada also presented an update on the Big Bar landslide as well as an overview on Fraser River spawning channels. At the February meeting the Panel received reports from Canada on 2022 escapements, and 2023 pre-season forecasts for Fraser River sockeye and pink salmon. Additional reports were provided regarding Washington sockeye and pink salmon pre-season forecasts and historical returns. The Panel also discussed test fishing options for 2023 and came to an agreement on the August 18, 2022 report recommendations provided at the January meeting.

NORTHERN PANEL

The bilateral Northern Panel met at the PSC Post Season meeting in Vancouver, BC on January 10-13, 2023, as well as at the PSC Annual Meeting in Portland, OR on February 14-17, 2023. During the January meeting, fishery managers from both parties presented information to the Panel on Northern Boundary Area fisheries for 2022 and discussed compliance with provisions of the PST Agreement.

The Panel reviewed and bilaterally agreed with the Northern Boundary Technical Committee's (NBTC) final 2021 sockeye salmon run reconstruction, final 2022 pink salmon run reconstruction, and the preliminary 2022 sockeye salmon run reconstruction. The NBTC presented the current status of allowable and actual harvests and cumulative allowable harvest sharing agreements of sockeye salmon, as specified in Annex IV, Chapter 2.

The panel received updates and status of the Nass and Skeena Sockeye Benchmark Analysis assignment, including the Canadian domestic consultation process which is ongoing. Some discussion on timelines for this project took place and it was decided to amend the current "prior to the 2023 season" due date for provision of Canada's recommendation regarding updated escapement goals to the US to a revised date of October 2023, to allow for adequate time for completion of the consultation process, as well as review by both the US Panel and independent reviewers prior to the January 2024 post season review meetings.

Lastly, as part of the new annex, the Panel had completed a mid-period review of Chapter 2 performance. The review had 3 objectives identified in the opening paragraph of Chapter 2:

1. Identify management actions taken to support the conservation of Nass River and Skeena River sockeye.
2. Evaluate the consistency of those actions with the obligations of the Chapter.
3. Outline the benefit of those actions for Nass and Skeena River sockeye.

Canada presented a summary of their performance review during the January session; after the session both countries were tasked with preparing and exchanging reviews of each other's reports for the February

meeting, and further to prepare a joint analysis of the reviews to identify areas of common opinion, areas of differing opinions, and areas for further technical work. The joint analysis was discussed and completed during the February session and presented to the bilateral Commissioners, where it was accepted.

SOUTHERN PANEL

During the period April 1, 2022, through March 31, 2023, the bilateral Southern Panel, Coho Technical Committee (CoTC) and Chum Technical Committee (ChumTC) conducted a combination of hybrid and in person meetings to accomplish work plan objectives.

The Chum bilateral Technical Committee met from May 9-12, 2022. They worked to finalize their 2019 annual report, define and develop components of the Southern Chum Strategic Plan, and review status of all Southern Endowment Fund projects.

The bilateral Coho Working Group (a subset of CoTC and Southern Panel members) met virtually from September 15-16, 2022 (half-day meetings each day) to discuss work planning and the latest updates on CoTC assignments. Agenda topics focused on: 1) Periodic Report status and coordination with other technical committees; 2) Environmental Change (seminar series, SEF proposals, responses to change and environmental condition updates; 3) SFEC-CoTC evaluation of FRAM (follow-up from SFEC Coho DIT report); and 4) FRAM and support systems (SEF project and management unit descriptions; 5) Pacific Salmon Strategy Initiative; 6) Workplan review; 7) Review priorities for CoTC.

From January 9-13, 2023, the bilateral Southern Panel met in Vancouver. The Panel received the following presentations: 1) Big Bar Progress Report; and 2) 2022 Ocean Conditions report about predicted effects of ocean indictors on Pacific Northwest salmon, presented by Laurie Weitkamp. Additionally, the Parties continued to make progress on developing a bilateral process per Chapter 5, paragraphs 11b and 11c, and made progress updating ten-year work plans for implementing Chapters 5 and 6 of the PST. The Environmental Change Seminar, focused on the topic of Salish Sea Marine Survival was convened by the CoTC and the Steering Committee, with the assistance of PSC staff.

The bilateral Southern Panel met in Portland from February 13-17, 2023. The Panel received Coho and Chum Technical Committee updates, including the Southern Endowment Fund priorities of those technical committees. The Southern Panel received a presentation on the migration to a new SharePoint site from John Son. CoTC provided its 2021 post-season coho assessment report to the Southern Panel, recommendations on priorities for the Southern Endowment Fund, and an update on the Periodic Report by Carrie Cook-Tabor. The Environmental Change Seminar, focused on the topic of Environmental Indicators with PST Framework was convened by the CoTC and the Steering Committee, with the assistance of PSC staff.

The bilateral Panel completed a process to provide guidance on how to implement paragraphs 11(b) and 11(c) within Chapter 5 (Coho) – in which a requesting party could, in exceptional circumstances, request a decrease (11b) or increase (11c) in exploitation rate caps for the receiving party’s consideration. This process was approved by the bilateral southern panel and received approval from the Commissioners. In addition, the bilateral Panel continued planning for a review of the Southern Coho agreement, per Chapter 5, Paragraph 12. The Panel advanced plans for the mid-March information exchange.

On March 13, 2023, the U.S. and Canadian chairs, alternate chairs, as well as a subset of Coho and Chum Technical Committee representatives met virtually for the annual manager-to-manager preseason

information exchange meeting. The Parties exchanged preseason stock forecasts with status designations, as well as preliminary fishery plans.

TRANSBOUNDARY PANEL

The Transboundary Panel (Panel), supported by Transboundary Technical Committee (TTC) and Enhancement Sub-Committee (TESC) representatives met bilaterally during the 2022 Post-Season (January 10-12) and the 2023 Annual (February 14-16) meetings of the Pacific Salmon Commission.

January Meeting Session: The Panel received post-season reporting on 2022 Transboundary Stikine, Taku, and Alsek Rivers salmon runs including: catch from terminal marine and in-river fisheries, escapements, results of enhancement projects, and results of stock assessment projects. As required in Chapter 1 (Paragraph 4), 2022 U.S. and Canadian fishery management measures and associated catch were evaluated to confirm if escapement goals were achieved, and harvest shares not exceeded. The lower end of the escapement goal range was not achieved for Taku and Stikine River Chinook salmon for the sixth consecutive year and management actions to conserve these stocks will continue to be required by the Parties in 2023. With the exception of U.S. harvest of Taku River coho salmon, all U.S. and Canadian Transboundary fishery catch was maintained within PST harvest share allocations during the 2022 season; no resultant corrective management action are required in accordance with Paragraph 4. The Panel received presentations from the TESC on egg takes and fry stocking levels completed as part of the joint Stikine and Taku sockeye enhancement programs (SEPP and TEPP) in 2022 with the results of the Final 2020 SEPP approved by the Panel. The TESC also presented proposed 2022 Stikine and Taku enhancement production plans, with the Panel requesting presentation of additional details on proposed Stikine (Tahltan Lake) and Taku (Tatsamenie Lake) enhancement projects at the February 2023 Transboundary Panel meeting session. Finally, the Panel received a presentation on the status of the TTC Stikine River Sockeye salmon escapement goal review analysis which confirmed that final recommendations from the TTC would be presented to the Panel at the February 2023 Transboundary Panel meeting session. The Panel received updates on Alsek Chinook and sockeye salmon and Stikine coho salmon assessment projects. Finally, the Panel received a presentation on results of the initial Stikine sockeye salmon escapement goal review.

February Meeting Session: The Panel initiated the annual meeting session with a presentation from the TTC on recommended spawning escapement goals and management objectives for Stikine River sockeye salmon (Tahltan Lake and Mainstem stocks). The Panel received bilateral forecasts for Stikine and Taku Chinook, sockeye and coho salmon stocks, and Canadian forecasts for Alsek Chinook and sockeye salmon stocks, proposed bilateral assessment fisheries (no mortality-based assessment fisheries were recommended for 2023) as well as fishery management measures and strategies proposed by the Parties for the 2023 season (which included strategies intended to conserve Taku and Stikine River Chinook salmon in order to achieve escapement objectives). The Panel was also provided presentations from the TESC on Stikine Enhancement Production Plan and Taku Enhancement Production Plans proposed for 2022. Following incorporation of amendments at the request of the Panel, the 2023 Stikine and Taku Enhancement Productions Plans were recommended by Panel Co-Chairs for implementation. The Panel also received presentations on Northern Fund project proposals under consideration for 2023 and progress on Chapter 1 Transboundary Rivers Implementation Plan activities. The Panel developed a bilateral recommendation for presentation to PSC Commissioners regarding implementation of new escapement goals for Stikine River sockeye salmon. The Panel tasked the TTC to undertake an evaluation of the Stikine River Chinook salmon escapement goal (recommendations to be presented to the Panel by December 2025) as well as reviewing and updating the

Taku River sockeye salmon escapement goal analysis with returns through the 2023 season (recommendations to be presented to the Panel by January 2024). Finally, the U.S. notified the Transboundary Panel of a recent U.S. Department of Interior Federal Subsistence Board decision to rescind the closure of subsistence fisheries on the Taku River. Canada conveyed the expectation that this new fishery would be administered in accordance with existing Chapter 1 arrangements while the Panel requested that the U.S. provide a presentation on the administrative and management elements of this new fishery at the 2023 Post-Season meeting.

Review of 2022 Fisheries and Treaty-Related Performance

FRASER RIVER SOCKEYE SALMON

The data presented in the following paragraphs are accurate as at the time of publication. For updates and access to the data, please see our FRP Annual Report App (FRP Data (shinyapps.io)). The following paragraphs describe the planning of the 2022 season and the Panel management actions:

Pre-season Planning

1. Pre-season, the median run size forecast (p50 level) was 9,775,000 Fraser River sockeye salmon and according to the quantitative forecast there was a one in two chance that the run size would be between 4,662,000 and 20,395,000.
2. Pre-season expectations of migration conditions included a 48% diversion rate for Fraser River sockeye through Johnstone Strait. The Panel adopted the following Area 20 50% migration dates: July 4 for Early Stuart, August 6 for Early Summer, August 10 for Summer, and August 18 for Late-run sockeye.
3. At median (p50) forecast abundance levels, pre-season spawning escapement goals were 105,000 Early Stuart, 789,600 Early Summer, 2,201,300 Summer and 1,844,000 Late-run sockeye for a total of 4,939,900 sockeye salmon. These goals were established by applying Canada's Spawning Escapement Plan to the median forecasted run sizes for each management group.
4. Following past remediation work, Big Bar was still expected to negatively impact the upstream migration of Early Stuart and Early Summer run sockeye. In 2022, the plan was to provide continued fish "trap and transport", enhancement and monitoring operations in case migration was impeded.
5. Management Adjustments (MAs) of 105,000 Early Stuart, 465,900 Early Summer, 88,100 Summer-run and 405,700 Late-run sockeye were added to the spawning escapement targets to increase the likelihood of achieving the targets. Although a MA was adopted for Early Stuart, the spawning escapement target (SET) was its entire run size at the median forecast abundance level.
6. In some years, pre-season MA estimates for some management groups have been estimated based on the weighted average of component abundances and their respective percent difference between estimates (%DBEs). Given the relatively low abundance forecasts for Pitt and Chilliwack fish in the Early Summer-run aggregate, Harrison fish in the Summer-run aggregate and Birkenhead fish in the Late-run aggregate, the weighted pDBE approach had almost no impact on the aggregate for these three run timing groups. As a result, the Panel agreed to forego the weighted pDBE approach for these three run timing groups for 2022.
7. Based on the median forecasted abundances and agreed deductions, there was a projected Total Allowable Catch (TAC) of 3,401,100 Fraser River sockeye salmon of which 16.5% (560,700) was allocated to the U.S.

8. Constraints on both Early Summer and Late-run management groups were expected to prevent either country from reaching their TAC limit. There were also concerns raised regarding the amount of incidental harvest of Early Summer sockeye based on the pre-season fishing plan.

9. The Panel adopted the 2022 Management Plan Principles and Constraints and Regulations, and 2022 regulations.

In-season Management Considerations

10. The in-season marine migration timing was later than pre-season expectations for Early Stuart (2 days later) and Summer run (5 days later) and earlier than expected for Early Summer (7 days earlier) and Late run (2 days earlier) sockeye.

11. The overall Johnstone Strait diversion rate for Fraser River sockeye was 34% compared to the pre-season forecast of 48%.

12. With the exception of Early Stuart, returns for Fraser sockeye salmon were below the median pre-season forecasts: Early Stuart run: 119% above median forecast, Early Summer run: 62% below median forecast, Summer run: 14% below median forecast, Late run: 42% below median forecast. The number of returning Early Stuart sockeye was above the p75 run size forecast, and for Early Summer run it was between the p10 and p25 forecast. For Summer and Late run groups, the number of returning sockeye were between the p25 and p50 run size forecasts.

13. Early in the season, high discharge caused migration challenges within the Lower Fraser River for Early Stuart and early arriving Early Summer run sockeye. Discharge levels decreased fairly quickly in early July and at Big Bar, there were no obvious impediments during the migration of later timed Early Summer and Summer-run sockeye salmon.

14. Fraser River temperatures were below historical average in July and through mid-August and then exceeded the maximum temperature in late August when they negatively impacted the survival of Summer run sockeye.

Run Size, Catch, and Escapement

15. Returns of adult Fraser sockeye totaled 6,932,900 fish which was 36% less than the total return of 10,864,000 fish in the primary brood year (2018). This is the lowest return on this cycle line since 1970. Divided into management groups, adult returns totaled 244,200 Early Stuart, 706,300 Early Summer-run, 3,857,800 Summer-run and 2,124,600 Late-run sockeye.

16. Despite the better than expected return for Early Stuart, it was still managed using a low abundance exploitation rate (LAER) of 10%, as was the Early Summer run at 20%. Summer and Late run returns were less abundant than forecast and to account for the in-season migration conditions and ensure spawning escapement targets would be met, the Panel adopted a larger Management Adjustment for the Summer run in-season.

17. Catches of Fraser River sockeye salmon in all fisheries totaled 1,522,200 fish, including 1,128,800 fish caught by Canada, 352,300 fish caught by the U.S. (Washington) and 41,100 fish caught by test fisheries. The Canadian catch was a mix of commercial, 231,100, First Nations Catch, 873,400, and non-commercial catch, 25,400, which included 8,300 ‘other’ catch (unauthorized directed retention or unauthorized bycatch retention in fisheries direct at other species). In Washington, commercial catches totaled 341,300 Fraser sockeye, mostly caught in Treaty Indian fisheries (265,800). The

preliminary catch for the Alaska District 104 fishery is 73,000 fish. The overall harvest rate (excluding Alaska catch) was 22% of the run.

18. DFO's near-final estimates of spawning escapements to streams in the Fraser River watershed totaled 3,480,300 adult sockeye and were below the cycle line averages for Early Stuart and Late run but above the cycle line averages for Early Summer and Summer run. The total escapement was 15% less than the brood year escapement of 4,100,200 adults. There were 1,704,200 effective female spawners in the Fraser watershed, representing an overall spawning success of 93%.

Achievement of Objectives

19. 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.

20. Management decisions are based on spawning escapement targets, which are represented in-season by potential spawning escapement targets (i.e., spawning escapement targets plus MAs). In-season estimates of potential escapement (i.e., Mission escapement minus all catch above Mission) were 18% below target across all Fraser sockeye stocks, 2% and 12% below target for Early Stuart and Early Summer run sockeye, respectively, and 31% and 14% over target for Summer and Late run, respectively.

21. Post-season estimates of spawner abundance totaled 3,480,300 adults which is 3% below the post season target. Across management groups, the extent potential escapement targets were met varied considerably: Early Stuart sockeye (87% under), Early Summer-run (45% over), Summer-run (3% over) and Late-run sockeye (16% under). The exploitation rate for Early Stuart and Early Summer run management groups was 2% and 12%, respectively, which was less than the LAER.

22. There was International TAC (Total Allowable Catch) of Fraser sockeye, based on the calculation method set out in Annex IV, Chapter 4 of the Pacific Salmon Treaty. The Washington catch of 326,500 Fraser sockeye mostly occurred between August 18 and August 22 when there was still uncertainty associated with Summer and Late-run run size estimates. Canada opposed the U.S. fishery opening during this time period. The total Canadian catch of 1,128,800 Fraser sockeye was a combination of commercial, First Nations and non-commercial catch and was 55% of the Canadian share of TAC + AFE. In these calculations, the TAC is based on the TAC on the date of the last in-season Panel meeting (September 28, 2022), while catches are post-season estimates.

23. In terms of domestic U.S. allocation objectives for Fraser sockeye, U.S. Tribal fishers were 55,800 fish above their share whereas All Citizen fishers were 30,000 below their share of the U.S. TAC.

24. There was a by-catch of 240 non-Fraser sockeye salmon and 100 non-Fraser pink salmon in commercial net fisheries regulated by the Fraser River Panel. Catches of other Fraser and non-Fraser salmon species included 8,110 Chinook, 1,230 coho, and 140 chum.

Allocation Status

25. As the U.S. payback of 470 Fraser River sockeye accrued during the 2019 pink directed fisheries was considered paid back, and no additional payback was accrued in 2022, there was no payback of Fraser River sockeye to be carried forward to 2023.

Post-season Review

26. On August 18, 2022, the United States prosecuted a sockeye fishery that Canada objected to under the provisions of Annex IV, Chapter 4, paragraph 13(d)(iii).

27. Pursuant to the same paragraph, the United States provided a rationale for the fishery via correspondence to the Panel's Canadian vice-chair on August 19, 2022.

28. On October 14, 2022, Canada corresponded with the Executive Secretary requesting an objective report on the circumstances of the fishery and its consequences pursuant to Chapter 4, paragraph 13(e).

29. A report prepared by PSC staff was submitted to the Panel December 2022 and reviewed at the PSC January post-season meeting. The report contained 13 recommendations to be considered by the Fraser River Panel.

30. The response of the Panel provided the perspective of both countries as well as a bilateral response to the recommendations.

2022 POST-SEASON REPORT UNITED STATES SALMON FISHERIES OF RELEVANCE TO THE PACIFIC SALMON TREATY

PRELIMINARY 2022 SOUTHEAST ALASKA FISHERIES

INTRODUCTION

This report describes the conduct of Alaska fisheries of interest to the Pacific Salmon Commission (PSC) that occurred during 2022 in the area south and east of Cape Suckling, Alaska and north of the U.S./Canada border. These fisheries were conducted under preseason management plans that were consistent with Annex IV of the 2019 Pacific Salmon Treaty (PST) Agreement, including obligations defined within Chapter 3 for Chinook salmon aggregate abundance-based management regimes (AABM). Preliminary data suggest that the harvests of sockeye salmon in Alaska will be below annual allowable harvests in the District 101 drift gillnet, District 104 purse seine, Stikine River, and Taku River fisheries. For Chinook salmon, all fisheries were managed conservatively and monitored closely inseason to avoid exceeding the preseason catch limit defined in the 2019 PST Agreement. The 2022 all-gear Treaty harvest of 238,600 was below the CPUE-based catch limit of 266,600. The 2022 Treaty incidental mortality for Southeast Alaska Chinook salmon AABM fishery is 43,437, which is below the 59,400 limit. Thus, all PST obligations for Southeast Alaska salmon fisheries were met for 2022.

NORTHERN BOUNDARY AREA FISHERIES

DISTRICT 104 PURSE SEINE FISHERY

The 2019 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 salmon prior to ADF&G statistical week 31 (referred to as the Treaty period). The AAH is calculated as the total combined run of Nass and Skeena sockeye salmon minus either the escapement requirement of 1.1 million (200,000 Nass River and 900,000 Skeena River) or the actual in-river escapement, whichever is less.

The District 104 purse seine fishery opens by regulation on the first Sunday in July. In 2022, the first potential opening was July 3 (week 28). The pre-week 31 fishing plan for District 104 was based on preseason DFO forecast runs of approximately 2.69 million Nass and Skeena sockeye salmon. In the 2022 Treaty period (Alaska statistical weeks 28–30), 49,025 sockeye salmon were harvested during one 8-hour opening in week 28, 12-hour and 15-hour openings in week 29, and two 15-hour openings in week 30 (Table 1). A total of 31 purse seine vessels fished at some time in the district during the Treaty period. The preliminary 2022 estimate of the number of Nass and Skeena sockeye salmon harvested during the Treaty period in District 104 was 34,658 fish.

In 2022, a total of 2,525,681 pink salmon, 476,385 sockeye salmon, 338,050 chum salmon, 64,381 coho salmon, and 12,981 Chinook salmon were harvested in the District 104 purse seine fishery (Table 1). The number of days that the fishery was open was slightly below average and the number of boats fishing was 44% of the 1985–2021 average (Figure 1 and 2). Purse seine fisheries were permitted to retain Chinook salmon from week 31 throughout the remainder of the salmon season. During this opening, non-retention of Chinook remained in effect in the inside waters of southern southeast, which included Districts 101, 102,

110, 112, 113, and 114. Sockeye salmon harvests were below average through week 31, well above average in week 32, and variable in the final three weeks of the fishery (Figure 4). The Treaty period (week 28–30) harvest of 49,025 fish was 55% of the long-term average (1985–2021). The total sockeye salmon harvest of 476,385 fish was 107% of the long-term average of 445,000 fish. Harvests of coho salmon were below average throughout the season (Figure 5) and the overall harvest of 64,381 coho salmon was 60% of average. The overall pink salmon harvest of 2,525,681 fish was 33% of average (Figure 6) and the chum salmon harvest of 338,050 fish was 120% of average (Figure 7).

Since the PST was signed in 1985, the number of hours open, boats fished, and boat-days fished in the pre-week 31 Treaty period in District 104 are down 58%, 64% and 86% respectively compared to averages in the pre-Treaty 1980–1984 period (Table 2). The total pre-week 31 Treaty-period sockeye salmon harvest is also down 52%. The purse seine fleet moves freely between districts as various species are harvested, so seining opportunities elsewhere affect the effort and harvest in District 104.

Table 1. Weekly salmon harvest and fishing effort in the Alaska District 104 purse seine fishery, 2022.

Week/ Opening	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
28	3-Jul	-	716	182	734	2,154	4	8
29	10-Jul	-	1,765	299	3,462	11,217	18	12
29B	14-Jul	-	13,732	2,975	31,749	27,474	19	15
30	17-Jul	-	6,116	1,674	32,831	20,165	23	15
30B	21-Jul	20	26,696	3,086	226,673	30,535	15	15
31	24-Jul	444	20,307	3,527	148,599	33,097	21	15
31B	28-Jul	778	28,207	4,831	167,884	30,411	35	15
32	31-Jul	1,906	110,481	7,134	408,985	45,731	33	39
32B	4-Aug	6,767	110,178	13,964	682,543	70,673	51	39
33	8-Aug	9	69,434	9,344	339,864	33,633	50	39
33B	12-Aug	1,598	16,009	5,656	227,105	17,017	45	39
34	20-Aug	701	27,371	5,382	161,040	8,661	22	39
35	24-Aug	758	45,373	6,327	94,212	7,282	25	39
							Permits Fished	
Weeks 28-30		20	49,025	8,216	295,449	91,545	31	65
Weeks 31-35		12,961	427,360	56,165	2,230,232	246,505	70	264
Total		12,981	476,385	64,381	2,525,681	338,050	72	329

Table 2. Fishing opportunity, effort, and sockeye salmon harvest prior to week 31 in the Alaska District 104 purse seine fishery.

Year	Hours Fished	Individual Permits Fished	Days Fished (1d=15hrs)	Approximate Boat-Days	Sockeye Harvest	Sockeye Catch per Boat-Day
2022	65	31	4.3	93	49,025	527
Avg. 80–84	139	225	9	1,487	187,647	136
Avg. 85–20	59	81	4	212	89,372	482
% Change	-58%	-64%	-58%	-86%	-52%	255%

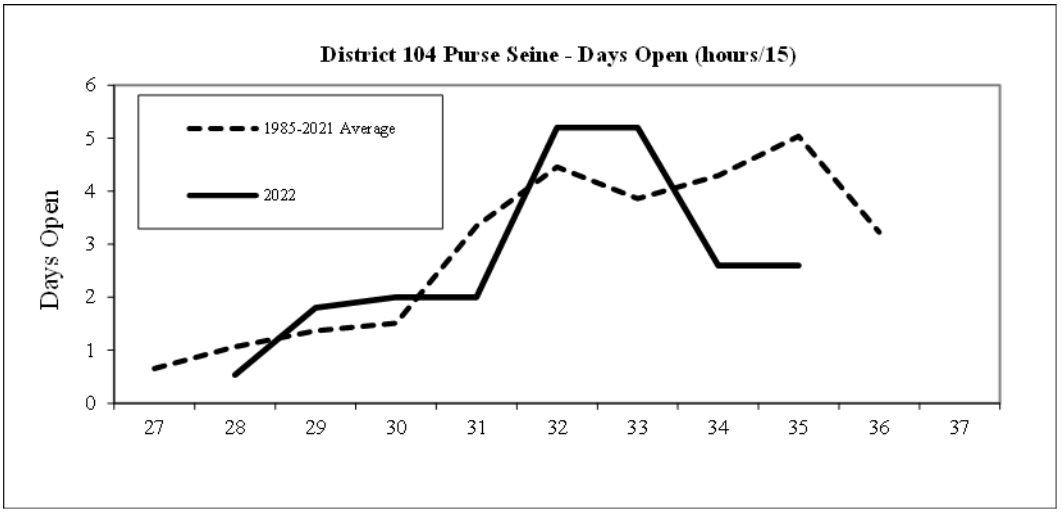


Figure 1. Days open by week in the District 104 purse seine fishery, 2022.

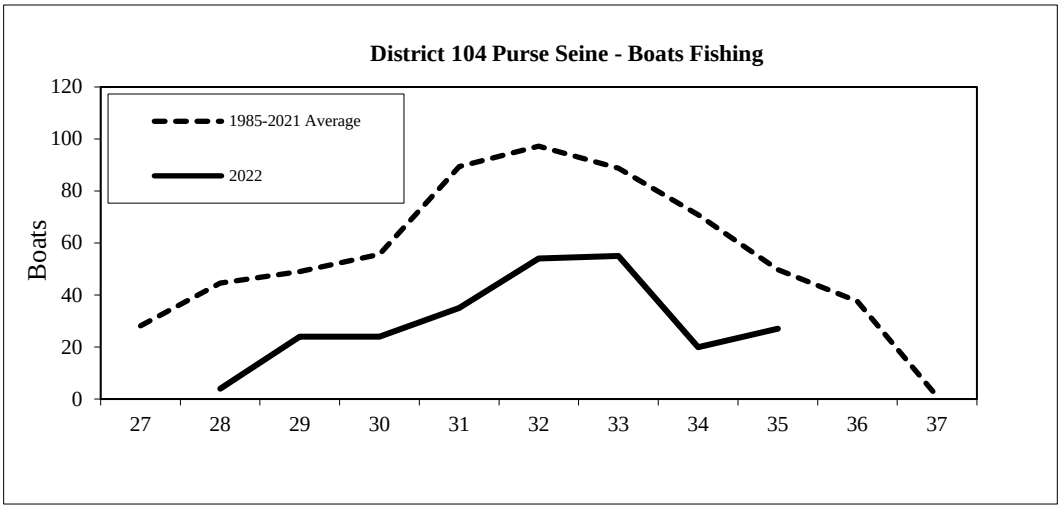


Figure 2. Number of boats fishing by week in the District 104 purse seine fishery, 2022.

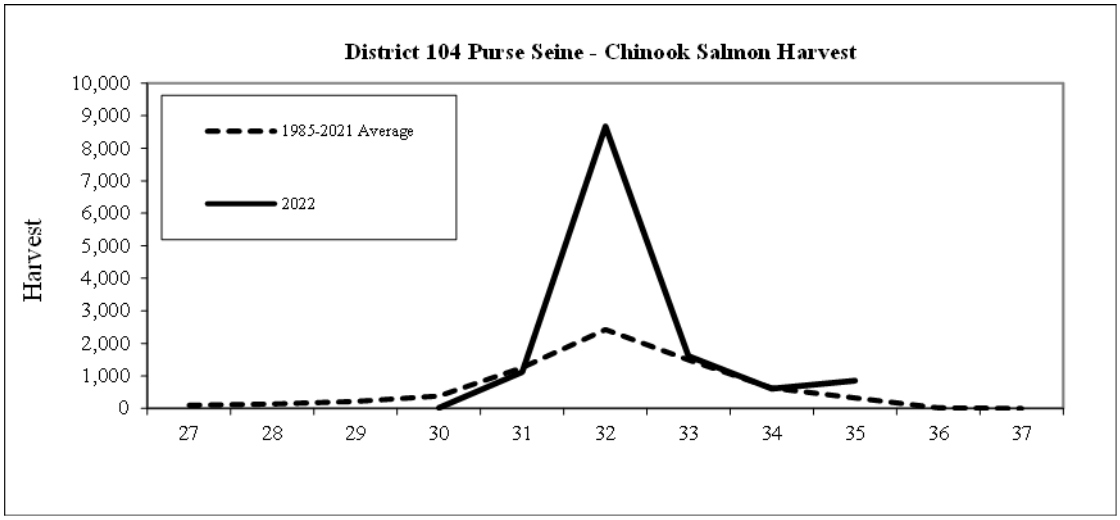


Figure 3. Chinook salmon harvest by week in the District 104 purse seine fishery, 2022.

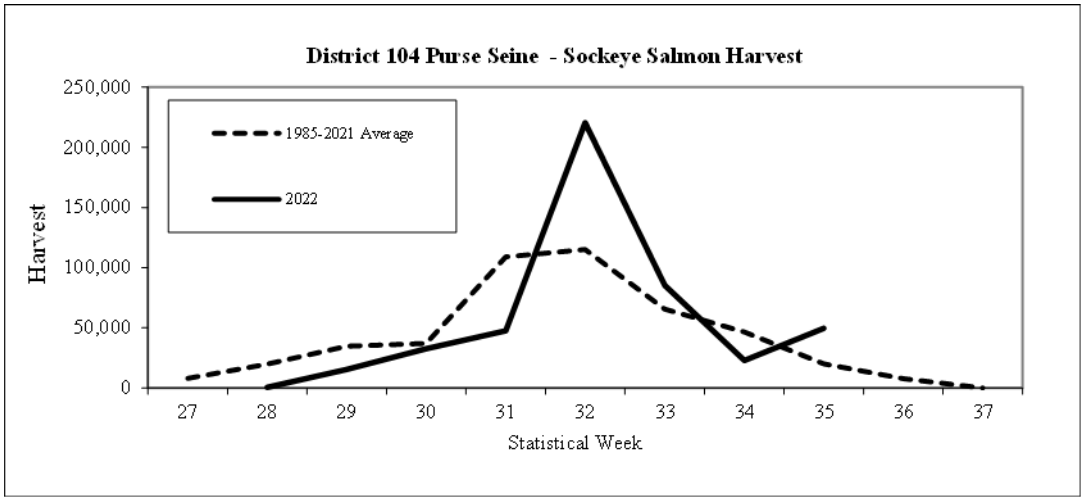


Figure 4. Sockeye salmon harvest by week in the District 104 purse seine fishery, 2022.

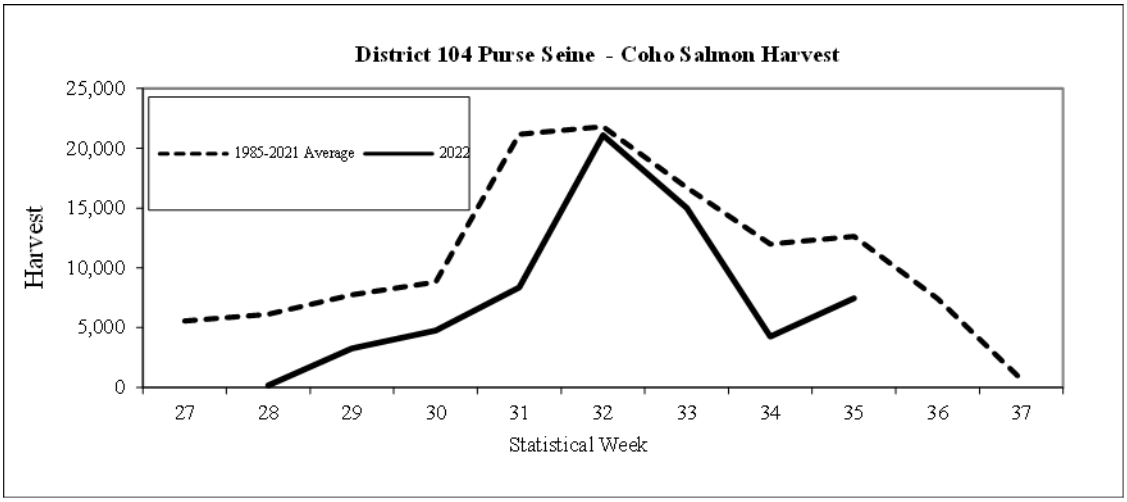


Figure 5. Coho salmon harvest by week in the District 104 purse seine fishery, 2022.

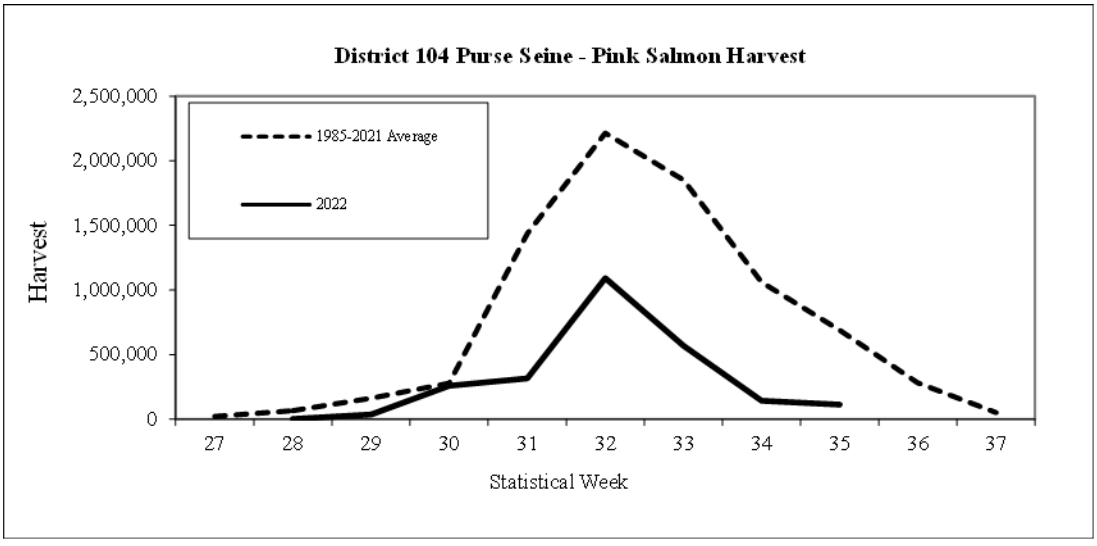


Figure 6. Pink salmon harvest by week in the District 104 purse seine fishery, 2022.

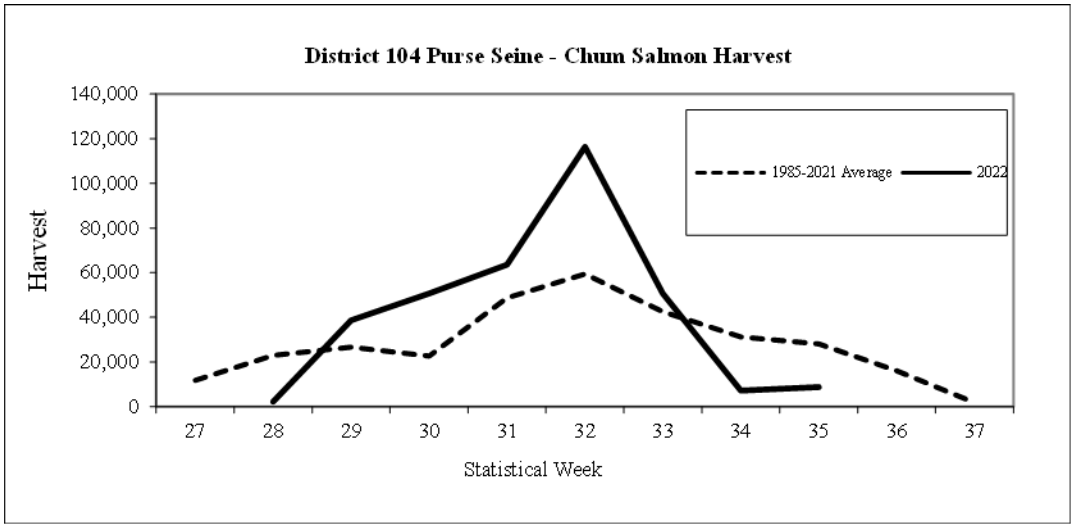


Figure 7. Chum salmon harvest by week in the District 104 purse seine fishery, 2022.

DISTRICT 101 DRIFT GILLNET FISHERY

The 2019 PST Agreement calls for abundance-based management of the District 101 (Tree Point) drift gillnet fishery. The agreement specifies that the U.S. manage for a harvest of 13.8% of the AAH of the Nass River sockeye salmon run. The AAH is calculated as the total run of Nass River sockeye salmon minus either the escapement requirement of 200,000 fish or the actual in-river escapement, whichever is less. The run of Nass River sockeye salmon was forecasted at 560,000 fish in 2022 which, minus an escapement goal of 200,000 fish, would result in an AAH of about 360,000 fish. Using this forecast, the 2022 allowable harvest in the District 101 drift gillnet fishery was approximately 50,000 Nass River sockeye salmon.

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June, which was June 19 (week 26) in 2022. 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 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 (PSMP) begins the third Sunday in July and sets drift gillnet fishing time in this district in relation to the District 101 purse seine fishing time. Beginning in week 37 (September 4) management was based on the strength of wild stock coho salmon.

The number of days the fishery opened was near or above average most of the season (Figure 8), but the number of boats fishing during weekly openings was below average throughout the season (Figure 9). The total number of individual boats fishing during the season was 51, which was approximately 51% of the long-term (1985–2021) average of 101 boats. A total of 26,553 sockeye salmon were harvested, which was just 26% of the 1985–2021 average of 104,067 fish (Table 3). Harvests of sockeye salmon were well below average throughout the season (Figure 10). The cumulative sockeye salmon harvest prior to the initiation of the PSMP in week 30 was 16,475 fish, or about 62% of the season's total sockeye salmon harvest. The preliminary estimate of the number of Nass River sockeye salmon harvested at Tree Point for the 2022 season was 18,392 fish.

Coho salmon harvests were below average throughout the season and the total harvest of 27,424 fish was 58% of average (Table 3; Figure 11). Pink salmon harvests were below average most of the season, and the total harvest of 381,706 fish was 82% of average (Figure 12). Chum salmon harvests were below average in the first three weeks of the fishery, but were above average from weeks 29 to 34; the total harvest of

332,128 fish was 116% of average (Figure 13). Chinook salmon harvests were above average in most weeks of the season (Figure 14).

Table 3. Weekly salmon harvest and fishing effort in the Alaska District 101 commercial drift gillnet fishery, 2022.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
26	6/19	360	2,688	32	158	1,661	22	96
27	6/26	528	3,356	122	2,891	10,010	33	96
28	7/3	446	4,720	139	11,152	39,360	39	96
29	7/10	153	5,711	356	29,268	59,902	40	96
30	7/17	142	4,645	559	51,185	63,836	44	96
31	7/24	188	1,742	1,467	74,834	46,150	48	96
32	7/31	40	1,174	1,484	107,492	33,620	40	120
33	8/7	12	1,057	1,280	47,239	24,616	35	120
34	8/14	4	758	2,598	29,673	15,162	28	120
35	8/21	2	468	2,394	21,392	11,452	30	120
36	8/28	1	127	2,735	5,378	9,531	26	96
37	9/4	2	71	4,001	976	9,796	27	96
38	9/11	0	27	3,686	65	4,322	28	96
39	9/18	3	9	5,933	3	2,646	17	96
40	9/25	0	0	638	0	64	2	96
Total		1,881	26,553	27,424	381,706	332,128	51	1,536
1985-2021 Avg.		1,500	104,067	47,285	464,766	287,262	102	1,371

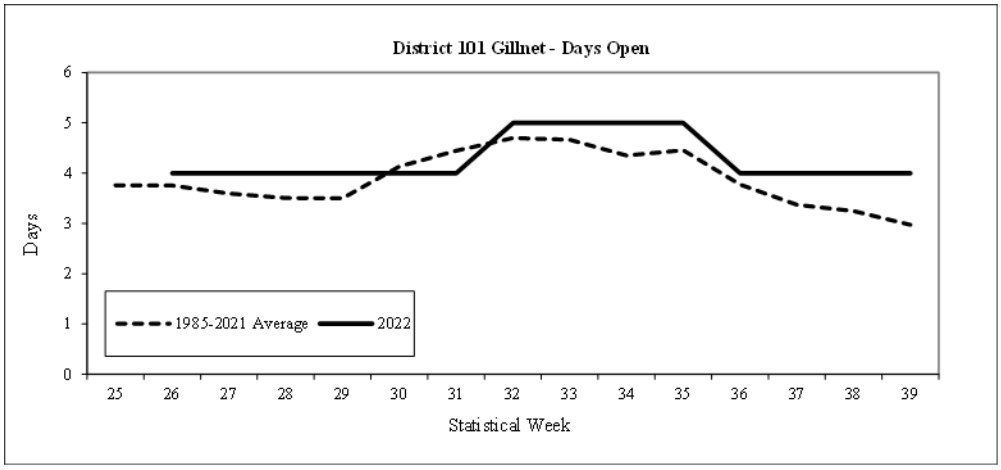


Figure 8. Days open by week in the District 101 drift gillnet fishery, 2022.

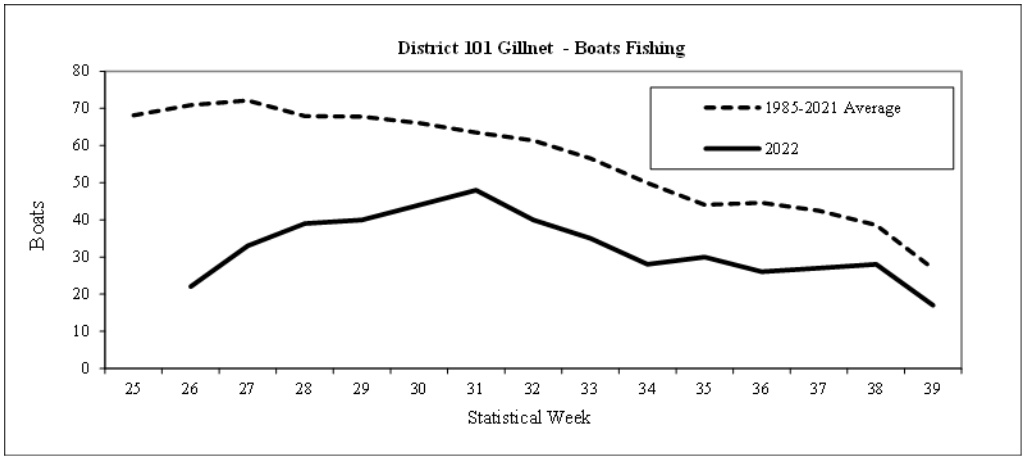


Figure 9. Number of boats fishing by week in the District 101 drift gillnet fishery, 2022.

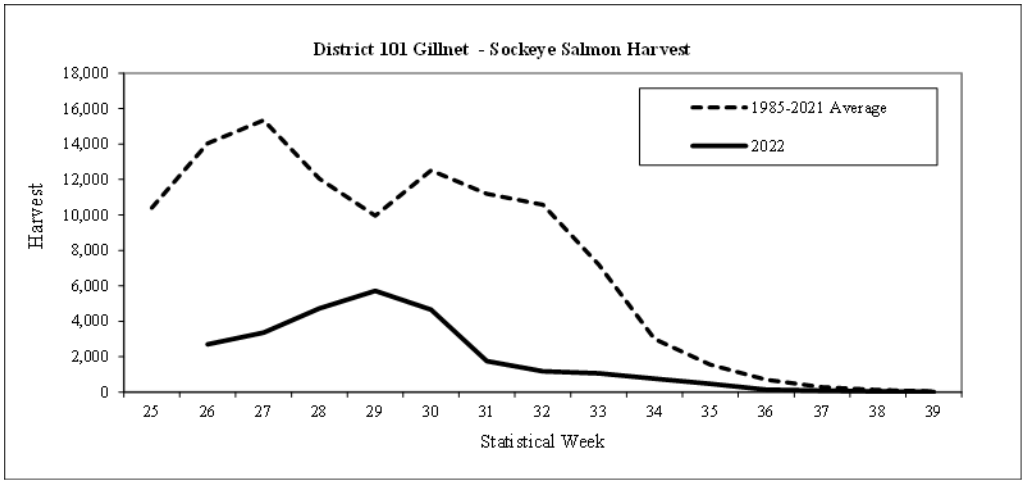


Figure 10. Sockeye salmon harvest by week in the District 101 drift gillnet fishery, 2022.

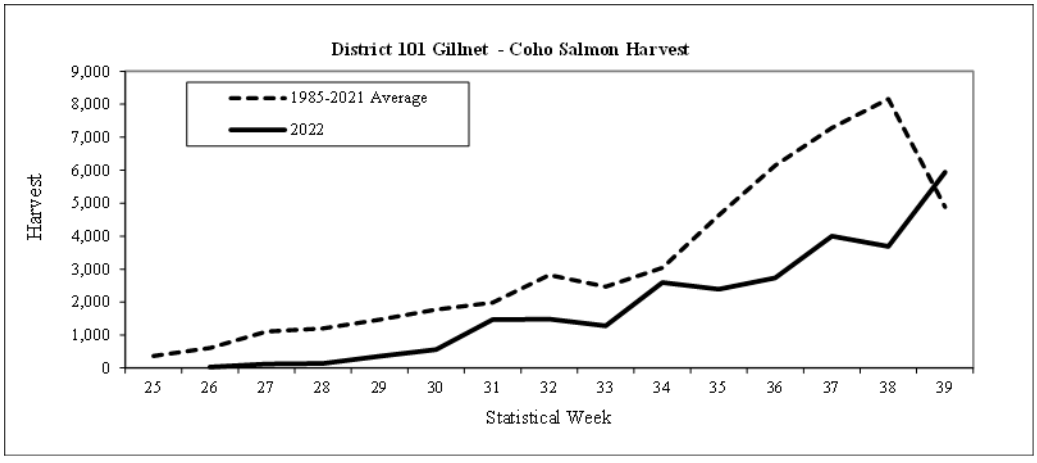


Figure 11. Coho salmon harvest by week in the District 101 drift gillnet fishery, 2022.

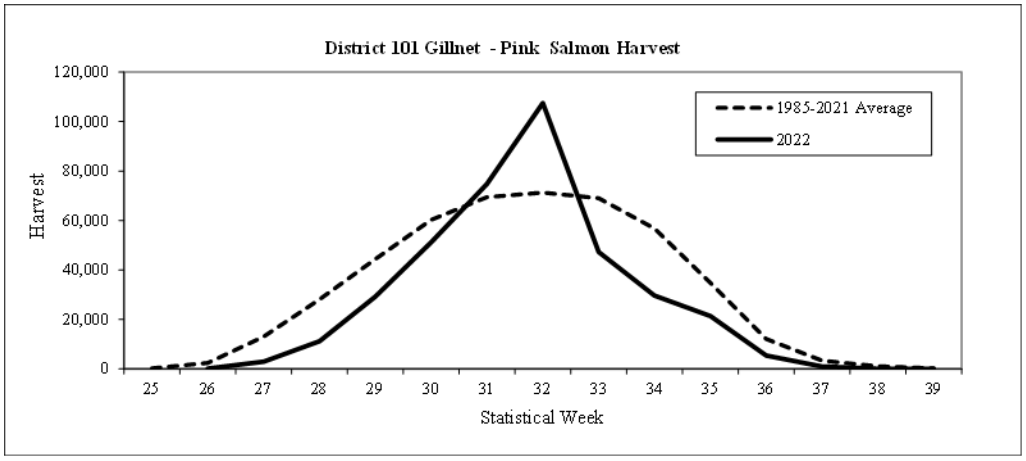


Figure 12. Pink salmon harvest by week in the District 101 drift gillnet fishery, 2022.

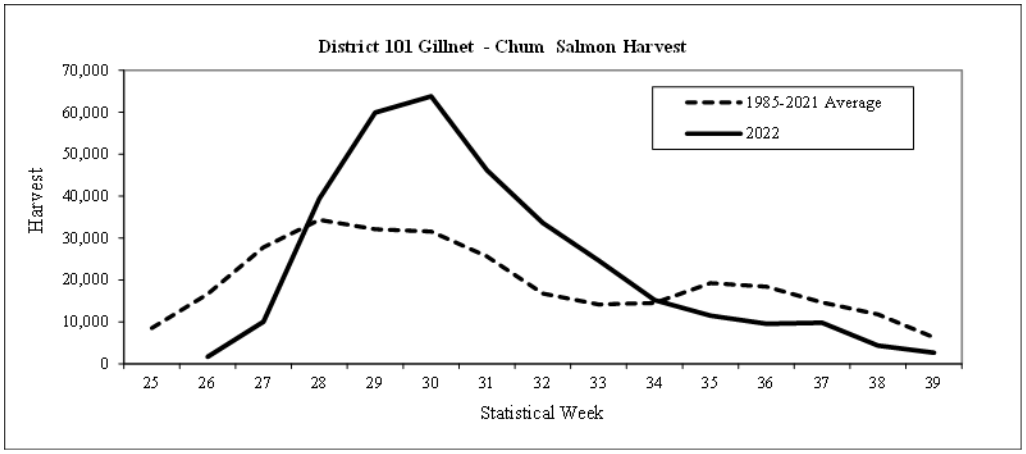


Figure 13. Chum salmon harvest by week in the District 101 drift gillnet fishery, 2022.

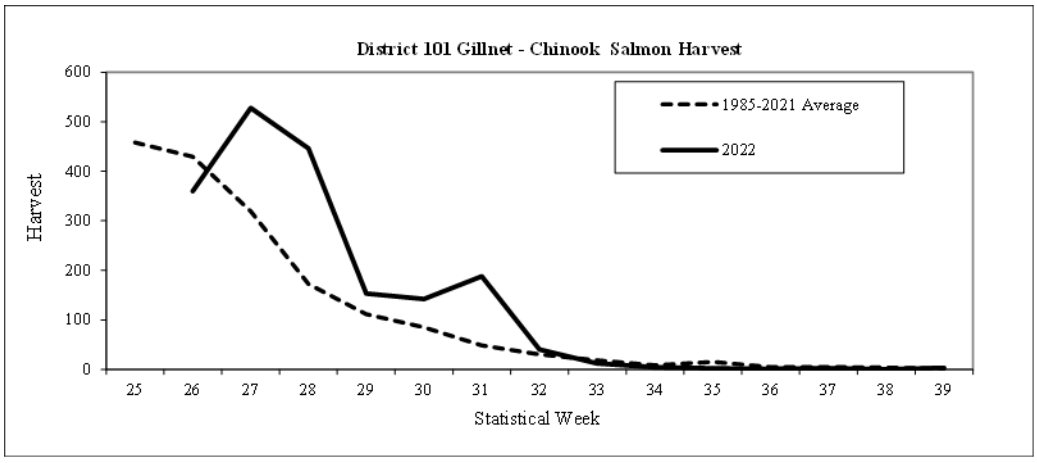


Figure 14. Chinook salmon harvest by week in the District 101 drift gillnet fishery, 2022.

PINK, SOCKEYE, AND CHUM SALMON ESCAPEMENTS

Escapements of pink salmon were average in southern Southeast Alaska (SEAK) and variable and generally below average in northern SEAK. The total 2022 SEAK pink salmon escapement index of 10.03 million fish ranked 30th since 1960. Biological escapement goals were met in the Southern Southeast, Northern Southeast Inside, and Northern Southeast Outside subregions (Table 4). On a finer scale, escapements were within or above management targets for 13 of 15 districts in the region and for 33 of the 46 pink salmon stock groups in SEAK. The Southern Southeast Subregion includes all of the area from Sumner Strait south to Dixon Entrance (Districts 101–108). The escapement index value of 5.80 million was within the escapement goal range of 3.0 to 8.0 million index fish.

Table 1. Southeast Alaska 2022 pink salmon escapement indices and biological escapement goals by subregion (in millions).

Subregion	2022 Pink Salmon Index	Biological Escapement Goal	
		Lower Bound	Upper Bound
Southern Southeast	5.80	3.00	8.00
Northern Southeast Inside	3.15	2.50	6.00
Northern Southeast Outside	1.09	0.75	2.50
Total	10.03		

Sockeye salmon escapement levels throughout SEAK generally met goals in 2022, and lower bounds of escapement goal ranges were achieved for 10 of the 12 sockeye salmon systems with formal escapement goals. The Hugh Smith Lake adult sockeye salmon escapement was 1,657 fish, which was well below the optimal escapement goal range of 8,000 to 18,000 adult sockeye salmon. Based on the expanded peak foot survey count, the escapement of sockeye salmon into McDonald Lake was 34,100 fish, which was below the sustainable escapement goal range of 55,000 to 120,000 fish.

Chum salmon populations in Southeast Alaska are divided into two runs based on migration timing: summer-run fish peak during the period mid-July to mid-August and fall-run fish peak in September or later. For summer-run chum salmon, lower bound sustainable escapement goals were achieved for two of the three subregions in SEAK. The Southern Southeast summer-run chum salmon stock group is composed of an aggregate of 15 summer-run chum salmon streams on the inner islands and mainland of southern SEAK, from Sumner Strait south to Dixon Entrance, with a sustainable escapement goal of 62,000 index spawners (based on the aggregate peak survey to all 15 streams). Summer chum salmon escapements were above average at many index streams in southern SEAK, and the index of 136,000 fish in 2022 easily met the escapement goal (Figure 15).

Cholmondeley Sound is the only area in southern SEAK 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 42,000 fish was near the upper end of the sustainable escapement goal range of 30,000 to 48,000 index spawners (based on the aggregate peak survey to both streams; Figure 16).

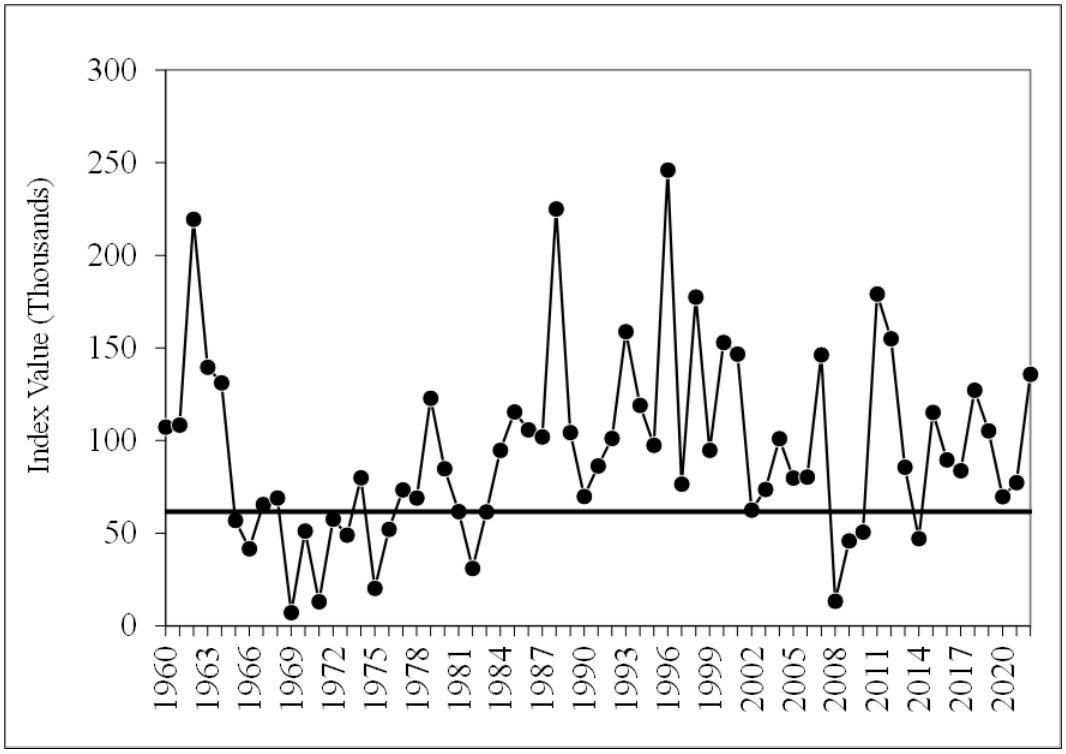


Figure 15. Observed escapement index value by year (solid circles) and the sustainable escapement goal threshold of 62,000 index spawners (horizontal line) for wild summer-run chum salmon in the Southern Southeast Subregion, 1960–2022.

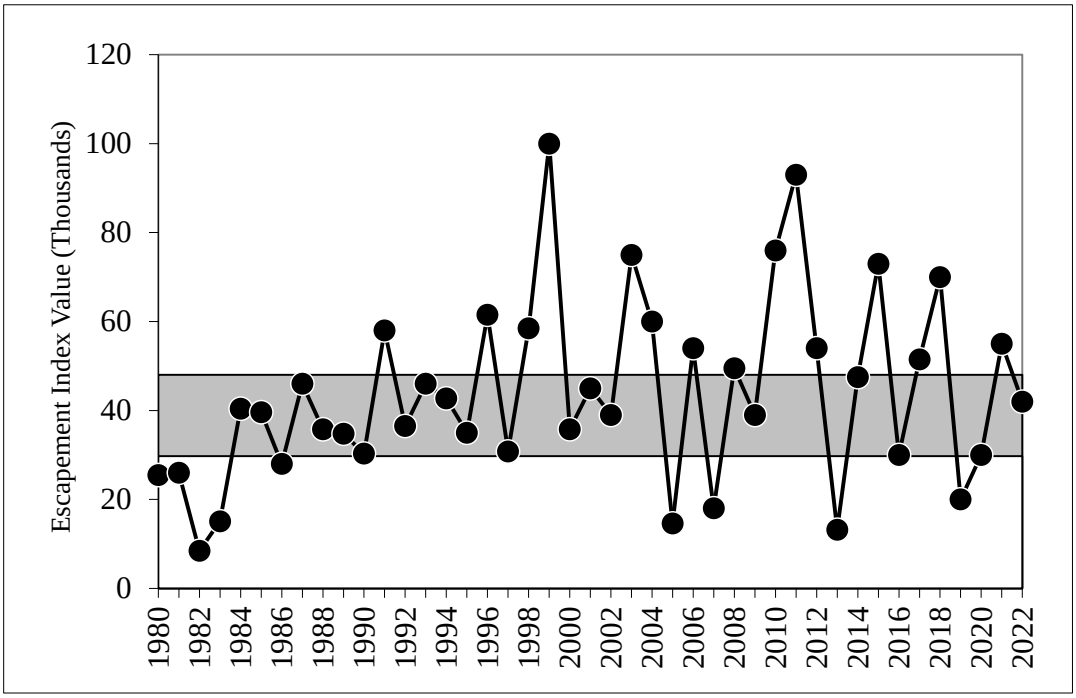


Figure 16. Observed escapement index value by year (solid circles) and the sustainable escapement goal range of 30,000 to 48,000 index spawners (shaded area) for Cholmondeley Sound fall-run chum salmon, 1980–2022.

TRANSBOUNDARY AREA FISHERIES

STIKINE RIVER AREA FISHERIES

The 2022 preseason forecast for large Chinook salmon (≥660 mm mid eye to tail fork length) returning to the Stikine River was approximately 7,400 fish, which did not allow for directed Chinook salmon fisheries in District 108. The standard mark-recapture program was not operated this year due to the low forecasted run and the desire by both countries to reduce mortality associated with the program. The preliminary escapement estimate of Stikine River large Chinook salmon is 9,090 fish, which is below the lower end of the goal range of 14,000 to 28,000 fish.

The 2022 preseason forecast for sockeye salmon returning to the Stikine River was 63,000 fish, which was below the 2012–2021 average of approximately 100,000 fish. The 2022 forecast included approximately 12,000 wild Tahltan (19%), 30,000 enhanced Tahltan (48%), and 21,000 mainstem (33%) sockeye salmon. During the first half of the sockeye salmon management period, fishing periods in District 108, and to a lesser extent in District 106, were determined by the inseason abundance estimate of the Tahltan Lake run. Management actions during the second half of the sockeye salmon fishery became focused on the mainstem component of the Stikine River run in District 108, while returns to local area systems were the focus in District 106. Typically, Tahltan Lake sockeye salmon stocks exhibit peak run timing in District 106 and 108 fisheries during statistical week 26 (June 19–June 25). During an average Tahltan Lake run, significant numbers of sockeye salmon could be present as early as statistical week 24 (June 5–11) and as late as statistical week 31 (July 24–30). The 2022 runs of local area sockeye salmon stocks were generally improved over 2021.

Due to the poor performance of SEAK Chinook salmon stocks, restrictions were implemented in District 106 and 108 drift gillnet fisheries. In District 106, the initial opening was delayed by one week until week 26 (June 19) and a 6-inch maximum mesh restriction was in place for the first three openings. The initial opening in District 108 was delayed until week 27 and the District 108 spring troll hatchery access fishery was closed for 2022. Commercial trolling remained closed to Chinook salmon retention in District 108 until the second opening of the summer troll fishery. Therefore, no Stikine River origin Chinook were harvested in the troll fishery during the reporting period. The District 108 sport fishery was closed to retention of Chinook between April 1 through July 14. The only sport harvest of Chinook in District 108 within the reporting period occurred within the last two days of statistical week 29 (July 15-16) or within the City Creek release site which provides opportunity for Alaska hatchery-produced Chinook after June 14. The genetic-based District 108 sport harvest estimate was 7 Stikine River large Chinook salmon during the accounting period. The U.S. harvest of Stikine River large Chinook salmon in all District 108 fisheries was estimated to be 62 fish (31 in the commercial gillnet fishery, 7 from the sport fishery and 24 from the Federal subsistence fishery); well below the U.S. base level catch (BLC) of 3,400 fish.

The District 106 drift gillnet sockeye salmon fishery opened Sunday, June 19 (week 26) and the District 108 drift gillnet fishery first opened Sunday, June 26 (week 27). Considering the forecast predicted a Tahltan run above the escapement goal range, managers focused on inseason indicators to assess how the run was progressing in relation to the forecast. In week 26, District 106 was opened for two days with effort in the district about half of the 2012–2021 average (22 vs 41 permits). Harvest was about 2,000 sockeye salmon compared to the 2012–2021 average of approximately 3,000 fish. In week 27, both districts were originally opened for two days with District 108 being restricted to subdistrict 108-30 (the upper part of Sumner Strait). Surveys of fishermen on the grounds indicated above average catch rates from below average participation, particularly in District 106 along the western coast of Zarembo Island, so both

districts were extended for 24 hours. In week 28, both districts were originally opened for two days and subsequently extended for 24–hours based again on higher–than–average catch rates with below average effort. Mesh remained restricted to 6–inch or less in both districts and District 108 was allowed a slight increase in area with a small portion of subdistrict 108-60 being opened (upper Frederick Sound) in addition to subdistrict 108-30. Effort in subdistrict 108-30 was 10 permits in week 27 and 5 in week 28, with 3 permits migrating to subdistrict 108-60. Because historic run timing suggests the bulk of the Tahltan stocks pass through the district by week 28, District 108 was closed weeks 29–31 for the conservation of Stikine Mainstem sockeye stocks. Mesh restrictions were in place through week 28 in District 106, but were lifted for week 29. Area restrictions continued to be in place for District 108 once it reopened in week 32. Open time in District 106 also experienced weekly reductions and was limited to two days per week in weeks 29 through 31 for McDonald Lake sockeye salmon conservation (Tables 5 and 6). The preliminary postseason assessment for Stikine River sockeye salmon was not available at the time of this report.

Districts 106 and 108 were managed based on pink salmon abundance during the month of August, and in late August management focus switched to coho salmon. The number of boats participating in the District 106 fishery was near average from mid-July through mid-August (Figure 18). Participation dropped in late August and the seasonal number of permits fished was 86% of average (Table 5). The number of boats participating in the District 108 fishery was near average from July through late September (Figure 25). The 76 permits fished was 70% of the average of 108 permits (Figure 25; Table 7).

During the 2022 season, 86,448 pink salmon, 45,437 sockeye salmon, 173,048 chum salmon, 50,901 coho salmon, and 800 Chinook salmon were harvested in the District 106 drift gillnet fishery (Table 5). Chinook salmon harvests were below average in most weeks from late June through mid-September (Figure 19); the harvest was comprised of 33% Alaska hatchery origin fish. Sockeye salmon harvests were variable throughout the season (Figure 20), and the total sockeye salmon harvest of 45,437 fish was 84% of the 2012–2021 average; the number estimated to be of Stikine River origin was not available at the time of this report. Harvests of coho salmon were below average in most weeks of the season and the overall harvest of 50,901 coho salmon was 45% of the 2012–2021 average of 114,276 fish (Figure 21). Pink salmon harvests were also below average throughout the season (Figure 22), and the overall harvest of 86,448 fish was only 28% of the 2012–2021 average. Chum salmon harvests were below average early in the season and increased to above average from mid-July to mid-August. The overall harvest of 173,048 chum salmon was 118% of average (Figure 23).

During the 2022 season, 11,708 pink salmon, 5,668 sockeye salmon, 73,453 chum salmon, 14,146 coho salmon, and 481 Chinook salmon were harvested in the District 108 drift gillnet fishery (Table 6). Due to the late start of the fishery few Chinook salmon were harvested (Figure 26). An estimated 62 Stikine River large Chinook salmon were harvested in District 108 by commercial drift gillnet, subsistence, and sport fisheries. Due to low effort and large area restrictions, District 108 gillnet sockeye salmon harvests were below average in weeks 27 and 28, mostly because of low effort and area restrictions, before closing in weeks 29–31. The total harvest of 5,668 fish was only 31% of the 2012–2021 average (Figure 27). The number of sockeye salmon estimated to be Stikine River origin was not available at the time of this report. The overall coho salmon harvest of 14,146 fish was 67% of the 2012–2021 average of 21,126 fish (Table 6, Figure 28). The pink salmon harvest was 35% of the 2012–2021 average (Figure 29). Chum salmon harvests were well above average in weeks 32 to 34, but the overall harvest of 73,453 fish was 58% of the recent 10-year average (Figure 30).

Table 5. Weekly salmon harvest and fishing effort in the Alaskan District 106 commercial drift gillnet fisheries, 2022.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
26	19-Jun	59	2,067	50	21	3,244	22	2	44
27	26-Jun	159	8,792	381	575	8,889	43	3	129
28	3-Jul	263	8,441	1,230	1,438	14,938	52	3	156
29	10-Jul	61	4,517	792	2,215	17,181	45	2	90
30	17-Jul	27	3,108	638	7,682	26,643	46	2	92
31	24-Jul	52	4,985	924	18,315	40,038	57	2	114
32	31-Jul	74	5,807	1,364	21,962	24,020	65	2	130
33	7-Aug	26	5,463	4,175	21,426	19,878	65	3	195
34	14-Aug	6	1,416	3,620	5,632	4,707	37	3	111
35	21-Aug	6	440	4,278	4,574	2,340	41	3	123
36	28-Aug	1	267	5,658	2,126	3,087	42	3	126
37	4-Sep	14	121	5,738	470	3,646	48	3	144
38	11-Sep	12	8	7,493	11	2,314	38	3	114
39	18-Sep	40	5	13,313	1	1,906	33	3	99
40	25-Sep	0	0	1,247	0	217	8	4	32
Total		800	45,437	50,901	86,448	173,048	118	41	1,699
2012-2021 Average		1,895	53,883	114,276	296,159	147,179	138	46	2,454
2022 as % of Average		42%	84%	45%	29%	118%	86%	89%	69%

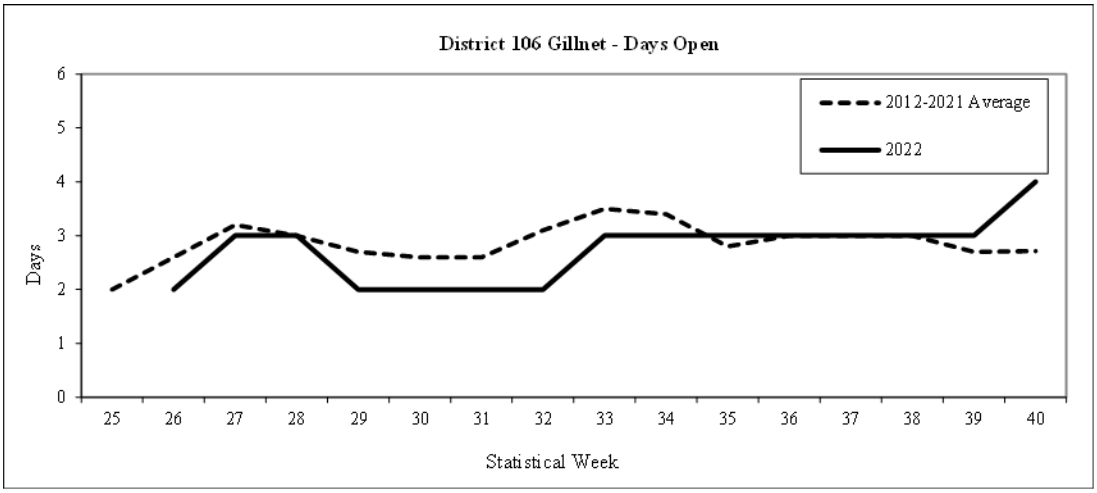


Figure 17. Days open by week in the District 106 drift gillnet fishery, 2022.

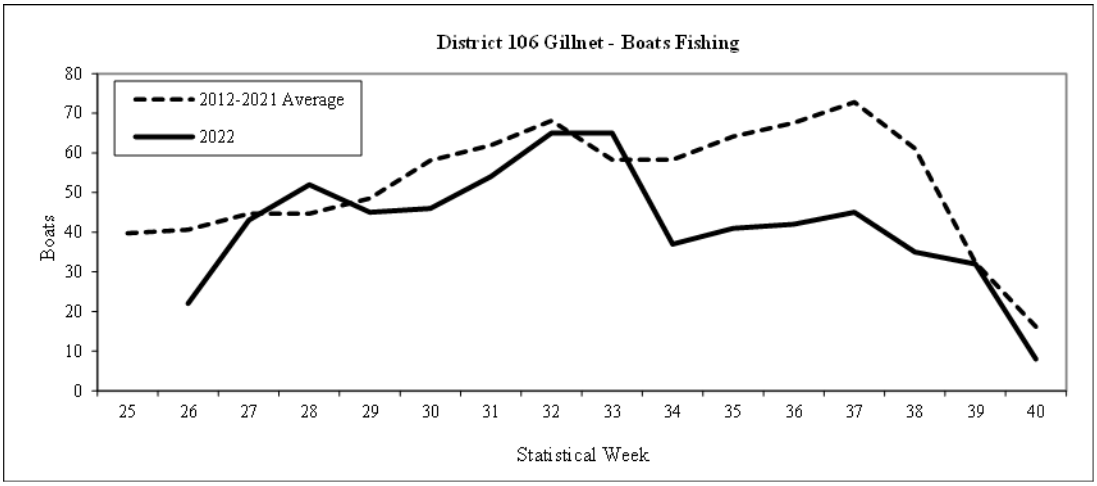


Figure 18. Number of boats fishing by week in the District 106 drift gillnet fishery, 2022.

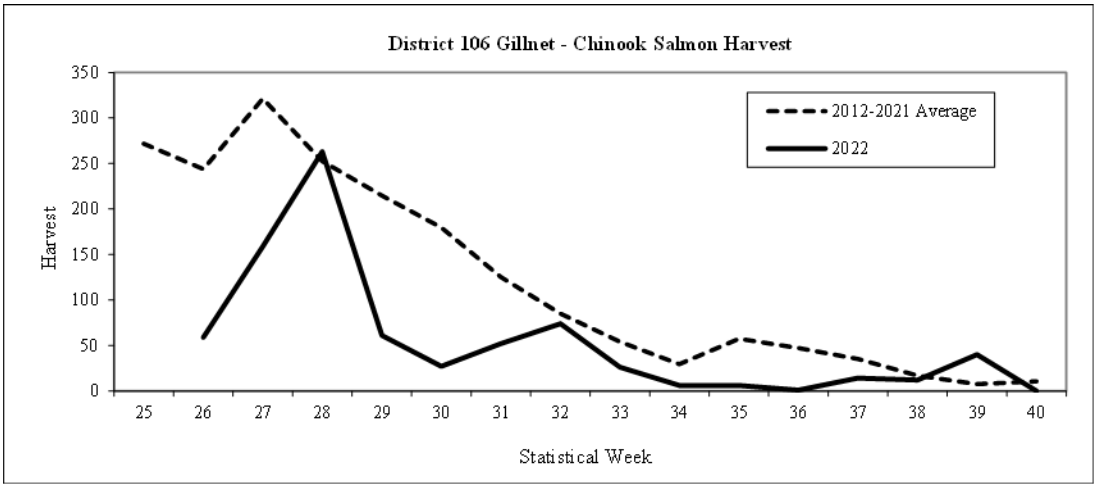


Figure 19. Chinook salmon harvest by week in the District 106 drift gillnet fishery, 2022.

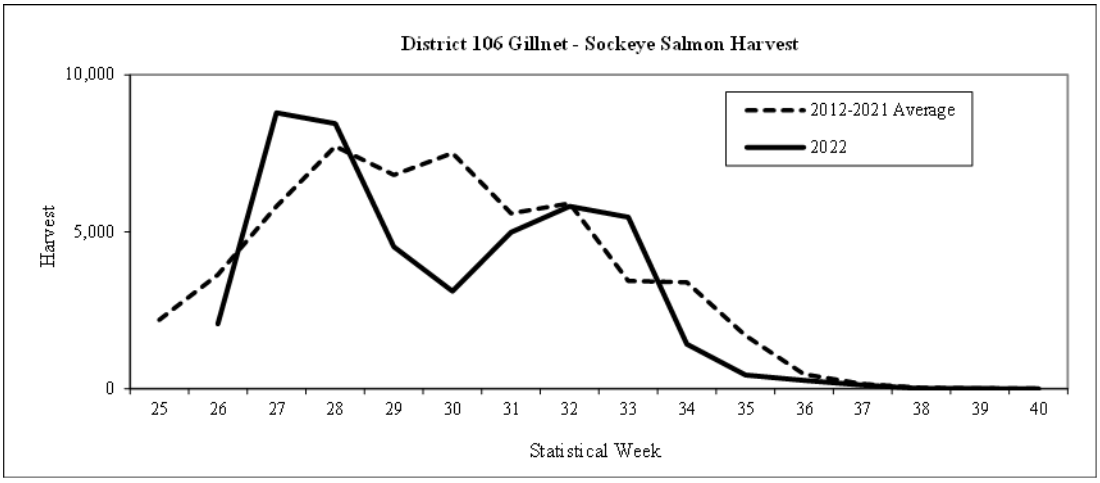


Figure 20. Sockeye salmon harvest by week in the District 106 drift gillnet fishery, 2022.

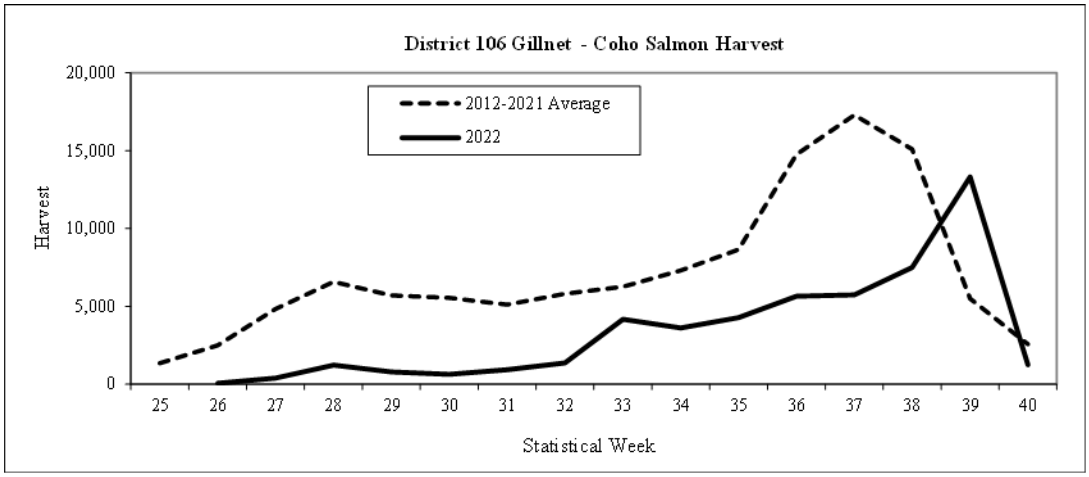


Figure 21. Coho salmon harvest by week in the District 106 drift gillnet fishery, 2022.

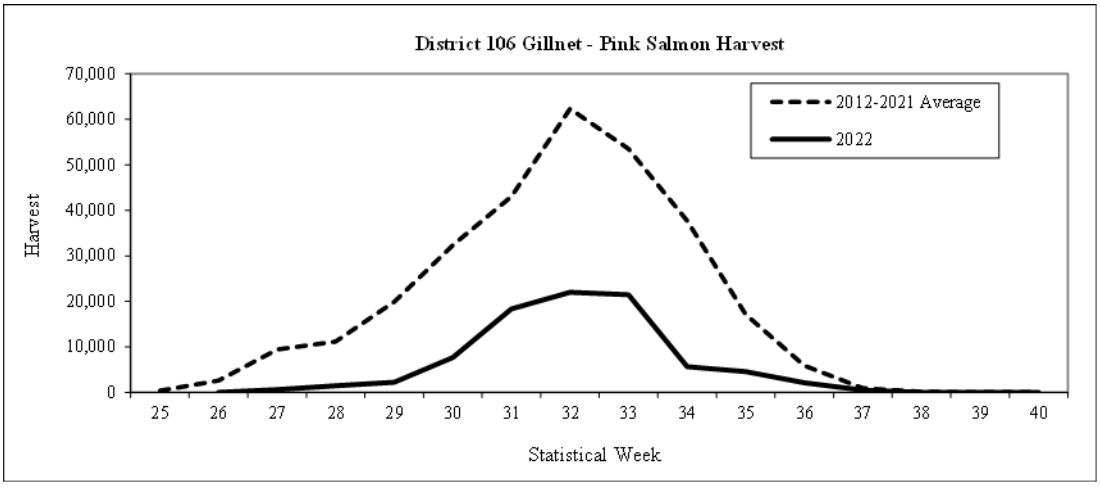


Figure 22. Pink salmon harvest by week in the District 106 drift gillnet fishery, 2022.

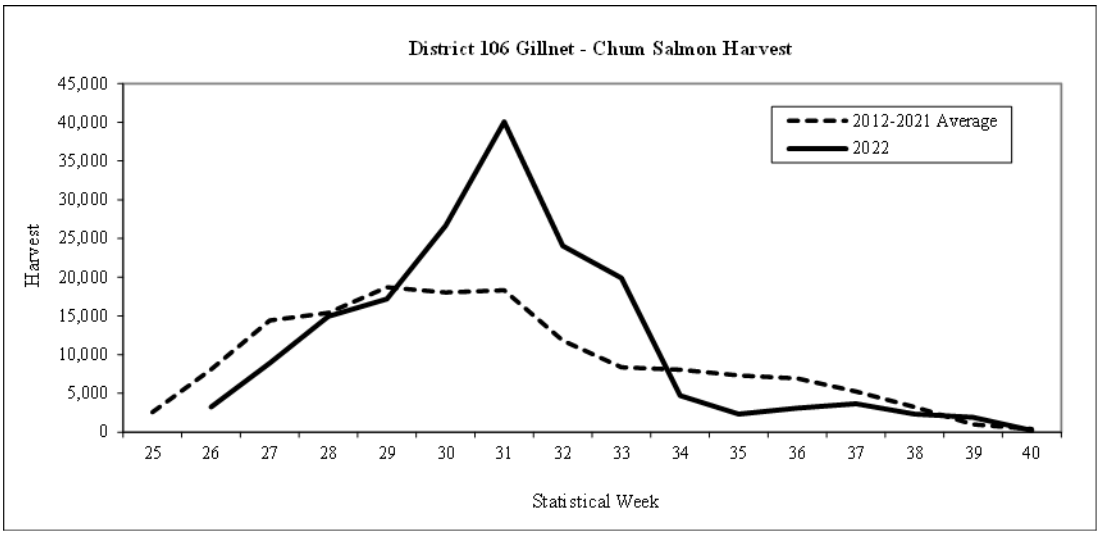


Figure 23. Chum salmon harvest by week in the District 106 drift gillnet fishery, 2022.

Table 6. Weekly salmon harvest and fishing effort in the Alaskan District 108 commercial drift gillnet fishery, 2022.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
27	26-Jun	146	3,317	94	62	730	10	3	36
28	3-Jul	185	1,295	43	75	1,167	8	3	24
29	Closed	–	–	–	–	–	–	–	–
30	Closed	–	–	–	–	–	–	–	–
31	Closed	–	–	–	–	–	–	–	–
32	31-Jul	71	404	171	2,703	38,235	40	2	86
33	7-Aug	30	539	732	6,439	21,464	39	3	117
34	14-Aug	8	82	969	1,901	8,933	30	3	90
35	21-Aug	14	25	1,948	397	1,805	22	3	63
36	28-Aug	12	4	2,054	90	386	25	3	75
37	4-Sep	9	2	2,242	40	368	23	3	69
38	11-Sep	5	0	2,652	1	147	18	3	54
39	18-Sep	1	0	2,032	0	72	10	3	27
40	25-Sep	0	0	1,209	0	146	9	3	12
Total		481	5,668	14,146	11,708	73,453	76	32	653
2012-2021 Average		6,417	18,565	21,126	33,124	125,968	108	45	1,459
2021 as % of Average		7%	31%	67%	35%	58%	70%	71%	45%

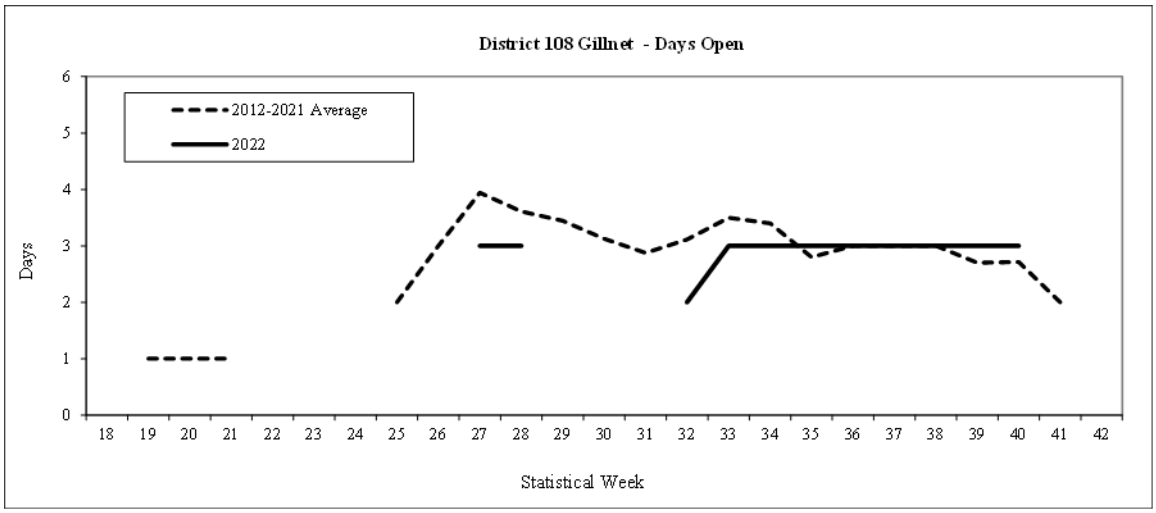


Figure 24. Days open by week in the District 108 drift gillnet fishery, 2022.

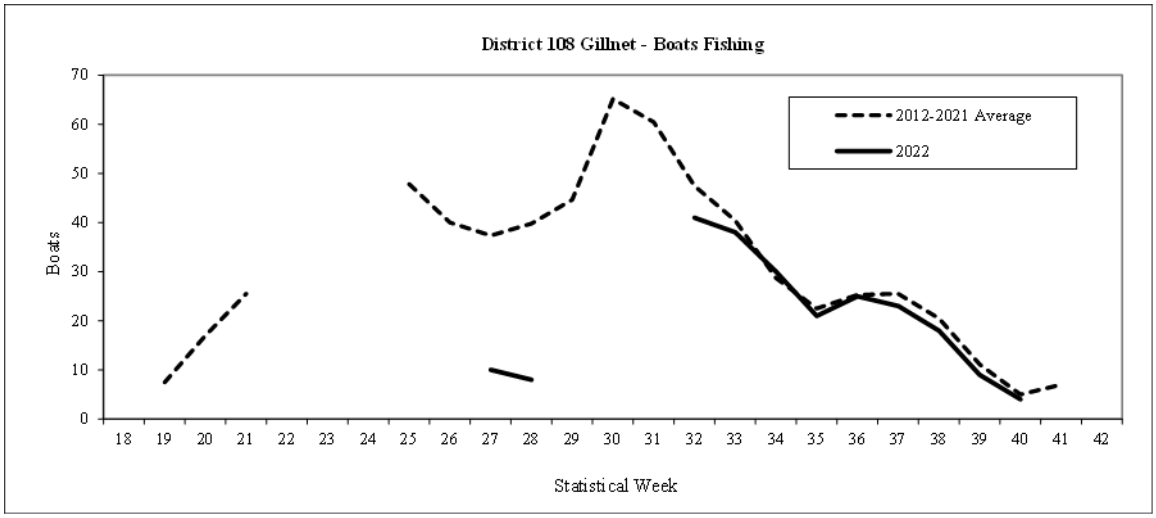


Figure 25. Number of boats fishing by week in the District 108 drift gillnet fishery, 2022.

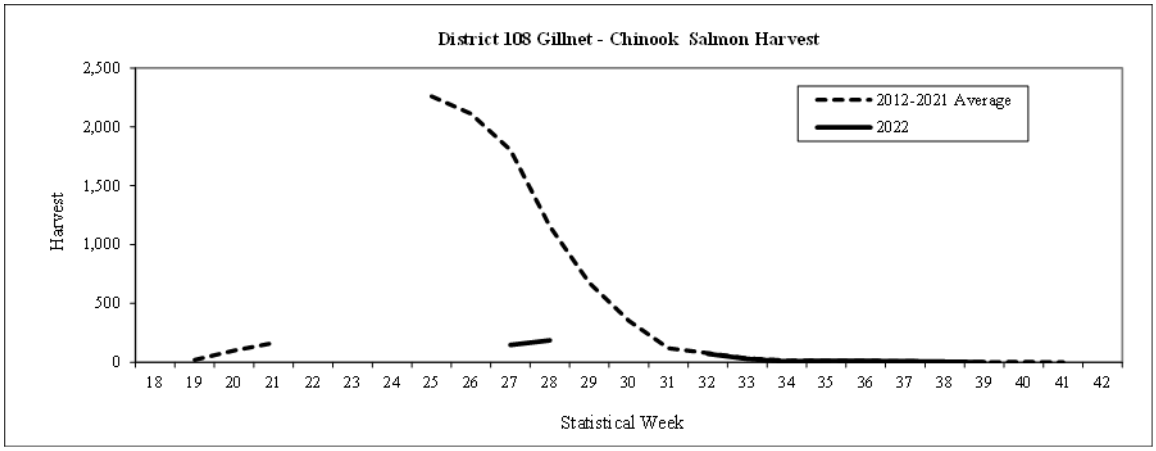


Figure 26. Chinook salmon harvest by week in the District 108 drift gillnet fishery, 2022.

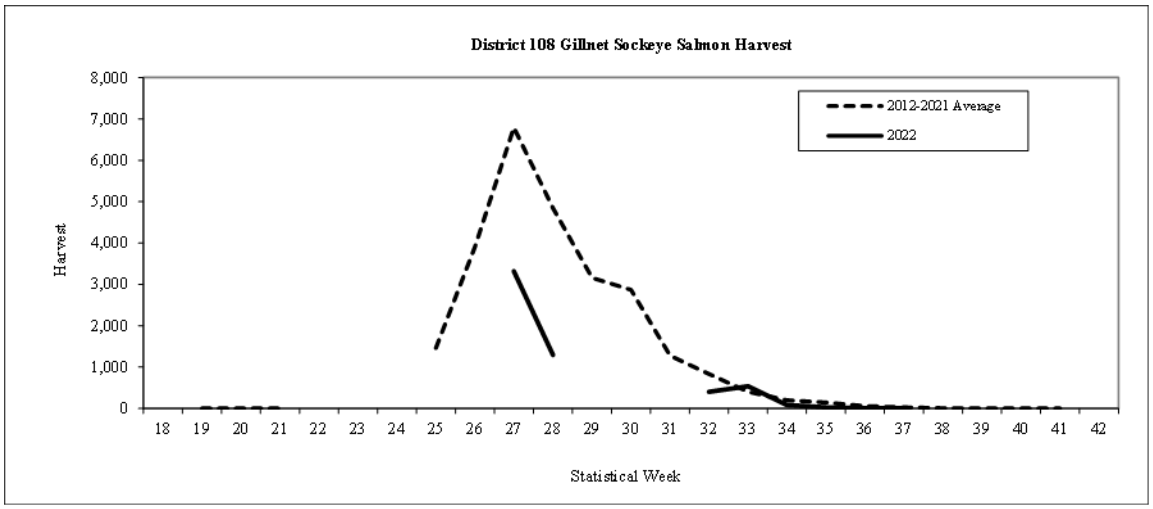


Figure 27. Sockeye salmon harvest by week in the District 108 drift gillnet fishery, 2022.

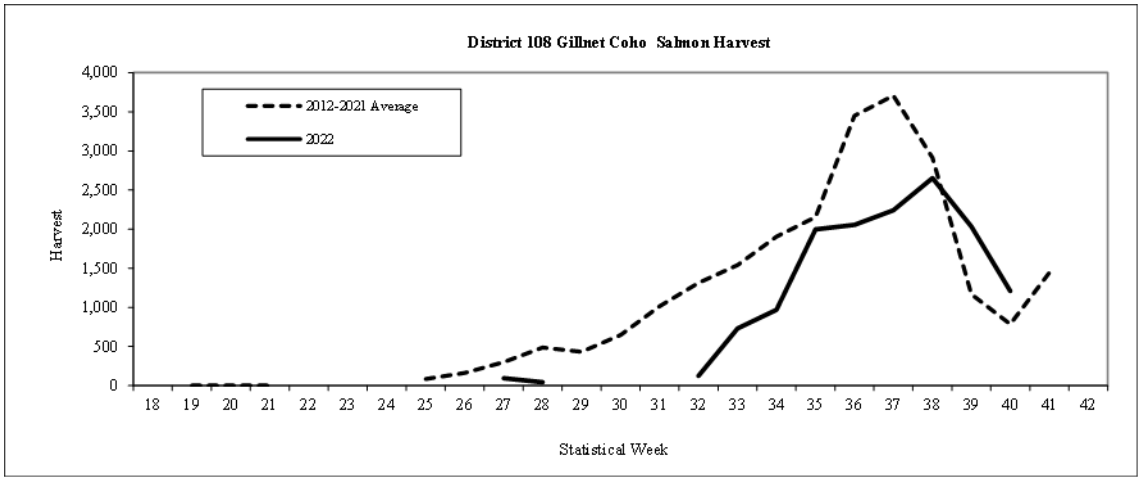


Figure 28. Coho salmon harvest by week in the District 108 drift gillnet fishery, 2022.

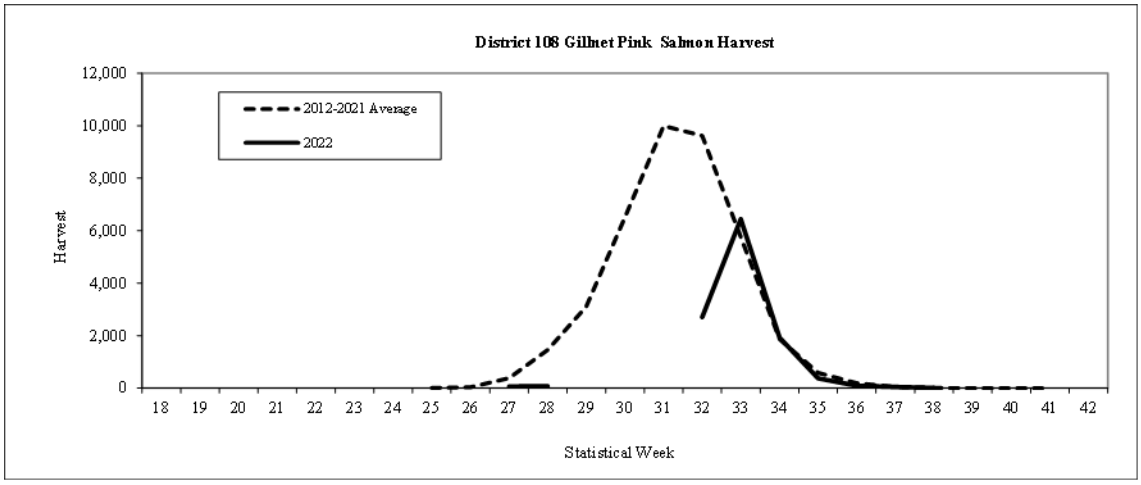


Figure 29. Pink salmon harvest by week in the District 108 drift gillnet fishery, 2022.

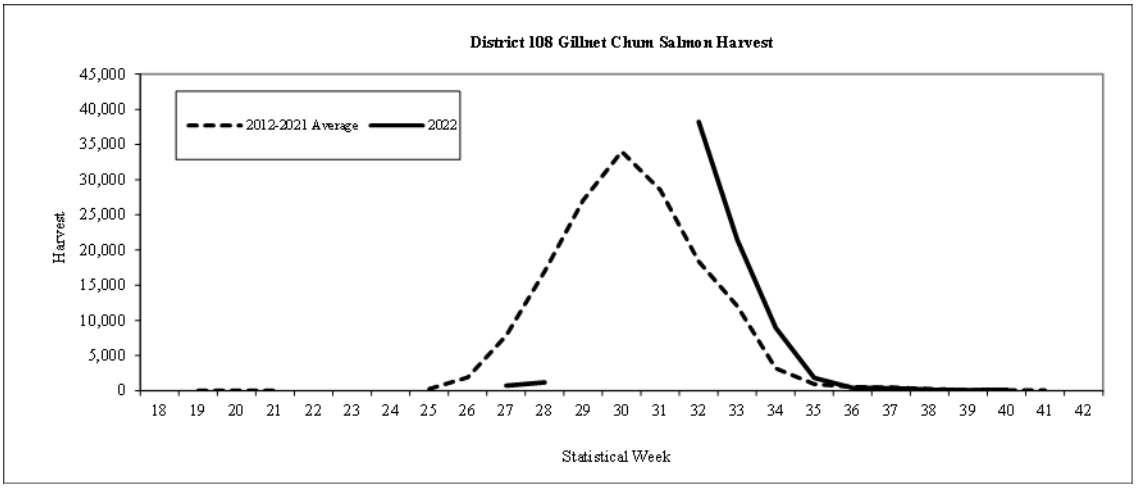


Figure 30. Chum salmon harvest by week in the District 108 drift gillnet fishery, 2022.

TAKU RIVER AREA FISHERIES

The traditional drift gillnet fishery in District 111 targets salmon stocks bound for the trans-boundary Taku River. This fishery is managed for Chinook salmon from weeks 18 through 24 when there are sufficient fish surplus to escapement needs to provide for a fishery. From weeks 25 through 33 the fishery is managed for Taku River sockeye salmon, and from weeks 34 through 42 for Taku River coho salmon. Also harvested in this fishery are salmon bound for Stephens Passage and Port Snettisham streams as well as enhanced Chinook, sockeye, coho and chum salmon from Douglas Island Pink and Chum, Inc. (DIPAC) hatchery releases. The traditional fishery does not include harvests from the Speel Arm Special Harvest Area (SHA) inside Port Snettisham.

The escapement goal range for Taku River large Chinook salmon is 19,000 to 36,000 fish with a management objective of 25,500 fish. In years of high abundance, directed Chinook salmon fisheries can be implemented to harvest fish in excess of escapement needs. The 2022 preseason terminal run forecast for the Taku River of 6,600 large Chinook salmon did not allow for any directed Chinook salmon fisheries in District 111 and significant restrictions in time, area, and gear were implemented in the first three directed sockeye salmon openings (weeks 26–28) to minimize Chinook salmon harvest.

A bilaterally agreed to MSY escapement goal range of 40,000 to 75,000 Taku River sockeye salmon with a management objective of 58,000 wild fish was adopted for the 2020 fishing season and the remainder of the Annex period. Inseason run size estimates, calculated by an ongoing mark-recapture project, take into account tag dropout rates established by recent radio telemetry studies as well as size selectivity in the mark (Canyon Island fish wheels) and recapture (Canada commercial drift gillnet) gear. The 2022 Taku River wild sockeye salmon terminal run forecast of 128,000 fish, based on Canadian stock-recruit and sibling forecasts, was below the 2012–2021 average of 150,000 wild fish. DIPAC forecasted 54,000 enhanced sockeye salmon returning through District 111 waters to Snettisham Hatchery.

An escapement goal range of 50,000 to 90,000 Taku River coho salmon with a management objective of 70,000 fish was adopted in early 2015. New harvest sharing provisions between the U.S. District 111 drift gillnet fishery and the Canadian inriver fisheries are in place, specified in the 2019 PST agreement, and the U.S. management intent in 2022 was to achieve the U.S. allowable catch and escapement objective. The 2022 preseason Taku River forecast was for a near average terminal run of 87,000 coho salmon, and DIPAC forecast a run of 12,000 enhanced coho salmon from releases in Gastineau Channel. DIPAC forecasted runs totalling 761,000 enhanced chum salmon returning to Gastineau Channel and Limestone Inlet, which was below the recent average.

The traditional drift gillnet fishery in District 111 began on Sunday, June 19, 2022 (week 26). The first three drift gillnet openings of the season in District 111 were for an initial two days and included area restriction, while 6-inch maximum mesh size restriction and night closures were also applied to the first two openings, intended to minimize harvest of Taku River Chinook salmon. Effort in the District 111 drift gillnet fishery remained below average throughout the season, with a peak of 99 boats fishing in week 31 (Figure 32).

Harvests of sockeye salmon were near or above average throughout the season and the total harvest of 112,970 fish was 122% of average (Figure 34). Weekly chum salmon harvests were well below average early in the season, but increased to above average in weeks 30 to 33, and approximately 313,000 fish were harvested from mid-June to mid-August (Figure 37). The vast majority of the summer-run chum salmon harvest in District 111 consists of DIPAC hatchery fish returning to release sites in Gastineau Channel and Limestone Inlet. The Chinook salmon harvest of 998 fish was 98% of average (excluding pre-week 25

directed Chinook fisheries; Figure 33). Pink salmon harvests were below average throughout the fishery, and the harvest of 53,294 fish was 44% of average (Figure 36). The overall coho salmon harvest of 15,480 fish was also below average and the peak weekly harvest of 2,675 fish occurred in week 38 (Figure 35). Fall chum salmon harvests were also below average from week 34 through the end of the season (Figure 37).

Several Chinook salmon stocks 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 mature wild fish in the spring is often the Taku River. Non-retention of Chinook salmon in Districts 110, 111, 112, 115, and parts of Districts 113 and 114, from April 1 through June 14, with an extended nonretention period in Taku Inlet through June 30, resulted in minimal harvest of wild fish in the sport fishery. The genetic-based District 111 harvest estimates of Taku River large Chinook salmon during the accounting period are 54 fish in the drift gillnet fishery, 142 fish in the sport fishery, and an estimated 11 fish in the personal use fishery, for a total of 207 fish. Harvests of Taku River large Chinook salmon in these fisheries from week 30 onwards were minimal and resulted in a total harvest well below the U.S. base level catch of 3,500 fish. The postseason escapement estimate of Taku River large Chinook salmon is 12,720 fish, which was below the escapement goal range of 19,000 to 36,000 fish.

Peak harvests of sockeye salmon occurred in weeks 28 through 32 (early July to early August; Figure 34). The Speel Arm SHA and entrance to Port Snettisham were opened in conjunction with the traditional D111 weekly openings starting in week 34 with low expectations of returning Snettisham Hatchery sockeye salmon due to a near complete loss of the brood year 2017 fish (5- year-old fish in 2022) due to an IHNV outbreak in rearing fish at the hatchery. Sockeye salmon harvest inside the SHA was minimal and effort tapered off rapidly after the first opening. The Speel Lake weir was operated in 2022 and the escapement of 5,686 sockeye salmon was within the sustainable escapement goal range of 4,000 to 9,000 fish. The minimum mesh size restriction south of Circle Point was used sparingly this season due to a small fleet size and little potential for a significant fishery to occur inside the Speel Arm SHA with low expected returns. DIPAC sockeye salmon returning to the Snettisham Hatchery contributed a minimum of 16,000 fish to the traditional District 111 harvest. The preliminary escapement estimate of Taku River sockeye salmon is 92,000 fish, which is above the escapement goal range of 40,000 to 75,000 fish.

The 2022 traditional District 111 coho salmon harvest was 52% of average (Figure 35). Approximately 86% of the coho salmon were harvested in Taku Inlet, which was above the 10-year average of 79%, and 14% were harvested from Stephens Passage. Coho salmon stocks harvested in District 111 include returns to the Taku River, Port Snettisham, Stephens Passage, and local Juneau area streams as well as Alaska hatcheries. This was the eighth year of DIPAC's revitalized enhanced coho salmon program using Fish Creek (Taku River) broodstock, and a loss of freshwater supply at the hatchery in December of 2020 resulted in the destruction of a substantial amount of young coho salmon that would have been released in the Spring of 2021 and returned in 2022. Although DIPAC realized its coho salmon broodstock goal, there were not many excess fish for harvest. Alaska hatchery (nearly entirely DIPAC) coho salmon first appeared in the District 111 harvest in week 36, and comprised minor proportions of the harvest for the next four openings. Alaska hatchery coho salmon contributed 4% of the 2022 District 111 traditional drift gillnet harvest. The preliminary escapement estimate of Taku River coho salmon is 66,000 fish, which is within the escapement goal range of 50,000 to 90,000 fish.

The 2022 District 111 traditional fishery pink salmon harvest of 53,294 fish was 44% of average (Figure 36). Pink salmon escapements met the Northern Southeast Inside subregion escapement goal, but the District 111 escapement index was below the lower end of the management target range. The 2022 District 111 traditional fishery chum salmon harvest of 313,616 fish was 70% of average and comprised almost

entirely of summer run fish (Figure 37). The summer chum salmon run continues through mid-August (week 33) and is mostly comprised of domestic hatchery fish and small numbers of wild stocks. Chum salmon returning to DIPAC release sites in Gastineau Channel and Limestone Inlet contributed a major portion of the harvest, but quantitative contribution estimates are not available. Approximately 67% of the District 111 chum harvest was taken in Taku Inlet, and 33% in Stephens Passage. The harvest of 1,128 fall-run chum salmon (i.e., chum salmon caught after week 33) was 53% of average. Most of these fall-run chum salmon are probably wild fish of Taku and Whiting rivers origin.

Table 7. Weekly salmon harvest and fishing effort in the Alaskan District 111 traditional commercial drift gillnet fishery, 2022.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
26	19-Jun	129	355	8	0	1,378	27	2	54
27	26-Jun	303	3,925	11	4	10,466	36	2	87
28	3-Jul	265	8,895	16	604	20,358	54	3	162
29	10-Jul	101	12,411	197	2,571	51,645	46	4	184
30	17-Jul	74	26,039	661	11,260	114,570	90	5	450
31	24-Jul	53	34,689	1,239	18,336	67,035	99	5	495
32	31-Jul	42	17,595	581	11,763	40,055	49	5	245
33	7-Aug	24	7,421	1,115	8,032	6,981	35	4	140
34	15-Aug	0	716	319	572	308	14	3	42
35	21-Aug	1	640	2,664	144	284	14	3	42
36	28-Aug	1	178	2,493	8	213	20	3	60
37	4-Sep	2	89	2,576	0	155	17	3	51
38	11-Sep	0	15	2,675	0	155	16	2	32
39–40	18-Sep	3	2	925	0	13	10	3	30
Total		998	112,970	15,480	53,294	313,616	129	47	2,074
2012–2021 Average		1,041	92,867	29,754	120,260	445,005	178	51	2,590
2022 as % of Average		96%	122%	52%	44%	70%	72%	93%	80%

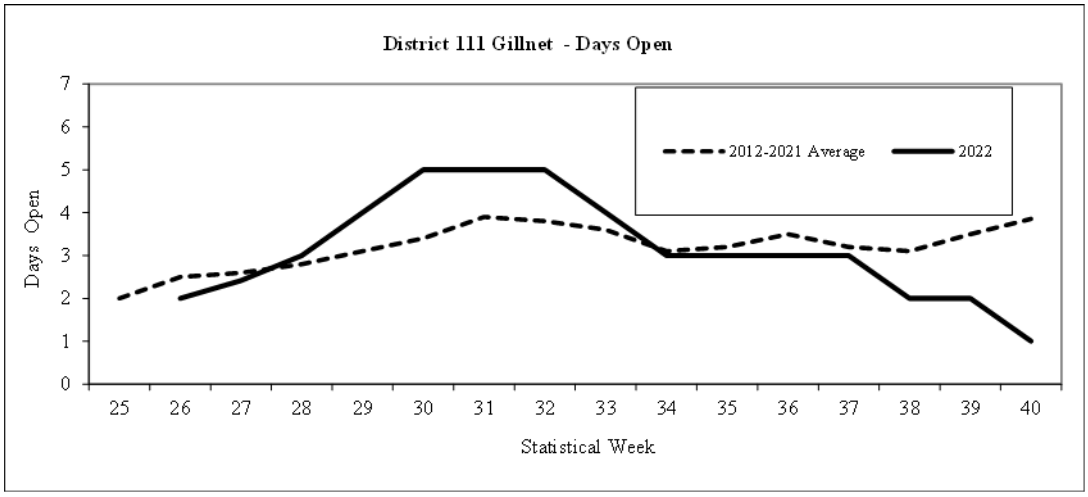


Figure 31. Days open by week in the District 111 drift gillnet fishery, 2022.

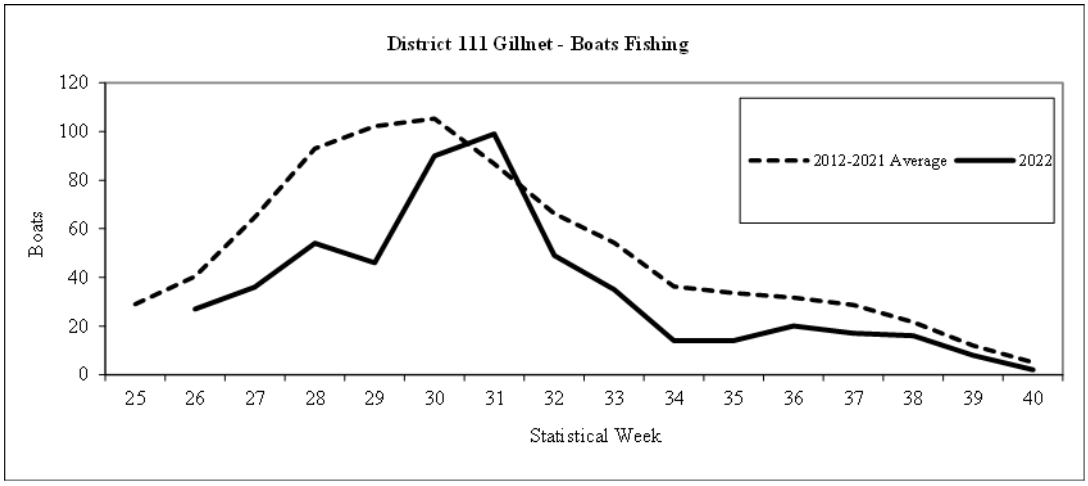


Figure 32. Number of boats fishing by week in the District 111 drift gillnet fishery, 2022.

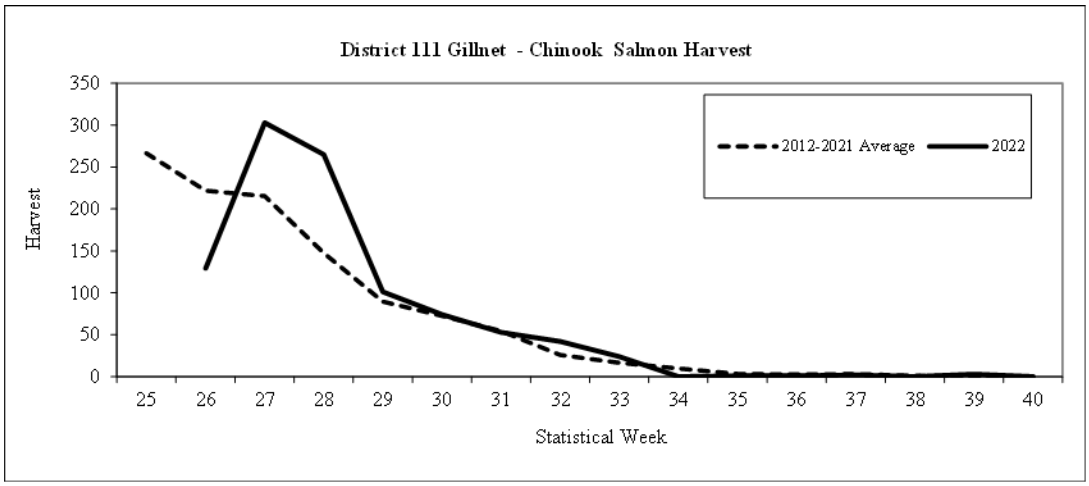


Figure 33. Chinook salmon harvest by week in the District 111 drift gillnet fishery, 2022.

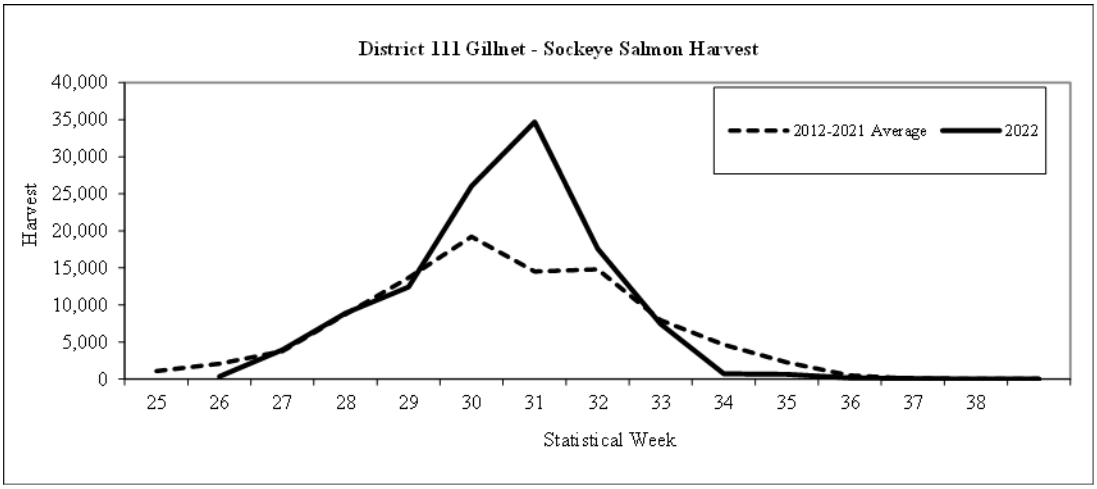


Figure 34. Sockeye salmon harvest by week in the District 111 drift gillnet fishery, 2022.

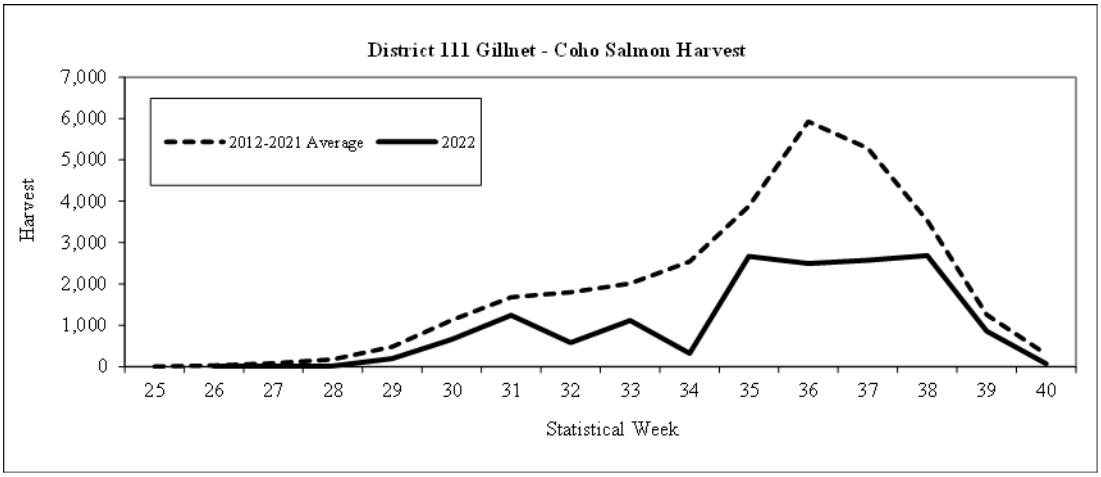


Figure 35. Coho salmon harvest by week in the District 111 drift gillnet fishery, 2022.

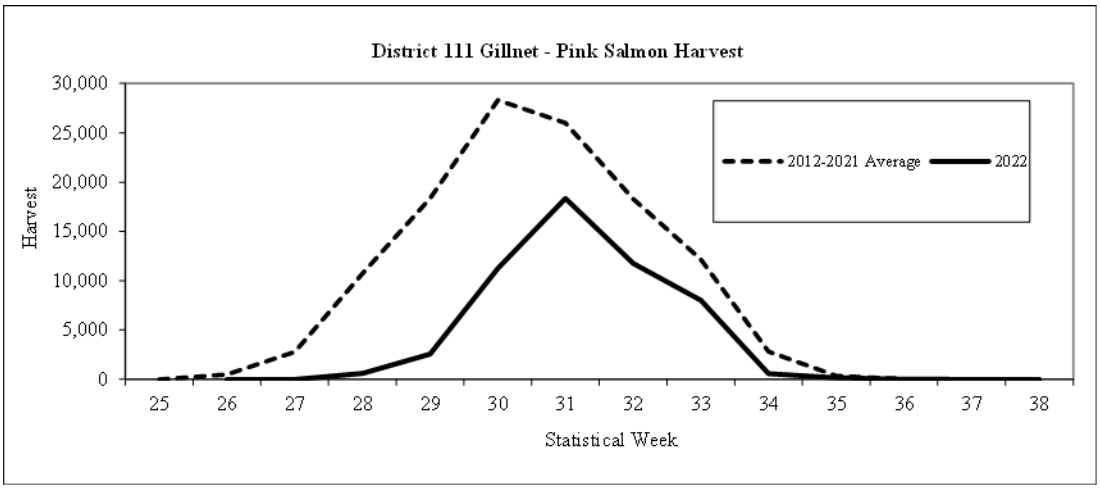


Figure 36. Pink salmon harvest by week in the District 111 drift gillnet fishery, 2022.

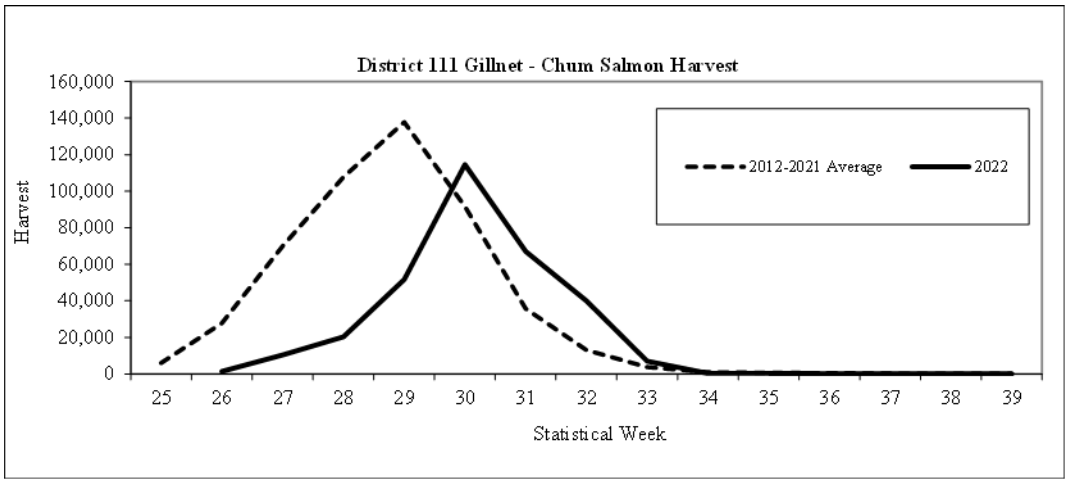


Figure 37. Chum salmon harvest by week in the District 111 drift gillnet fishery, 2022.

TRANSBOUNDARY RIVER JOINT ENHANCEMENT

The transport of sockeye salmon fry from the Snettisham Hatchery facility back to Canadian lakes was completed on June 7, 2022. Approximately 2.98 million fry were released in Tahltan, Tatsamenie, and Trapper lakes in Canada. The overall green egg to fry survival for brood year (BY) 2021 releases was 63% (Table 8). After transporting BY21 fry back to their respective lakes, all TBR modules, incubators, and short-term fry rearing containers were broken down, cleaned, and disinfected prior to receiving green eggs from BY22 egg takes.

Brood year 2022 egg takes began on September 3 at Trapper Lake, September 9 at Tahltan Lake, and September 18 at Tatsamenie Lake. An estimated total of 5.8 million green eggs were collected from the three donor lakes. Tahltan Lake egg takes were completed on September 17 after collecting an estimated 2.0 million eggs in 5 lots. Tatsamenie Lake egg takes were completed on October 4 after collecting 2.7 million eggs in 5 lots. Trapper Lake egg takes were completed on September 12 after collecting 1.1 million eggs in 3 lots. DFO contractors collected adult sockeye salmon tissue samples on the spawning grounds and shipped them to the ADF&G Juneau Fish Pathology laboratory via Snettisham Hatchery per the 2019 PST Agreement.

Table 8. Summary of numbers and survival rates of brood year 2021 sockeye salmon fry released May and June 2022.

Brood stock	Release site	Number of trips	Survival rate to eyed stage	Survival rate to release	Number released
Tahltan	Tahltan Lk	2	85.5%	74.1%	1,079,400
Tatsamenie	Upper Tatsamenie Lk	3	79.6%	71.2%	1,361,900
Tatsamenie	Upper Tatsamenie Lk Extended Rearing	4	82.4%	78.1%	352,700
Trapper	Trapper Lake	1	46.1%	20.4%	188,600
	Average/Totals	10	75.2%	62.9%	2,982,600

During the 2022 season, the ADF&G Thermal Mark Lab processed 8,700 sockeye salmon otoliths collected by ADF&G 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 12-week period. The laboratory provided estimates on hatchery contributions for 44 distinct sample collections. Estimates of the percentage contribution of hatchery fish to commercial 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 River salmon stocks between Canada and the U.S. have not been specified, the 2019 PST Agreement calls for the development and implementation of cooperative abundance-based management plans and programs for Alsek River Chinook and sockeye salmon. Escapement goals are in place for Alsek River Chinook salmon and for sockeye salmon spawning at the Klukshu River, a tributary that flows into the Tatshenshini River, approximately 80 km northeast of its junction with the Alsek River. The principal escapement-monitoring tool for Chinook, sockeye, and coho salmon on the Alsek River is the Klukshu River weir, operated by DFO in cooperation with the Champagne-Aishihik First Nation since 1976. In 2013, Canadian and U.S. biologists adopted a biological escapement goal range of 7,500 to 11,000 sockeye salmon through the Klukshu River weir. The current

biological escapement goal range for Alsek River Chinook salmon, adopted in January 2018, is a range of 3,500 to 5,300 fish.

ADF&G manages the Alsek River commercial set gillnet fishery to achieve the agreed upon escapement goal ranges. Time and area openings are adjusted by monitoring fishery performance data and comparing it to historical CPUE. The duration of weekly fishing periods is based on fishery performance data (CPUE). Historically, gillnets have often been restricted to a maximum mesh size of 6 inches through July 1 to minimize Chinook salmon harvest. The U.S. commercial set gillnet sockeye salmon fishery commenced on June 5 with a 24-hour opener and a 6-inch maximum mesh restriction was in effect through July 13 as a Chinook salmon conservation measure.

Preseason expectations were for below average Chinook and near average sockeye salmon runs in 2022. The overall Alsek River drainage sockeye salmon run was expected to be approximately 49,100 fish, which was above the 2012–2021 average run size of approximately 48,500 sockeye salmon. The preseason outlook for 2022 was based on a predicted run of 11,300 Klukshu River sockeye salmon derived from a Klukshu River stock-recruitment model and an assumed Klukshu River contribution rate of 23% to the total run (based on mark-recapture results from 2000–2004 and run size estimates using genetic stock identification (GSI) from 2005–2006 and 2011–2014). Principal contributing brood years for the 2022 run were 2017 and 2018. The Klukshu River escapements in 2017 and 2018 were 3,700 and 7,100 sockeye salmon respectively, which were both below the 2012–2021 average of 14,000 fish.

The 2022 Alsek River set gillnet fishery opened Sunday June 5 (week 24). The total number of individual permits fished during the season was 6, which was below the 2012–2021 average of 15 permits. The commercial fishery was opened for a total of 56 days which was above the 10-year average of 45 days. The overall effort in boat-days was 74% of the average due to no effort after late July (Table 9). Harvests of Chinook salmon in June were below average. Harvests of sockeye salmon were also below average in most weeks, and the total harvest of 4,693 fish was 43% of the 2012–2021 average of 10,964 fish (Table 9). There was no effort after late July. In the past several years there has been reduced fishing effort during the coho salmon season due to economic struggles and lack of pilots to transport fish to town. In 2022, no coho salmon were harvested (Table 9).

The Klukshu River weir count of 30,644 sockeye salmon was above the upper bound of the 7,500 to 11,000 fish escapement goal range. The Alsek River drainage escapement estimate of 3,042 Chinook salmon was below the escapement goal range of 3,500 to 5,300 fish.

Table 9. Weekly salmon harvest and fishing effort for the Alaska Alsek River commercial set gillnet fishery, 2022.

Statistical Week	Start Date	Catch					Effort		
		Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
24	5-Jun	10	162	0	0	0	5	1	5
25	12-Jun	73	438	0	0	0	5	2	10
26	19-Jun	20	790	0	0	0	3	3	9
27	26-Jun	7	741	0	0	0	5	3	15
28	3-Jul	2	1,013	0	0	0	6	3	18
29	10-Jul	0	1,115	0	0	0	5	3	15
30	17-Jul	0	261	0	0	0	5	3	15
31	24-Jul	0	173	0	0	0	2	4	8
32-42[a]	31-Jul	0	0	0	0	0	0	34	0
Total		112	4,693	0	0	0	6	56	95
2012-2021 Avg.		324	10,964	134	0	3	15	45	128
2022 as % of Avg.		35%	43%	0%		0%	40%	124%	74%

[a]. Weeks 32-42 opened to fishing but not fished.

SOUTHEAST ALASKA CHINOOK SALMON FISHERY

ALL GEAR HARVEST

The SEAK Chinook salmon fishery is managed to stay within the annual all-gear PST preseason allowable catch limit determined by the SEAK early winter District 113 troll fishery CPUE metric estimated from data collected in statistical weeks 41–48 and to meet escapement goals for 6 SEAK and TBR stocks. Management of the 2022 SEAK Chinook salmon fishery was configured based on a preseason winter power troll CPUE metric of 7.02 which translated into an all-gear PST allowable catch limit of 266,585 Treaty Chinook salmon. Management plans established by the Alaska Board of Fisheries allocate the CPUE-based Treaty catch limit among gear types and prescribe management measures for both commercial and sport fisheries [5AAC 29.060(b) and 47.055].

Under provisions of domestic regulatory action plans to conserve SEAK and TBR wild Chinook salmon stocks, ADF&G was given direction by the 2022 Alaska Board of Fisheries, through emergency order authority, to take management actions necessary that provide conservation for SEAK and TBR wild Chinook salmon stocks while continuing to identify harvest opportunities that maintain conservation of these stocks. The conservation measures for all gear types that were implemented during 2018–2021 continued for the 2022 season, apart from the late winter troll fishery. The winter troll fishery closed early on March 15 but reopened in select outer coastal areas from April 3–30. Spring troll fisheries were restricted to near terminal areas or areas on the outside coast, and summer troll fishery primary corridors and waters directly adjacent to the terminus of the Unuk, Chilkat, and Stikine rivers were closed to the retention of Chinook salmon. Retention of Chinook salmon in the purse seine fishery outside designated terminal harvest areas was delayed until July 24. Drift gillnet fisheries in Districts 106 and 108 (near the mouth of the Stikine River) were delayed to the latter part of June. Drift gillnet fisheries in Districts 111 and 115 (near the mouths of the Taku and Chilkat Rivers) were subject to time, area, and gear restrictions through mid-July. Openings in terminal harvest areas were delayed until June. Similarly, retention of Chinook salmon in sport fisheries throughout the inside waters of Southeast Alaska was delayed until mid-

June with longer periods of nonretention in terminal areas of the Unuk, Chilkat, Taku, and Stikine Rivers. In addition to these conservation measures, all fisheries were managed conservatively and monitored closely inseason to avoid exceeding the harvest level defined in the 2019 PST Agreement.

The total Chinook salmon harvest by all SEAK commercial fisheries was 234,602 fish and the sport fish harvest was 41,176 fish, for a total all-gear harvest of 275,778 fish (Table 10 and Table 11). This includes an all-gear harvest of 1,074 in the Annette Island Metlakatla Indian Community tribal fishery that is not directly managed by the State of Alaska. The all-gear harvest of Treaty Chinook salmon was 238,621 fish including 1,074 fish from the Annette Island Metlakatla Indian Community tribal fishery. The 2022 all-gear Treaty harvest of 238,621 fish was below the CPUE-based harvest limit of 265,585 fish.

Chapter 3, Paragraph 4(f) of the 2019 PST Agreement establishes a limit for the level of Treaty incidental mortality (IM) in the SEAK AABM fishery of 59,400 Chinook salmon. The 2022 Treaty IM for SEAK AABM fishery is 43,437, which is below the 59,400 limit.

Table 10. Estimated all-gear Chinook salmon catch in 2022.

Gear	Total Harvest	AK Hatchery Harvest	Wild Terminal Exclusion	Alaska Hatchery Addon	Treaty Harvest
Troll	196,783	12,869	0	9,170	187,613
Sport	41,176	9,031	0	7,010	34,166
Purse Seine	26,568	11,823	0	11,818	14,750
Drift Gillnet	11,068	9,605	0	9,159	1,909
Set Gillnet	182	0	0	0	182
Total Net	37,819	21,427	0	20,977	16,842
Total All Gear	***275,778***	***43,327***	***0***	***37,157***	***238,621***

Note: Annette Island Metlakatla Indian Community tribal harvest of 1,074 Chinook salmon are included of which 767 were Treaty fish. This includes a total tribal harvest of 125 troll, 555 drift gillnet, and 394 purse seine fish, of which 75 troll,299 drift gillnet, and 394 purse seine were Treaty fish.

Note: Terminal area harvests are included.

Table 11. Southeast Alaska Chinook salmon landed catch for aggregate abundance-based management fisheries of interest to the Pacific Salmon Commission (2013–2022). Values are in thousands of fish.

Year	Total Catch	Add-on and Exclusion Catch	Treaty Catch Limit[1]	Treaty Catch	Treaty Incidental Mortality	Treaty Total Mortality
2013	257.3	65.9	176.0	191.4	59.4	250.8
2014	492.5	57.3	439.4	435.2	50.9	486.1
2015	403.3	68.3	237.0	335.0	49.1	384.1
2016	387.0	36.1	355.6	350.9	51.0	401.9
2017	207.1	31.6	209.7	175.4	46.6	222.0
2018	164.7	37.0	144.5	127.8	31.2	159.0
2019	175.1	34.8	140.3	140.3	56.7	197.0
2020	234.8	30.2	205.2	204.6	39.1	243.7
2021	236.2	34.1	205.2	202.1	55.5	257.6
2022	275.8	37.2	266.6	238.6	43.4	282.1

[1] 2009–2018 Treaty Catch Limit determined by preseason PSC Chinook Model AI

[2] 2019–2022 Treaty Catch Limit determined by CPUE Model

TROLL FISHERY

The accounting of Chinook salmon harvested by trollers begins with the winter fishery in October and ends with the summer fishery in September. The winter troll fishery is managed for a guideline harvest level (GHL) of 45,000 non-Alaska hatchery-produced Chinook salmon, with a guideline harvest range of 43,000−47,000 non-Alaska hatchery-produced fish, plus the number of Alaska hatchery-produced Chinook salmon harvested during the winter fishery. The 2021–2022 winter troll fishery was open from October 11, 2021, through March 15, then reopened from April 3 through 30, 2022. The reopening of the late winter fishery in select outer coastal areas provided additional harvest opportunities compared to the most recent 4-years but maintained conservation actions for SEAK and TBR wild Chinook salmon stocks. A total of 28,238 Chinook salmon were harvested. Of these, 2,328 fish (8%) were of Alaska hatchery origin, of which 1,659 fish counted toward the Alaska hatchery add-on, resulting in a Treaty harvest of 26,591 fish (Table 12).

The spring troll fisheries target Alaska hatchery-produced Chinook salmon and are conducted along migration routes for hatchery fish or close to hatchery 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 Alaska hatchery fish taken in the fishery. Non-Alaska hatchery fish are counted towards the annual Treaty catch limit of Chinook salmon, while most of the Alaska hatchery (add-on) fish are not.

In 2022, spring troll fisheries occurred between May 1 and June 30. To help reduce encounters of wild SEAK and TBR Chinook salmon during May and June, spring troll fisheries located in known wild Chinook salmon migration corridors did not open. A total of 11 spring troll Chinook salmon fisheries opened, which is a 66% reduction from the number of areas opened prior to 2018 (when SEAK and TBR conservation measures began). The combined harvest for spring troll fisheries was 15,699 Chinook salmon, of which 5,127 fish (33%) were of Alaska hatchery origin and 3,653 fish counted toward the Alaska hatchery add-on, resulting in a Treaty harvest of 12,046 fish.

The 2022 summer troll fishery included two Chinook salmon retention periods, from July 1–28 and August 1 through September 20. Reduced participation, record high fuel prices, and effort redirected to target hatchery chum salmon contributed to a prolonged total fishery length of 79 days. A total of 152,721 Chinook salmon were harvested during the summer fishery, of which 5,343 fish (3%) were of Alaska hatchery origin and 3,807 fish counted toward the Alaska hatchery add-on. The resulting Treaty Chinook salmon harvest was 148,914 fish.

The total harvest for all troll fisheries in the 2022 accounting year was 196,783 Chinook salmon, of which 187,613 fish were Treaty Chinook salmon. This includes a total harvest of 125 fish in the Annette Island Metlakatla Indian Community tribal troll fishery; 75 of which were Treaty Chinook salmon.

Table 12. Troll fishery Chinook salmon harvest by season, 2022.

Gear/Fishery	Total Harvest	Alaska Hatchery Harvest	Alaska Hatchery Add-on	Terminal Exclusion Harvest	Total Term. Exclusion/ Alaska Hatchery Add-on	Treaty Harvest
Winter Troll	28,238	2,328	1,659	0	1,659	26,579
Spring Troll[a]	15,699	5,127	3,653	0	3,653	12,046
Summer Troll						
First Period	93,336	2,279	1,624	0	1,624	91,712
Second Period	59,385	3,064	2,183	0	2,183	57,202
Total Summer[b]	152,721	5,343	3,807	0	3,807	148,914
Total Traditional Troll	196,658	12,798	9,120	0	9,120	187,538
Annette Is. Troll	125	71	50	0	50	75
Total Troll Harvest	**196,783**	**12,869**	**9,170**	**0**	**9,170**	**187,613**

[a] Spring troll harvest includes all terminal and wild terminal exclusion harvests for year.
[b] Total summer harvest includes confiscated harvest for the year.

NET FISHERIES

A total of 11,068 Chinook salmon were harvested in the drift gillnet fisheries in 2022, of which 9,605 fish (87%) were of Alaska hatchery origin and 9,159 fish counted toward the Alaska hatchery add-on, resulting in a Treaty harvest of 1,909 fish (Table 10). This includes a harvest of 555 fish in the Annette Island Metlakatla Indian Community tribal drift gillnet fishery of which 299 fish were Treaty Chinook salmon. A total of 26,568 Chinook salmon were harvested in the purse seine fisheries, of which 11,823 fish (45%) were of Alaska hatchery origin and 11,818 fish counted toward the Alaska hatchery add-on, resulting in a Treaty harvest of 14,750 fish. This includes a harvest of 394 fish in the Metlakatla Indian Community tribal purse seine fishery; all 394 fish were Treaty Chinook salmon. A total of 182 Chinook salmon were harvested in the set gillnet fisheries, none of which were of Alaska hatchery origin, resulting in a Treaty harvest of 182 fish (Table 10).

With the exception of directed gillnet harvests of Chinook salmon in SEAK terminal area regulatory Districts 108 and 111, when those fisheries occur, as provided in the Transboundary Rivers chapter of the PST (Chapter 1), harvests of Chinook salmon in net fisheries are primarily incidental to the harvest of other species, and in 2022 only constituted a small fraction (<1.0%) of the total net harvest of all species.

SPORT FISHERY

The SEAK Chinook salmon sport fishery is managed under the directives of the Southeast Alaska King Salmon Management Plan [5 AAC 47.055]. This plan prescribes management measures based upon the SEAK early winter troll CPUE metric and the harvest management plan adopted by the Alaska Board of Fisheries. This management plan was revised by the Alaska Board of Fisheries in Spring of 2022. Slight changes were made to the management prescriptions under several tiers and modifications made to provide stability in the sport fishery by removing the need for inseason changes to bag, possession and annual limits while not exceeding the Southeast Alaska all gear catch limit.

The following regulations applied during the 2022 sport fishery as prescribed by the Southeast Alaska King Salmon Management Plan:

Regulations effective February 1, 2022:

Alaska Resident

- The resident bag and possession limit was two Chinook salmon, 28 inches or greater in length.

Nonresident

- The nonresident bag and possession limit was one Chinook salmon, 28 inches or greater in length.
- The nonresident annual catch limit was three Chinook salmon, 28 inches or greater in length

With adoption of the newly revised Southeast Alaska King Salmon Management Plan the following regulations went into effect July 1, 2022:

Alaska Resident

- The resident bag and possession limit was two Chinook salmon, 28 inches or greater in length.

Nonresident

- The nonresident bag and possession limit was one Chinook salmon, 28 inches or greater in length.
- From January 1 through June 30, a nonresident's annual harvest limit was three Chinook salmon, 28 inches or greater in length.
- From July 1 through July 15, a nonresident's annual harvest limit was two Chinook salmon, 28 inches or greater in length, and any Chinook salmon 28 inches or greater in length harvested by a nonresident from January 1 through June 30 applied toward the two fish annual catch limit.
- From July 16 through December 31, a nonresident's annual harvest limit was one Chinook salmon, 28 inches or greater in length, and any Chinook salmon 28 inches or greater in length harvested by a nonresident from January 1 through July 15 applied toward the one fish annual catch limit.

The sport fishery was monitored closely throughout the 2022 season and managers were provided with weekly projections of harvest. No inseason management action was taken to increase sport harvest opportunity, in accordance with the newly revised *Southeast Alaska King Salmon Management Plan*, and the sport fishery ended the season 15,112 below the sport allocation. The contribution of Alaska hatchery-produced Chinook was consistent with recent trends at about 22% of the total harvest. The 2022 sport fishery had an estimated total harvest of 41,176 Chinook salmon, of which 34,166 fish counted as Treaty harvest (Table 10).

SOUTHEAST ALASKA COHO SALMON FISHERIES

Attachment B of the 1999 PST specifies provisions for inseason conservation and information sharing for northern boundary coho salmon. In 2022, following a bilateral review of the SEAK Troll Area 6 (Southern Inside) coho salmon CPUE data for SW 27–29, which indicated a SEAK CPUE of 11 (within the conservation trigger range CPUE of 10–14), it was determined there was an insufficient number of landings sampled to provide an adequate indicator of abundance from the SEAK troll CPUE. Alternatively, the incidental coho salmon CPUE in the Northern British Columbia (NBC) A-B Line troll pink salmon fishery was considered in the determination of the necessity of a boundary area closure. In addition to the NBC A-B Line coho salmon CPUE, consideration was also given to the reduced exploitation of stocks transiting Dixon Entrance during the assessment period due to the closure of the Northern British Columbia (NBC) directed troll coho salmon fishery in 2022. Similar to 2021, DFO announced preseason that the directed

troll coho salmon fishery would be closed for the season in 2022. Although the July all-gear wild commercial coho harvest projection of 1.20 million fish was slightly above the 1.1 million trigger point and did not require early conservation measures under provisions of Alaska Board of Fisheries regulations and in Attachment B, a 3-day regionwide closure was recommended, given the low CPUE during the assessment weeks.

The 2022 regionwide summer troll coho salmon fishery began by regulation on June 1 and continued in all waters of SEAK through September 20. The 2022 all-gear catch of coho salmon totalled 1.49 million fish, of which 1.22 million fish (82%) were taken in commercial fisheries (Table 13). The troll harvest of 854,400 coho salmon was 40% below the 2012–2021 average of 1.41 million fish and accounted for 70% of the commercial catch. Power troll wild coho salmon CPUEs were below the 2002–2021 average for the majority of the summer season. The overall wild stock abundance (wild troll catch divided by an index of the troll harvest rate) was estimated at 3.60 million fish, 11% below the recent 20-year average. The purse seine coho salmon harvest of 168,200 fish was 41% below the 2012–2021 average and accounted for 14% of the commercial catch. The drift gillnet harvest of 136,400 fish was 54% below the 2012–2021 average and accounted for 11% of the commercial catch. The set gillnet harvest of 62,900 fish in the Yakutat area was 47% below the 2012–2021 average, with 94% of the catch taken in the Situk-Ahrnklin Lagoon. A preliminary estimate of the SEAK sport catch (282,875 fish) is 9% above the 2012–2021 average (258,700 fish).

Wild production accounted for 0.89 million fish (73%) in the commercial catch compared with a recent 2012–2021 average of 1.59 million fish (75% wild). The hatchery percentage of the commercial catch was 27%. Of the estimated hatchery contribution of 374,000 fish, over 99% originated from facilities in SEAK, with facilities located within inside waters accounting for an estimated 54% of the run, while hatchery runs on or near the outer coast contributed to the remaining 46%.

Preliminary all-fishery coho salmon harvest rate estimates were below average for all three wild indicator stocks, at 11% for Auke Creek, 23% for Berners River, and 52% for Hugh Smith Lake. The all-fishery harvest rate for the Hugh Smith Lake stock was below the 25-year (1997–2021) average of 55%. Most of the reduction in the all-fishery harvest rate was driven by decreases in the troll fleet harvest rate. The troll fishery harvest rate on the Hugh Smith Lake stock (18%) was below the 25-year (1997–2021) average of 27%. Troll fishery harvest rates on northern inside stocks were at or near record lows, estimated at 5.5% for Auke Creek (second lowest on record) and 4% for the Berners River (lowest on record) compared with 25-year averages of 22% for both systems. While troll harvest rates were well below average, drift gillnet harvest rates were within ranges of previously observed values. Compared with 25-year averages, drift gillnet fisheries accounted for an estimated 5% of the Auke Creek return (average 9%), 17% of the Berners River return (average 19%), and 16% of the Hugh Smith Lake return (average 11%).

Estimates of coho escapement varied across the region and with respect to monitored stocks with established escapement goals. The total escapement of 892 adult coho salmon to Hugh Smith Lake was within the biological escapement goal of 500–1,600 spawners. Coho salmon escapements were within the respective goal ranges for four northern Southeast stocks (Chilkat River, Berners River, Auke Creek, and Taku River), and below the goal for one northern Southeast stock (Peterson Creek). No surveys were able to be completed in Montana Creek, Tawah Creek, Situk River, or the Tsiu River. The combined peak count of spawners in five streams in the Sitka area (1,486 spawners) was above the escapement goal of 400–800 spawners. Similarly, the combined peak count of 11,945 coho salmon in the 14 surveyed streams in the Ketchikan area was above the escapement goal of 4,250–8,500 spawners).

Coho salmon index stocks monitored for CWTs were all below average in total adult production. For example, at Hugh Smith Lake the estimated total run size of 1,861 adults was approximately half of 1997–2021 average (3,477). This decline in total run size is due to a long-term decline in smolt-to-adult (marine) survival. The preliminary Hugh Smith Lake coho salmon marine survival rate (5.8%) is historically below average (10.9%) but similar to the 5-year average (6.2%). This cycle of persistently low marine survival is the largest driver of reduced total run size in recent years.

Similar to Hugh Smith Lake, coho salmon marine survival (and associated adult total run estimates) for the northern inside stocks was below the long-term average. Marine survival rates of 4.7% for the Berners River and 6.5% for Auke Creek were much lower than the long-term (1997–2021 return years) mean survival rates of 13% (Berners River) and 16% (Auke Creek). The 2022 total estimated adult coho salmon run size in the Berners River was 7,227, the second lowest on record and well below the 1997–2021 average (20,867). Marine survival for Northern inside coho salmon stocks has been low in recent years: all of the lowest five years for marine survival at both the Berners River and Auke Creek have occurred in the past 7 years.

Table 13. Coho salmon harvest in Southeast Alaska by gear type (preliminary), 2022.

Gear Type	Harvest
Troll	854,400
Purse Seine	168,200
Drift Gillnet	138,400
Set Gillnet	62,900
Sport (marine and freshwater)	282,875[a]
Total	1,506,775

[a] Preliminary estimate as of 9/26/2023

PRELIMINARY 2022 CHINOOK AND COHO SALMON FISHERIES IN WASHINGTON AND OREGON

INTRODUCTION

This report describes the conduct of United States (U.S.) fisheries of interest to the Pacific Salmon Commission (PSC) that occurred during 2022 in the area north of Cape Falcon, Oregon and south of the U.S./Canada border. These fisheries were conducted under preseason management plans that were consistent with Annex IV of the Pacific Salmon Treaty (PST 2019) including obligations defined within Chapter 3 for Chinook individual stock based management regimes (ISBM) and Chapter 5 for Southern Coho Management.

An overview of the Chinook (Oncorhynchus tshawytscha) and Coho (Oncorhynchus kisutch) salmon conservation challenges facing managers during the 2022 preseason planning process in this region is provided in the following section. The conduct of major fisheries is described, and estimates of landed catch, where available, are compared to preseason catch limits or expectations for Chinook (Table 15) and Coho (Table 16). For perspective, landed catches for those fisheries since 2017 are also presented. Information on the occurrence of 2022 mark-selective fisheries (MSF) is presented in Table 17. Where available, preliminary estimates of the number of Chinook or Coho salmon released by anglers in 2022 MSFs are presented within some sections of this report, by area and fishery. All estimates for the 2022

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. (i.e., excluding Alaska) fisheries of interest to the PSC is a coordinated activity involving Tribal, State and Federal management entities, with the involvement of conservation and fishing interests. The Pacific Fishery Management Council (PFMC) conducted a series of public meetings to consider options for ocean fishery season structures while the Tribes and States conducted government-to-government and public, open meetings throughout the region to develop and analyse alternative season structures for fisheries in the inside waters of the Columbia River, coastal Washington and Puget Sound. Participants in these various planning sessions evaluated the biological and socio-economic consequences of the alternative season structures for the outside (ocean) and inside (marine and freshwater) fisheries (Figure 38) including the anticipated impacts on U.S. southern origin stocks in fisheries conducted under the PST in Canada and Southeast Alaska. Agreement was reached on season structures expected to achieve conservation goals, domestic fishery objectives and legal obligations, including the PST, assuming fisheries are conducted as planned and preseason abundance estimates are accurate.

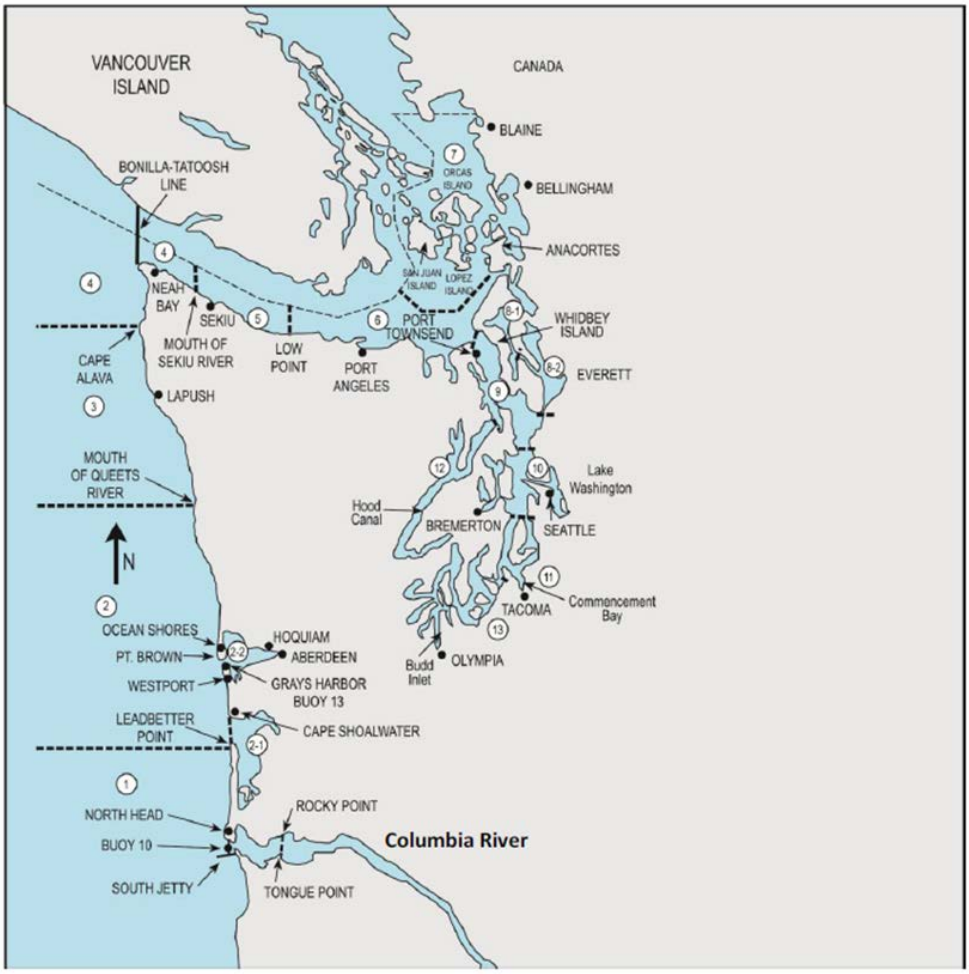


Figure 38. Map of Western Washington marine catch areas of the Washington coast (Areas 1 through 4) and Puget Sound (Areas 5 through 13) (WAC 220-22-030). Inside (Columbia River) fisheries reported in this document extend beyond the scope of this map.

CHINOOK SALMON MANAGEMENT

Under the 2019 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 that Southern U.S. fisheries on Chinook stocks shall be managed to limit the total adult equivalent mortality to the limits listed in Attachment I of Chapter 3.

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 have been more constraining to Southern U.S. fisheries than PST obligations. Catch quotas for the 2022 U.S. ocean fisheries in the area north of Cape Falcon, Oregon, were defined by the impact limits on ESA-listed lower Columbia River natural tule fall Chinook stocks, ESA-listed Puget Sound Chinook stocks, and the abundance of other healthy, harvestable Chinook salmon stocks contributing to fisheries in this area. Puget Sound fishing seasons were structured to provide fishing opportunity on healthy salmon species or stocks within the impact limits defined for ESA-listed Puget Sound Chinook.

COHO SALMON MANAGEMENT

During the preseason fishery planning process of 2021, Canadian fishery managers informed the U.S. that the Interior Fraser management unit was again expected to be in the *low* categorical abundance status, and U.S. fisheries were constrained to ensure that the exploitation rate on this management unit did not exceed 10.0% as defined by the PST Southern Coho Management Plan. Of the U.S. natural spawning Coho management units (MUs) managed under the PST, the Strait of Juan de Fuca MU was forecasted to be in low abundance status. The Hood Canal and Snohomish MUs were predicted to be in *moderate* status, while the Skagit, Stillaguamish, Quillayute, Hoh, Queets, and Grays Harbor MUs were forecasted to be in *abundant status*.

The impacts of planned southern U.S. fisheries on natural Coho stocks, seasons, and catch limits were predicted using the Fishery Regulation Assessment Model (FRAM; https://framverse.github.io/fram_doc/index.html). The total exploitation rate on the Interior Fraser Coho management unit was predicted to be 9.5 % in Southern U.S. fisheries. Seasons and Coho quota levels for U.S. ocean fisheries were severely constrained by the management objectives of Puget Sound natural Coho and ESA-listed lower Columbia River natural Coho. Limits to fisheries in marine areas within northern Puget Sound and the Strait of Juan de Fuca were likewise constrained by management objectives reflecting rebuilding plans for some Puget Sound natural Coho stocks.

NORTH OF CAPE FALCON OCEAN FISHERIES

Details regarding North of Cape Falcon ocean salmon fishing plans were reported in Preseason Report III, published by the Pacific Fishery Management Council in April 2022 at: https://www.pcouncil.org/documents/2022/04/2022-preseason-report-iii-april-2022.pdf/.

Fisheries in this area are managed to meet conservation objectives for ESA-listed stocks, natural stocks and brood stock goals for hatchery stocks. Within these stock management objectives, ocean fishing seasons are defined that meet legal requirements of Tribal 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 Columbia River 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 established for the 2022 ocean Tribal, Non-Tribal troll, and sport fisheries. Ocean fishery quotas for Chinook salmon were defined by exploitation rate limits on several ESA-listed Puget Sound Chinook stocks as well as the total exploitation rate limit of 38% on ESA-listed lower Columbia River natural tule fall Chinook stocks in all fisheries.

NON-TRIBAL TROLL FISHERY

Pre-season quota levels for the Non-Tribal troll fisheries were 27,000 Chinook and 32,000 Coho with a clipped adipose fin, hereinafter referred to as marked. The preliminary estimate of Non-Tribal harvest in the 2022 North of Falcon troll fishery is 26,500 Chinook (98% of the coast-wide quota) and 13,400 Coho (42% of the coast-wide Non-Tribal troll quota). Trollers harvested 17,600 Chinook in the May 1 – June 29 fishery, and the remaining 8,900 Chinook were harvested in the summer all-species fishery between July 1 and September 30. All Coho were harvested during the summer all-species fishery.

TRIBAL TROLL FISHERY

The Makah, Quinault, Quileute, and Hoh Tribes opened their May-June Chinook Tribal Troll fisheries on May 1. The May 1 through June 30 Chinook Treaty Troll fishery harvested 5,509 Chinook or 27.5% of the 20,000 Chinook sub-quota. There were 186 landings during the May-June portion of the fishery.

The Makah, Quinault, Quileute and Hoh Tribes opened their all-species Tribal Troll fisheries on July 1. The all-species portion of the fishery ran from July 1 through September 15.

The fishery harvested 28,856 Chinook and 35,715 Coho, or 83.7% of the 34,491 Chinook sub-quota and 68.7% of the 52,000 Coho quota. The summer Chinook sub-quota was 34,491, which included the original sub-quota (20,000 Chinook) plus the remaining spring quota which was rolled over on an impact-neutral basis (14,491 Chinook). There were 333 landings during the all-species portion of the fishery.

Overall, the 2022 Treaty Troll fishery harvested 85.9% of the 40,000 Chinook quota and 68.7% of the 52,000 Coho quota. The total ocean salmon harvest for the 2022 Treaty Troll fishery was 34,365 Chinook and 35,716 Coho across 519 total landings. The majority of the Treaty Troll catch was taken in Area 4, with smaller amounts taken in Areas 2, 3, and 4b. Coho landings were highest in September accounting for 59.8% of the overall catch, followed by August at 33.9%. Chinook effort was highest in July, which accounted for approximately 59.8% of the overall Chinook catch.

OCEAN SPORT FISHERIES

Pre-season quotas for the Washington coastal sport fishery (Ocean Areas 1 through 4) were 27,000 Chinook and 168,000 marked Coho. Preliminary total catch estimates for the ocean sport fisheries north of Cape Falcon were 25,500 Chinook (94% of the preseason coast-wide quota) and 80,900 Coho (48% of the preseason coast-wide sport quota). A description of the season structure and catches by management area follows.

COLUMBIA RIVER AREA (INCLUDING OREGON)

Salmon sport fishing opened for all species in Ocean Area 1 (Columbia River Area) on June 25. A preseason quota of 84,000 marked Coho and a guideline of 7,700 Chinook were in place. The season opened with a limit of no more than one Chinook in the two-fish daily limit. Beginning on July 16, a closed zone within about three miles offshore between the Columbia River and Leadbetter Point went into effect to slow the harvest of Chinook. The fishery closed to retention of Chinook on August 23 when the guideline

was exceeded. A transfer of Chinook from other areas allowed the fishery to remain open for salmon except Chinook through the scheduled ending date of September 30. The catch estimates for Area 1 were 8,000 Chinook (104% of the preseason guideline) and 44,000 Coho (52% of the quota). The Chinook minimum size limit was 22 inches, and the Coho minimum size limit was 16 inches with a sub-area closure in the Columbia Control Zone. A preliminary overall legal-sized Coho mark rate of 53% was calculated from on-water data collection in this area.

Preliminary estimates of Coho encounters (retained and released) and mark rate in the Area 1 Coho mark-selective sport fishery, June 25 – September 30, 2022.			
Coho retained	Coho released	Total encounters	Mark %
44,000	39,000	83,000	53%

WESTPORT, WASHINGTON

Salmon sport fishing opened for all species in Ocean Area 2 (Westport, WA) on July 2. A preseason quota of 60,160 marked Coho and a guideline of 12,070 Chinook were in place. The fishery closed automatically, as scheduled, on September 30. The catch estimates for Area 2 were 11,700 Chinook (97% of the guideline) and 32,600 Coho (54% of the quota). The Chinook minimum size limit was 22 inches, and the Coho minimum size limit was 16 inches with a sub-area closure in the Grays Harbor Control Zone beginning August 8. A preliminary overall legal-sized Coho mark rate of 49% was calculated from on-water data collection in this area.

Preliminary estimates of Coho encounters (retained and released) and mark rate in the Area 2 Coho mark-selective sport fishery, July 2 – August 26, 2022.			
Coho retained	Coho released	Total encounters	Mark %
23,100	24,000	47,100	49%

LA PUSH, WASHINGTON

Salmon sport fishing opened for all species in Ocean Area 3 (La Push, WA) on June 18. A preseason quota of 4,370 marked Coho and a guideline of 1,120 Chinook were in place. The fishery closed automatically, as scheduled, on October 8. The catch estimates for Area 3 were 900 Chinook (80% of the overall guideline) and 2,200 Coho (50% of the quota). The Chinook minimum size limit was 24 inches, and the Coho minimum size limit was 16 inches. A preliminary overall legal-sized Coho mark rate of 47% was calculated from a combination of on-water data collection and dockside interviews in this area.

Preliminary estimates of Coho encounters (retained and released) and mark rate in the Area 3 Coho non-retention sport fishery, June 18 – September 30, 2022.			
Coho retained	Coho released	Total encounters	Mark %
2,200	2,500	4,700	47%

NEAH BAY, WASHINGTON

Salmon sport fishing opened for all species in Ocean Area 4 (Neah Bay, WA) on June 18. A preseason quota of 17,470 marked Coho and a guideline of 6,110 Chinook were in place. The fishery closed automatically, as scheduled, on September 30. The catch estimates for Area 4 were 4,900 Chinook (80% of the guideline) and 2,600 Coho (15% of the quota). The Chinook minimum size limit was 24 inches, and the

Coho minimum size limit was 16 inches. A preliminary overall legal-sized Coho mark rate of 51% was calculated from a combination of on-water data collection and dockside interviews in this area.

Preliminary estimates of Coho encounters (retained and released), in the Area 4 Coho Mark-selective sport fishery, June 18 – September 30, 2022.			
Coho retained	Coho released	Total encounters	Mark %
2,600	2,500	5,100	51%

NORTH OF CAPE FALCON INSIDE FISHERIES

WASHINGTON COASTAL RIVER FISHERIES

NORTH WASHINGTON COASTAL RIVERS

Net and sport fisheries directed at salmon in this region were implemented based upon preseason, Tribal-State agreements and were subject to in season adjustments. Tribal, primarily net, harvest includes non-selective catch from the Tsoo-Yess, Quillayute, Hoh, Queets, and Quinault Rivers. The 2022 Tribal net fisheries in north coastal rivers harvested an estimated 12,895 Chinook salmon and 39,108 Coho salmon through mid-November 2022.

Recreational fisheries conducted during 2022 in the Quillayute River systems included mark-selective fisheries targeting hatchery Chinook and Coho. Pre-season planning set salmon fisheries in the Hoh River as open to salmon fishing September 16 through November 30 with a daily limit of 2 (only 1 adult, release wild Coho) and open December 1 through December 15 with a daily limit of 1 coho. However, low fall flows and conservation concerns for Chinook resulted in an emergency closure that was in effect from October 8 through October 30. In the Quillayute watershed, preseason recreational salmon fishing on the Quillayute and Sol Duc rivers was open from May 1 through August 31 with a daily limit of 4 fish (only 2 adults, release wild Chinook and wild coho), open September 1 through September 15 with a daily limit of 6 fish (only 3 adults, release wild coho, retention of 1 wild Chinook allowed), and open September 16 through December 15 with a daily limit of 6 fish (only 3 adults, retention of 1 wild Chinook and 1 wild coho allowed). However, an emergency closure due to low flows was in effect October 8 through October 30. On the Bogachiel, Calawah, and Dickey rivers preseason recreational salmon fishing was open from July 1 through August 31 with a daily limit of 4 fish (only 2 adults, release of wild Chinook and wild Coho required), open September 1 through September 15 with a daily limit of 3 fish (only 1 adult, release wild coho), and open September 16 through December 15 with a daily limit of 3 fish (only 1 adult). However, an emergency closure due to low flows was in effect October 8 through October 30. Preseason planning set salmon fisheries in the Queets River system to open September 1 through November 30 with a daily limit of 3, of which only could be an adult. Unusual low fall river flows, and Chinook conservation concerns resulted in closing this fishery on October 8. Sport salmon fisheries in the upper Quinault River were scheduled for July 1 through November 30 for 2 adults. Unusual low fall flows and Chinook conservation concerns resulted in closing this fishery on October 8 and reopened for the retention of coho only on October 31. Harvest or impact estimates for these fisheries are not available at the time of this report.

GRAYS HARBOR, WASHINGTON

Harvest numbers reported for Grays Harbor include catch from both the Humptulips and Chehalis Rivers through mid-November, 2022. The non-selective Tribal net fisheries in Grays Harbor, and including

fisheries in the Humptulips and Chehalis Rivers, harvested an estimated 1,449 Chinook salmon and 21,935 Coho salmon.

The Non-Tribal commercial fishery in the northern portion of Grays Harbor near the Humptulips River (Area 2C) harvested 1 Chinook, 2 Coho, and 42 Chum. There were 3 marked Chinook salmon (mark-selective fishery), 3,516 Coho, and 5,550 Chum harvested in the Non-Tribal commercial gillnet fishery in Areas 2A and 2D. Sport salmon fisheries in the Humptulips River were scheduled for September 1 through December 31. In September, retention of 2 adults was allowed, of which one could be a wild Chinook and required the release of wild coho. In October, release of wild Chinook and coho was required and only one Chinook could be retained. Beginning November 1, the daily limit was one fish, and required the release of all Chinook and wild Coho. Due to unusual low fall flows, this fishery was closed October 10 and reopened October 29. This fishery closed on December 16 to address concerns for low steelhead forecast and returns. Sport salmon fisheries opened on September 16 in the Chehalis and on October 1 in tributaries and the upper river. These fisheries were scheduled to be open through December 31 allowing two adults to be retained but required the release of adult Chinook through October. Beginning on November 1, the daily limit was reduced to one adult. In December, wild coho were required to be released. As with other coastal rivers, low flow resulted in a temporary closure of these fisheries from October 10 through October 29. All areas within the Chehalis basin except the mainstem from the mouth up to the WDFW boat launch and the Satsop River closed to all fishing beginning December 1 due to steelhead concerns, while these other two areas close on December 16. Estimates of total recreational catch in these fisheries are not available at the time of this report.

COLUMBIA RIVER FISHERIES

Tribal and Non-Tribal net and sport salmon fisheries were implemented in the winter/spring (January-June 15), summer (June 16-July) and fall (August-December) periods. All fisheries were constrained by impacts on ESA-listed stocks. Winter/spring fisheries were constrained by impacts on ESA-listed upper Columbia River spring Chinook, Snake River spring/summer Chinook, and Willamette River spring Chinook. Summer season fisheries were constrained by harvest limits on upper Columbia summer Chinook and impacts to ESA-listed Sockeye and upriver summer steelhead. Fall fisheries were constrained by impacts to ESA-listed lower Columbia tule fall Chinook, Snake River fall Chinook, and upriver summer steelhead.

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 broodstock needs are met for hatchery salmon. Mainstem Columbia River fisheries are also developed and managed to remain within the requirements of the 2018–2027 US v. Oregon Management Agreement (MA), which includes Treaty Tribal/Non-Treaty sharing agreements. All data are preliminary and subject to change; some fisheries are still ongoing at the time of this report. The following section includes harvest numbers from Columbia River fisheries that are considered to be of the interest to PSC; therefore, the data may not match other reports that include total harvest.

WINTER-SPRING FISHERIES

Non-Tribal Net

The mainstem winter/spring commercial fishery operated under MSF regulations during 2002-2016. As a result of guidance from the Oregon and Washington Fish and Wildlife commissions, winter/spring Non-Tribal commercial salmon seasons did not occur in the mainstem Columbia River from 2017-2021. A

spring Chinook tangle net MSF period occurred on May 23 and resulted in 19 adipose fin clipped Chinook kept and 40 non-adipose fin clipped Chinook released in a reduced Zone 4-5 area due to a low commercial allocation of Willamette spring Chinook. Commercial non-MSFs during the winter/spring timeframe did occur in off-channel areas (Select Areas) in the Columbia River estuary but are not reported in this document.

Sport

Mainstem recreational MSFs for Chinook began in 2001. In 2022, the area below Bonneville Dam was open from January 1 – April 6, May 12 – 22, and May 24 – June 15 for hatchery Chinook retention. Catch estimates for this area totalled 12,675 hatchery adult spring Chinook kept and 4,103 non-adipose fin clipped Chinook released. From Bonneville Dam to the Washington-Oregon state line, Chinook retention was open April 1 – May 3, May 26, May 28, and June 4 – 15, with 1,223 hatchery adult spring Chinook kept and 485 non-adipose fin clipped Chinook released. The Snake River fishery structure included one specific catch area open on a days-per-week rotation May 4 – 12, May 25 – 28, and June 4 – 6. Catch in the Snake River fishery totalled 1,388 hatchery adult spring Chinook, 327 non-adipose fin clipped (unmarked), and 25 adipose fin clipped (marked) fish released. Fisheries also occurred in tributaries but are not reported in this document.

Preliminary estimated encounters of adult Spring Chinook in the Winter/Spring Columbia River mark-selective sport fishery.

System	Area	Chinook Kept	Chinook Released	Total Handle	% Kept
Columbia River	Below Bonneville Dam	12,675	4,103	16,778	76%
Columbia River	Bonneville Dam to WA-OR state line	1,223	485	1,708	72%
Snake River	Washington waters	1,388	352	1,740	80%

Tribal

Tribal mainstem winter/spring fisheries typically occur from January 1 through June 15. Tribal mainstem fisheries are not mark-selective. Tribal fisheries are primarily conducted in the mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Some additional harvest occurs just downstream of Bonneville Dam in platform and hook-and-line fisheries. Spring season fisheries may include three fishery sectors, a ceremonial permit gillnet fishery, a platform and hook-and-line fishery and a commercial gillnet fishery (during winter and periodically in the spring, after ceremonial needs have been met).

During 2022, the platform and hook-and-line fishery was open for subsistence fishing throughout the winter/spring period. Commercial sales of platform and hook-and-line caught fish began in the spring management period on June 4. There was no commercial gillnet fishing in the spring management period in 2022. Preliminary harvest estimates from the combined spring season fisheries totalled 16,307 upriver spring Chinook (includes harvest below Bonneville Dam). Tribal harvest in tributaries is not included in this report.

SUMMER FISHERIES

Non-Tribal Net

As a result of guidance from the Oregon and Washington Fish and Wildlife commissions, non-Treaty commercial fisheries did not occur in the summer management timeframe. Commercial non-MSFs during

the summer timeframe did occur in off-channel areas (Select Areas) in the Columbia River estuary but are not reported in this document.

Sport

Summer recreational Chinook MSFs were open June 16-22 and July 1-31 from the Astoria-Megler Bridge, near the mouth of the Columbia River, upstream to Bonneville Dam and June 16 – July 31 from Bonneville Dam upstream to Priest Rapids Dam. An estimated 3,244 and 284 adult summer Chinook were harvested, and 2,032 and 120 were released below and above Bonneville Dam, respectively. The fishery (mark-selective) above Priest Rapids Dam opened on July 1 and resulted in 6,355 adult Chinook kept and 1,373 released. In-river allocation agreements dictate that a substantial share of the non-Tribal catch be provided for fisheries upstream of Priest Rapids Dam.

Preliminary estimated encounters of adult Summer Chinook in the Upper Columbia River Chinook mark-selective sport fishery.

System	Area	Chinook Kept	Chinook Released	Total Handle	% Kept
Columbia River	Below Bonneville Dam	3,244	2,032	5,276	61%
Columbia River	Bonneville to Priest Rapids Dam	284	120	404	70%
Upper Columbia River	Above Priest Rapids Dam	6,355	1,373	7,728	82%

Tribal

Summer season Tribal fisheries occurred from June 16 through July 31. Tribal mainstem fisheries are not mark-selective. Tribal fisheries are primarily conducted in the mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Some additional harvest occurs just downstream of Bonneville Dam in platform and hook-and-line fisheries. There were seven weekly commercial gillnet fishing periods conducted from June 16 – July 28. Platform and hook-and-line fisheries also occurred throughout the season, and fish were sold commercially or retained for subsistence use. Tribal fisheries within the mainstem harvested a total of 16,156 upper Columbia summer Chinook.

FALL FISHERIES

Non-Tribal Net

Fall season mainstem fisheries are typically categorized into early- and late-fall seasons. The early-fall season encompasses the month of August and in some years, early September, whereas the late-fall season generally begins in mid-September and may continue through October. Time, area, and gear restrictions were in place for fall season commercial gillnet fisheries. Fall gillnet fisheries are non-mark selective. No mark-selective seine or pound net fisheries occurred due to ESA constraints; however, the mark-selective Coho tangle net fishery did occur.

The early fall season consisted of eight fishing periods August 10 – September 2 in commercial Zones 4-5 (Warrior Rock to Beacon Rock) and resulted in 24,232 Chinook and 930 Coho harvested. The late-fall season consisted of seven fishing periods September 18 – October 6 in the same area and resulted in 6,508 Chinook and 1,223 Coho harvested. Tangle net fisheries occurred September 26 – October 28 (25 periods) in commercial Zones 1-3 (mouth to Warrior Rock) and were mark-selective for Coho and non-mark selective for Chinook and resulted in 221 Chinook and 3,797 marked Coho (855 unmarked Coho were

released) being harvested. Commercial non-MSF during the fall timeframe did occur in off-channel areas (Select Areas) in the Columbia River estuary but are not reported in this document.

Sport

Fall season recreational fisheries are mark-selective for Coho downstream of the Hood River Bridge, and occasionally include some mark-selective periods for Chinook in the Buoy 10 area primarily and less frequently in the 69-mile stretch of the lower Columbia River from the Tongue Point line upstream to Warrior Rock, which is near the mouth of the Willamette River. The only MSF time period for Chinook in the mainstem Columbia River during 2022 occurred in Buoy 10 from August 1-24.

The Buoy 10 fishery was open August 1 – September 1 and September 15 – December 31; Chinook retention was allowed August 1-30 and October 1-7 and the Coho MSF remained open throughout the remainder of the fall season except September 2-14 when salmonid angling was closed. Additional regulations for the Buoy 10 fishery included minimum size limits for Chinook (24-inches) and Coho (16-inches). Released Chinook typically consisted of fish that did not meet the minimum size requirement, fish released during non-retention periods, and any voluntary releases of legal-sized Chinook throughout the season. Buoy 10 catches from August 1-24 during the Chinook MSF included 16,672 hatchery Chinook and 2,660 hatchery Coho kept, and released fish included 17,296 Chinook and 1,913 Coho. The remaining Buoy 10 catches included 12,116 Chinook and 4,923 hatchery Coho kept, and released fish included 4,515 Chinook and 2,615 Coho.

The lower Columbia River (LCR) mainstem sport fishery from the west Puget Island line upstream to Bonneville Dam was open August 1 – September 1, east Reed Island to Bonneville Dam September 15-30, and Rocky Point – Tongue Point line to Lewis River October 1 – December 31; salmonid angling was closed beginning September 2 until each section re-opened and Chinook retention was closed October 8 – December 31. The LCR fishery was mark-selective for Coho and non-mark selective for Chinook, when open. The kept catch estimate for the LCR sport fishery included 9,495 adult Chinook (887 released) and 1,582 hatchery Coho (540 released).

The mainstem sport fishery from Bonneville Dam to the Highway 395 Bridge (near Pasco, Washington; upstream of McNary Dam) was open August 1 – December 31 that included MSF regulations for Coho downstream of the Hood River Bridge and closed to Chinook retention October 8 – December 31. Adult catch estimates for the Bonneville to Highway 395 Bridge totalled 9,781 fall Chinook (1,474 released) and 4,917 Coho (427 released). Additional fisheries occurred on the Columbia River, including tributaries, Hanford Reach area (downstream of Priest Rapids Dam), and in the Snake River, but are not reported in this document.

Preliminary estimated encounters of adult Fall Chinook and Coho Salmon in the Columbia River Fall Sport Fisheries

System	Area	Chinook Kept	Chinook Released	Total Handle	% Kept
Columbia River	Buoy 10	28,789	21,905	50,694	57%
Columbia River	LCR Sport	9,495	887	10,382	91%
Columbia River	Bonneville-Hwy 395	9,781	1,474	11,255	87%
System	Area	Coho Kept	Coho Released	Total Handle	% Kept
Columbia River	Buoy 10	8,904	5,282	14,186	63%
Columbia River	LCR Sport	1,582	540	2,122	75%
Columbia River	Bonneville-Hwy 395	4,917	427	5,344	92%

Tribal

Fall season Tribal fisheries occur from August 1 through December 31. Tribal fisheries are not mark-selective. Tribal fisheries are primarily conducted in the mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). A small amount of additional harvest occurred just downstream of Bonneville Dam in platform and hook-and-line fisheries in 2022. Platform and hook-and-line fisheries will remain open through December 31.

The Tribal commercial gillnet fishery consisted of seven weekly fishing periods from August 22 through October 6. Preliminary harvest estimates for all fall season fisheries total 175,898 adult fall Chinook and 11,165 adult Coho; however, some additional fish may be landed in the ongoing platform fisheries. Harvest estimates reported herein do not include catch from tributary fisheries.

PUGET SOUND FISHERIES

Puget Sound marine fisheries of interest to the PSC were regulated to meet conservation and allocation objectives for Chinook, Coho, Chum, 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 (PSIT and WDFW 2010). 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 and due to conservation concerns for some Puget Sound Coho stocks. The primary constraining Puget Sound Chinook stocks during 2021 preseason planning included Mid-Hood Canal, Stillaguamish, Snohomish, and Nooksack Chinook. Strait of Juan de Fuca and Snohomish Coho were the primary Coho management units of concern for developing fisheries in the Strait of Juan de Fuca, San Juan Islands, and Puget Sound.

STRAIT OF JUAN DE FUCA SPORT

Marked Chinook retention was allowed for sport fishing in marine salmon management Area 5 in the winter/spring season from March 1 through April 8. Sport fishing regulations allowed retention of marked Chinook in Area 5 in the summer season daily from July 1 – 4, then on even numbered days from July 5 – 24, then daily again from July 25 – August 15. Sport fishing regulations allowed retention of marked Chinook from July 1 – August 3 in Area 6. Marked Coho retention was also permitted from July 1 – September 28 in Area 5 and Area 6. Dungeness Bay was open for marked Coho retention during the month of October. Preliminary estimates of Chinook and Coho encounters (retained and released fish) and the legal-size mark rate in the Area 5 and Area 6 sport mark-selective fisheries are presented in the following tables.

Preliminary estimates of Chinook retained, released (legal and sub-legal size), and the legal-size mark rate in the Area 5 sport mark-selective fishery, July 1 – August 15, 2022.

Chinook retained	Chinook released	Total encounters	Mark % (legal size)
3,884	26,345	30,229	58.9%

Preliminary estimates of Coho retained, released (legal and sub-legal size), and the legal-size mark rate in the Area 5 sport mark-selective fishery, July 1 – September 28 2022.			
Coho retained	Coho released	Total encounters	Mark % (legal size)
16,303	28,545	44,848	35.9%

Preliminary estimates of Chinook retained, released (legal and sub-legal size), and the legal-size mark rate in the Area 6 sport mark-selective fishery, July 1 – August 3, 2022.			
Chinook retained	Chinook released	Total encounters	Mark % (legal size)
4,791	15,022	19,813	54.5%

Preliminary estimates of Coho retained, released (legal and sub-legal size), and the legal-size mark rate in the Area 6 sport mark-selective fishery, July 1 – September 28, 2022.			
Coho retained	Coho released	Total encounters	Mark % (legal size)
4,374	7,721	12,095	35.6%

A detailed report of this summer period sport fishery, including estimated catch, effort and other results of the sampling and monitoring programs, will be available from the Washington Department of Fish and Wildlife in early 2023.

STRAIT OF JUAN DE FUCA TRIBAL TROLL (AREA 4B, 5, 6, AND 6C)

During the winter Tribal troll fishery in Areas 4B, 5, 6, and 6C (November 1, 2021 – April 15, 2022), 1,900 Chinook and zero Coho were caught. In the summer Tribal troll fishery in Areas 5, 6, and 6C only (June 1 – September 30, 2022), 800 Chinook, and 800 Coho were caught. The Tribal catch estimates from this area do not include catch from Area 4B during the May – September PFMC management period, which have been included in the North of Cape Falcon Tribal ocean troll summary.

STRAIT OF JUAN DE FUCA TRIBAL NET

Preliminary estimates of the 2022 catch in the Strait of Juan de Fuca Tribal net fisheries (no Non-Tribal net fisheries in the Strait of Juan de Fuca) are 400 Chinook and 1,600 Coho salmon.

SAN JUAN ISLANDS NET (AREAS 6, 7, AND 7A)

Preliminary estimates of the 2022 catch in the San Juan Island net fishery directed at Sockeye, or Chum salmon totalled 27 Chinook and 7,808 Coho salmon in the Non-Tribal fishery. Tribal fishery landings from this area for all gear types totalled 4,600 Chinook and 8,600 Coho.

SAN JUAN ISLANDS (AREA 7) SPORT

Marked Chinook retention was allowed in Area 7 during the summer season. The summer fishery was originally scheduled for one weekend opening, but was extended based on in-season management for three weekends, running July 14 through July 16, July 21 through July 23, and July 28 through July 30, 2022. The southern Rosario Strait and eastern portions of Area 7 were closed for the season to protect Puget Sound Chinook salmon. Additional sub-area closures are described in the 2021-22 Washington State Sport Fishing Rules Pamphlet. The table below presents estimated Chinook encounters (retained and released) and the legal-size mark rate in the Area 7 sport mark-selective fishery during July 2022.

Estimated Chinook retained, released (legal and sub-legal size) and the legal-size mark rate in the Area 7 sport mark-selective fishery, July 2022.			
Chinook retained	Chinook released	Total encounters	Mark % (legal size)
1,766	2,063	3,829	63%

PUGET SOUND MARINE SPORT (AREAS 8-13)

Mark-selective sport fisheries (MSFs) targeting adipose fin-clipped (marked) hatchery Chinook were conducted in Area 10 (Seattle-Bremerton), Area 11 (Tacoma-Vashon Island), and Area 13 (South Puget Sound) during the winter (October 1, 2021 – June 30, 2022,). Additionally, mark-selective fisheries occurred during the summer season in Area 8.1 (Deception Pass, Hope Island, and Skagit Bay), Area 8.2 (Port Susan & Port Gardner), Area 9 (Admiralty Inlet), Area 10, Area, Area 12, and Area 13. Specific dates of these winter and summer mark-selective fishery seasons, by area, are shown in the table below.

Puget Sound Chinook mark-selective sport fisheries conducted in marine areas during 2021.	
Areas	Season
8.1	Summer: August 1 – October 9, 2022.
8.2	Summer: August 13 – September 19, 2022.
9	Summer: July 14 –16; July 21 – 23; July 28 – August 5, 2022.
10	Winter: January 1 – January 14, 2022; February 24 – March 31, 2022. Summer: July 14 – August 31, 2022; Sinclair Inlet: July 1 – September 30, 2022.
11	Summer: June 1 – 3, 2022; July 1 – July 17, 2022; August 3 – August 17, 2022.
12	Summer: July 1 – September 30, 2022 (South of Ayock Point).
13	Year round: January 1 – December 31, 2022.

Post-season reports detailing results of these Chinook MSFs, including estimates of retained and released encounters, effort and mark rates from sampling and monitoring programs, will be available from the Washington Department of Fish and Wildlife in the spring of 2023.

Mark-selective sport fisheries during 2021 directed at marked Coho were conducted in the following marine areas: Areas 5 and 6 from July 1 – September 28, Area 7 from July 14 – 16, July 21 – 23, and July 28 – September 30, Area 9 from 14 – 16, July 21 – 23, and July 28 – September 25, and in Area 13 from January 1 – December 31. Marked and unmarked Coho retention was permitted in Tulalip Bay from May 27 – September 5 (on Fridays through noon, Mondays only) as well as from September 10 – September 25 (Saturdays, Sundays), in Area 10 from July 14 – October 31, in Area 11 from June 1 – June 4, July 1 – July 13, and August 2 – October 31, 2022; and in Area 12 from September 1 – October 31, 2022 in the whole area, as well as from August 1 – August 31, 2022 in Quilcene Bay, and from July 1 – September 30, 2022 in the area South of Ayock Point.

PUGET SOUND MARINE NET (AREAS 8-13 & 7B-D)

To achieve conservation objectives for natural Puget Sound Chinook, limited marine net fishing opportunities directed at returns of hatchery Chinook and both hatchery and natural Coho were planned for 2022. Chinook and Coho were also intercepted in fisheries directed at Chum salmon.

A total of 51,500 Chinook and 86,100 Coho were landed in the Tribal marine net fisheries in Puget Sound (Areas 8-13 & 7B-D) during 2022. Most of these Chinook (87%) were landed in Chinook-directed fisheries in terminal marine Areas 12H, 10E, 7C, 8D, and 12C, while 88% of these Coho were landed in Coho-

directed fisheries in terminal marine Areas 13D, 10E, 12C, 12A, 7C, 9A and 8A. Non-Tribal net fishery landings from these areas totalled 17,730 Chinook and 4,309 Coho. Chinook landings in the Non-Tribal net fishery occurred during Chinook-directed fisheries in Areas 7B, 7C, and 12C.

Puget Sound Rivers Fisheries

Tribal net and Non-Tribal sport fisheries were implemented in freshwater systems based upon preseason, Tribal-State agreements and subject in part to in-season adjustment. Harvest of Chinook and Coho in the Tribal in-river net fisheries (includes catch from river systems in the Strait of Juan de Fuca, Hood Canal, and Puget Sound) totalled 25,300 Chinook and 116,000 Coho during 2022.

Also, recreational fisheries targeting Chinook salmon were conducted in nine Puget Sound Rivers that have PSC Chinook coded wire tag (CWT) exploitation rate indicator stocks or double index tag (DIT) groups, as listed in the table below. Of these, seven rivers had mark-selective fisheries and two rivers had non-selective fisheries, as follows:

Chinook mark-selective sport fisheries conducted in Puget Sound rivers during 2022.

River	Season
Nooksack River	August 1 – September 30 from Lummi Indian Reservation, October 1 – 15 South Fork.
Cascade River	July 1 – July 15.
Skagit River	July 1 – July 15 from Highway 530 bridge.
Skykomish River	May 21 – July 31 from mouth to boat ramp below the Lewis St. Bridge in Monroe.
Carbon River	September 1 – September 30 Wednesdays through Saturdays only.
Puyallup River	August 16 – November 30**,** from East Main Bridge to Carbon River closed Sundays, Mondays, Tuesdays.
Nisqually River	July 1 – November 15, Sep 4 – November 7 closed Sundays, Mondays.

Chinook non-selective sport fisheries conducted in Puget Sound rivers during 2022.

River	Season
Samish River	August 1 – September 13 from the mouth to Thomas Rd. Bridge.
Green River	September 1 – December 31 from old highway 99 to South 212 St. Bridge.

During the 2022 season there were mark-selective sport fisheries targeting hatchery Coho in the rivers of Puget Sound that have PSC Coho CWT exploitation rate indicator stocks or DIT groups on the Wallace River (Skykomish tributary), from October 1 through November 30. A mark-selective fishery was open on the Samish River from August 1 – September 13, on the Dungeness River from October 16 through November 30, and on the Nisqually River from July 1 – November 15. Recreational non-selective Coho fisheries were conducted on the Nooksack River, Skagit River, Green River, Carbon River, Puyallup River, and Quilcene River.

REFERENCES

Pacific Salmon Treaty (PST) Act of 1985. 2019 Agreement. U.S.-Canada. Public Law 99-5, 16 U.S.C. 3631.

Puget Sound Indian Tribes and Washington Department of Fish & Wildlife (PSIT and WDFW). 2010. Comprehensive Management Plan for Puget Sound Chinook: Harvest Management Component. Northwest Indian Fisheries Commission, Olympia, Washington. 237 p.

Table 15. Preliminary 2022 Landed Chinook Catch for Washington and Oregon Fisheries of Interest to the Pacific Salmon Commission. Values are presented in number of fish rounded to the nearest 100. [9/]

	2022			Landed				
	Preseason [5/]							
Fisheries	Total Mortality [1/]	Landed [2/]	Preliminary Landed	2021	2020	2019	2018	2017
OCEAN FISHERIES								
Commercial Troll								
Neah Bay and La Push (areas 3,4,4B) [3/]	56,100	49,600	38,400	12,000	7,600	39,100	33,700	35,200
Columbia Ocean Area and Westport (area 1,2) [4/]	26,600	17,400	22,500	15,500	6,800	3,400	13,900	24,700
Sport (see text for quota information)								
Neah Bay (area 4)	6,900	6,100	4,900	4,400	2,000	3,900	3,000	7,300
La Push (area 3)	1,300	1,100	900	300	20	600	400	500
Westport (area 2)	13,300	12,100	11,700	7,100	4,800	2,400	4,900	6,600
Columbia Ocean Area (area 1)[13/]	8,800	7,700	8,000	6,000	800	4,000	2,300	7,600
INSIDE FISHERIES								
Sport [10/]								
Strait of Juan de Fuca (area 5,6)	20,400	11,700	8,600	18,400	6,600	11,300	14,300	9,900
San Juan Islands (area 7)	3,400	1,800	1,200	3,300	3,400	7,100	7,300	11,300
Puget Sound Marine (area 8-13)	31,700	18,600	-	29,200	11,200	20,500	29,900	22,800
Puget Sound Rivers [12/]	14,800	14,400	-	17,700	11,300	9,900	13,300	18,500
North WA Coastal Rivers	-	-	-	1,200	1,400	1,500	1,600	1,500
Grays Harbor [7/]			-	1,200	1,500	1,700	3,700	2,700
Columbia River (Spring) [6/]	-	-	13,900	6,100	2,000	2,000	8,100	9,100
Columbia River (Summer) [6/]	-	-	3,500	2,200	1,300	-	1,100	3,800
Columbia River (Fall) (incl. Buoy 10) [6/]	-	-	47,400	45,800	40,800	22,000	22,400	60,400
Commercial[11/]								
Strait of Juan de Fuca net and troll (area 4B,5,6C)	6,200	4,600	6,700	1,700	900	1,500	3,100	1,900
San Juan Islands (area 6,7, 7A)	7,900	7,900	4,600	2,000	-	3,600	3,900	2,600
Puget Sound Marine (8-13,7B-D)	38,300	37,700	69,300	48,900	35,400	72,700	70,600	90,600
Puget Sound Rivers[12/]	45,000	45,000	25,300	34,200	18,900	38,400	41,700	53,900
North WA Coastal Rivers	-	-	12,900	11,300	16,700	12,200	11,400	14,400
Grays Harbor (area 2A-2D) [7/]	1,300	1,100	1,500	2,400	3,600	2,400	2,700	3,700
Columbia River Net (Winter/Spring) [8/]	-	-	15,500	4,400	4,400	4,700	10,900	8,100
Columbia River Net (Summer) [8/]	-	-	14,700	11,200	8,400	5,600	9,500	16,300
Columbia River Net (Fall) [8/]	-	-	196,800	91,400	136,600	81,100	64,200	140,400

Table 15 Footnotes:

[1/] Estimates of total mortality (not adjusted for adult equivalents) include non-retention mortality. Total Mortality is estimated by Fishery Regulation Assessment Model (FRAM) as catch + incidental mortality, where incidental mortality = drop off + non-retention mortality (https://framverse.github.io/fram_doc/index.html).

[2/] For the ocean fisheries, this column shows the Chinook troll and recreational quotas used for 2022 preseason fishery planning as distributed by ocean area (Landing Quotas = Landed). 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 of Juan de Fuca net and troll (October-April).

[4/] Includes Oregon troll catch in Area 1.

[5/] FRAM modeled preseason fishery impacts cover the current fishery planning year, for Chinook defined as May 1 through April 30.

[6/] Mainstem retained adult sport catch only (upstream to McNary Dam for spring, Priest Rapids Dam for summer and to Hwy 395 for fall). See tables 5, 8, 24-25 in the current Joint Staff Report regarding spring and summer Chinook and tables 25-27 in the annual fall report. https://wdfw.wa.gov/fishing/management/columbia-river/compact/other-information.

[7/] Includes Grays Harbor catch, as well as catch from the Chehalis and Humptulips Rivers and their tributaries for sport fisheries; includes Chehalis and Humptulips Rivers for net fishery estimates.

[8/] Tribal catch includes adult-sized Chinook and Non-Tribal catch includes retained catch (adult + jack). Includes Tribal C&S and Tribal/Non-Tribal commercial (upstream to McNary Dam). Excludes Non-Tribal Select Area commercial and seine catches. Catch data from annual Joint Staff Reports. https://wdfw.wa.gov/fishing/management/columbia-river/compact/other-information

[9/] Includes catch from mark-selective fisheries as shown in Table 3.

[10/] Sport data for the most recent two years are preliminary. All data subject to change.

[11/] Includes Non-Tribal & Tribal commercial, as well as Tribal C&S for all gear types.

[12/] Chinook fisheries in Puget Sound Rivers are modeled using the Terminal Area Management Module (TAMM), based upon FRAM output of terminal run sizes. Total Mortality is estimated in TAMM as catch + non-retention mortality (https://framverse.github.io/fram_doc/index.html).

[13/] Includes Oregon sport catch in Area 1.

Table 16. Preliminary 2022 Landed Coho Catch for Washington and Oregon Fisheries of Interest to the Pacific Salmon Commission. Values are presented in number of fish rounded to the nearest 100. [6/]

	2022			Landed				
	Preseason [9/]							
Fisheries	Total Mortality [1/]	Landed [2/]	Preliminary Landed	2021	2020	2019	2018	2017
OCEAN FISHERIES								
Commercial Troll								
Neah Bay and La Push (area 3,4,4B) [3/]	65,500	59,100	37,200	25,400	14300	55,100	11,400	13,300
Columbia Ocean Area and Westport (area 1,2) [10/]	34,700	24,900	11,900	4,500	800	5,900	1,300	1,800
Sport (see text for quota information)								
Neah Bay (area 4)	21,900	17,500	2,600	2,600	3,100	6,200	4,900	3,500
La Push (area 3)	5,300	4,400	2,200	1,300	200	1,800	1,000	1,750
Westport (area 2)	73,900	62,200	32,600	20,700	7,900	20,200	15,400	15,750
Columbia Ocean Area (area 1)[12/]	97,700	84,000	44,000	39,500	12,800	53,500	20,600	21,600
INSIDE FISHERIES								
Sport [7/]								
Strait of Juan de Fuca (area 5,6)	31,400	25,200	20,700	37,100	42,100	15,800	19,400	4,800
San Juan Islands (area 7)	5,700	4,300	1,300	500	10,800	5,800	4,800	100
Puget Sound Marine (area 8-13)	60,300	53,300	-	65,600	44,400	43,000	50,100	31,400
Puget Sound Rivers	22,100	20,300	-	39,100	21,300	25,100	19,600	16,700
North WA Coastal Rivers	6,900	6,600	-	2,500	2,700	3,900	2,000	4,900
Grays Harbor [5/]	26,700	25,400	-	4,200	4,400	13,500	4,000	9,200
Columbia River Buoy 10[4/,11/]	65,600	55,000	8800	42200	7,100	22,800	6,800	18,800

Commercial [8/]								
Strait of Juan de Fuca net and troll (area 4B,5,6C)	3,300	3,200	3,000	2,500	1,700	600	5,000	1,200
San Juan Islands (area 6,7,7A)	14,400	9,200	16,400	9,000	5,200	1,900	3,900	3,400
Puget Sound Marine (area 8-13,7B-D)	123,200	120,600	90,400	163,100	119,800	47,300	124,600	134,400
Puget Sound Rivers	81,100	79,500	116,000	135,700	73,400	43,400	114,800	63,200
North WA Coastal Rivers	34,600	33,900	39,100	23,400	30,800	13,400	22,300	63,700
Grays Harbor (area 2A-2D) [5/]	47,900	46,900	25,500	13,900	6,500	10,200	9,800	12,700

Table 16 Footnotes:

[1/] Estimates of total mortality include non-retention mortality. Total Mortality is estimated by Fishery Regulation Assessment Model (FRAM) as catch + incidental mortality, where incidental mortality = drop off + non-retention mortality (https://framverse.github.io/fram_doc/index.html).

[2/] For ocean fisheries this column shows the Coho troll and recreational quotas used for 2022 preseason fishery planning as distributed by ocean area (Landing Quotas = Landed). 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 the PFMC period included under Strait Juan de Fuca net and troll (October-April).

[4/] Retained catch only. See table 26 in the current Fall Joint Staff report available online at https://wdfw.wa.gov/fishing/management/columbia-river/compact/other-information.

[5/] Includes Grays Harbor catch, as well as catch from the Chehalis and Humptulips Rivers; their tributaries are included in sport estimates only.

[6/] Includes catch from mark-selective fisheries where estimates are available.

[7/] Sport data for the most recent two years are preliminary. All data subject to change.

[8/] Includes Non-Tribal and Tribal commercial and take home, as well as Tribal ceremonial and subsistence (C&S) for all gear types. Starting in 2012, the Copalis, Moclips, and Ozette Rivers have been removed from landed catch.

[9/] FRAM modeled preseason fishery impacts cover the current fishery planning year, for Coho defined as January 1 through December 31.

[10/] Includes Oregon troll catch in Area 1.

[11/] For Buoy 10: see Table 25 in the annual fall report.

[12/] Includes Oregon sport catch in Area 1.

Table 17. Mark-Selective Chinook and Coho Fisheries by Area and Year. "Yes" denotes that a mark-selective fishery occurred, even if it only occurred in a subset of the fishing area, season, gear type, or user group.

Selective Coho	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Ocean Troll													
Cape Flattery & Quillayute (Areas 3/4)	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes
Columbia R & Grays Harbor (Areas 1 & 2)	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes
Ocean Sport													
Neah Bay (Area 4)	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes
LaPush (Area 3)	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes
Grays Harbor (Area 2)	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes
Col. R. (Leadbetter Pt. to Cape Falcon)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Inside Fisheries													
Sport													
Juan de Fuca (Areas 5 & 6)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
San Juan Islands (7)	yes	yes	no	no	no	no	no	yes	yes	yes	yes	yes	yes
Puget Sound Sport (Areas 8-13 all year)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Rivers	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
North WA Coastal Rivers	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Grays Harbor (Areas 2-2)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	yes
Willapa Bay (Area 2-1)	no	yes	no	no	no	yes	no	yes	no	no	no	no	yes
Columbia River Buoy 10	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Commercial													
North WA Coastal Rivers	no	no	no	no	no	no	no	no	no	no	no	no	no
Grays Harbor (Areas 2A-2D)	no	no	no	no	no	no	no	no	no	no	no	yes	yes
Willapa Bay (Area 2-1)	no	no	no	no	no	no	no	no	no	no	no	no	yes
Columbia River Net/ - Fall	yes	yes	yes	yes	no	no	no	yes	yes	yes	no	no	no
Strait of Juan de Fuca (Areas 4B/5/6C) Net & Troll	no	no	no	no	no	no	no	no	no	no	no	no	no
San Juan Islands (Areas 6, 7 & 7A)	yes	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Marine (Areas 8 - 13)	no	no	no	no	no	no	yes	no	no	no	no	no	no
Puget Sound Rivers	no	no	no	no	no	no	no	no	no	no	no	no	no

Selective Chinook	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Ocean Troll													
Cape Flattery & Quillayute (Areas 3/4/4B)	no	no	no	no	no	no	no	no	no	no	no	no	no
Columbia. R & Grays Harbor (Areas 1&2)	no	no	no	no	no	no	no	no	no	no	no	no	no
Ocean Sport													
Neah Bay (Area 4)	no	no	no	no	no	no	no	yes	yes	yes	yes	yes	yes
La Push (Area 3)	no	no	no	no	no	no	no	yes	yes	yes	yes	yes	yes
Grays Harbor/Westport (Area 2)	no	no	no	no	no	no	yes	yes	yes	yes	yes	yes	yes
Col. R./Ilwaco (Leadbetter Pt. to Cape Falcon)	no	no	no	no	no	no	no	yes	yes	yes	yes	yes	yes

Inside Fisheries

Sport													
Juan de Fuca (Area 5&6)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
San Juan Islands (Area 7)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Sport (Areas 8-13)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Rivers	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
North WA Coastal Rivers	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Grays Harbor (Areas 2-2)	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no
Columbia River Sport - Winter/Spring	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Columbia River Sport - Summer	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Columbia River Sport - Fall	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	no	no
Willapa Bay (Area 2-1)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Commercial													
North WA Coastal Rivers	no	no	no	no	no	no	no	no	no	no	no	no	no
Grays Harbor (Areas 2A-2D)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no
Willapa Bay (Area 2-1)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Columbia River Net-Winter/Spring	yes	no	no	no	no	no	yes	yes	yes	yes	yes	yes	yes
Columbia River Net - Summer	no	no	no	no	no	no	no	no	no	no	no	no	no
Columbia River Net - Fall	no	no	no	no	no	no	yes	yes	yes	yes	no	no	no
Strait of Juan de Fuca(4B/5/6C) Net & Troll	no	no	no	no	no	no	no	no	no	no	no	no	no
San Juan Islands (Areas 6, 7 & 7A)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Marine (Areas 7B-D,8 - 13)	yes	yes	no	no	no	no	no	yes	no	no	no	yes	yes
Puget Sound Rivers	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	no

PRELIMINARY REVIEW OF THE 2022 WASHINGTON CHUM SALMON FISHERIES OF INTEREST TO THE PACIFIC SALMON COMMISSION

This summary report provides a preliminary review of the 2022 U.S. Chum salmon (Oncorhynchus keta) fisheries conducted by Puget Sound salmon co-managers (Puget Sound Treaty fishing tribes and the State of Washington) in the Strait of Juan de Fuca (Salmon Management and Catch Reporting Areas 4B, 5 and 6C), the San Juan Islands and the Point Roberts area (Areas 7 and 7A) (Figure 39), conducted in compliance with provisions of Chapter 6 of Annex IV of the Pacific Salmon Treaty (PST 2019). The harvest and abundance information provided are based on preliminary data reported through November 21, 2022. These preliminary data are subject to correction and revision as additional information becomes available.

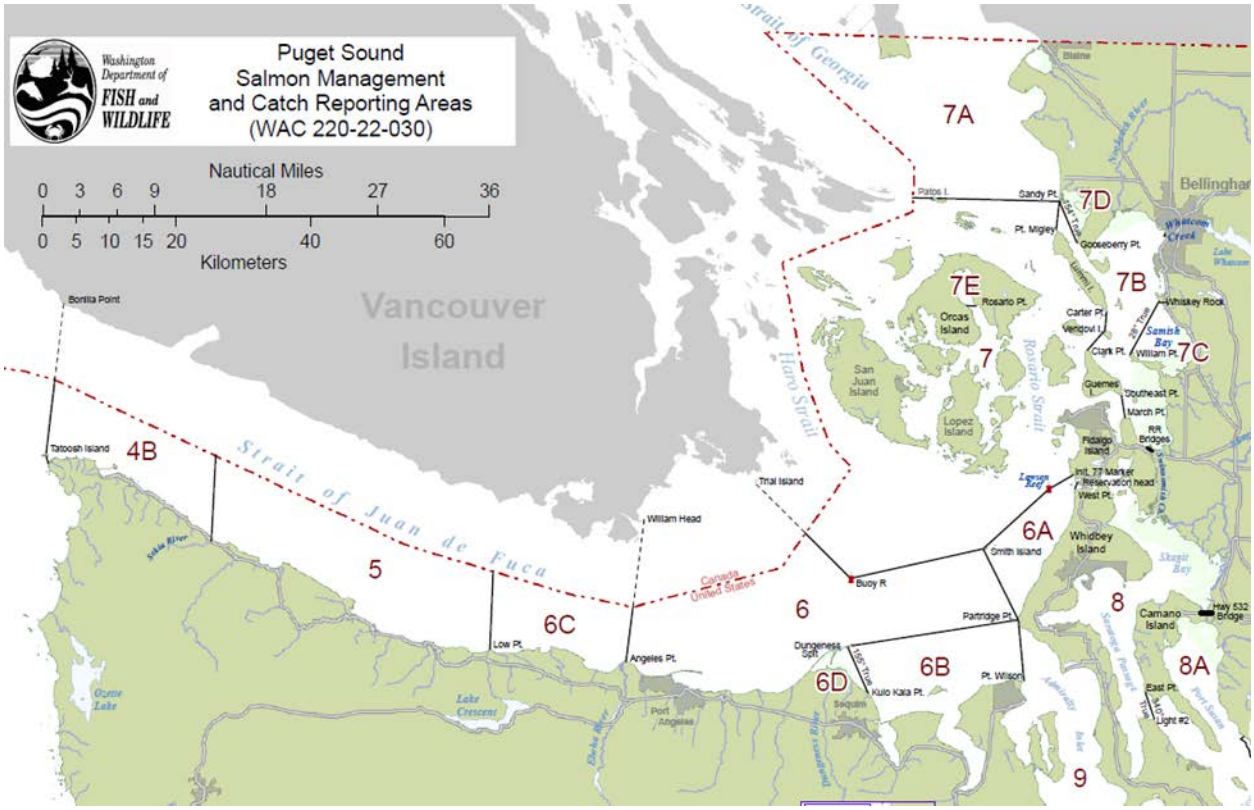


Figure 39. Puget Sound Salmon Management and Catch Reporting Areas with Chum salmon fisheries of interest to the Pacific Salmon Commission.

MIXED STOCK FISHERIES

AREAS 4B, 5 AND 6C

As in recent years, the 2022 Chum salmon fishery in Areas 4B, 5 and 6C was restricted to limited effort by Tribal fishers using gillnets. The fall Chum-directed salmon fishery opened the week of October 9, with a schedule of six days per week and continued through November 12. A total of 1,907 Chum salmon were harvested during this period (Table 18). During the fall Chum fisheries in Areas 4B, 5, and 6C, there was reported by-catch of 1,401 Coho, 115 Chinook, and zero Steelhead.

Table 18. Preliminary 2022 Chum salmon harvest report for Washington Salmon Catch Reporting Areas 4B, 5, and 6C.

Areas 4B, 5, 6C	
Tribal Gill Net Only	
Time Periods	GN
Through 9/17	0
9/18-9/24	0
9/25-10/1	5
10/2-10/8	11
10/9-10/15	0
10/16-10/22	25
10/23-10/29	738
10/30-11/5	1,105
11/6-11/12	23
Total	1,907

AREAS 7 AND 7A

Chum salmon fisheries in Areas 7 and 7A are regulated to comply with a base harvest ceiling of 125,000 Chum salmon, unless Canada estimates chum stocks migrating through Johnstone Strait ("Inside Southern Chum salmon") are below the critical threshold of 1.0 million (PST 2019). Chapter 6 of Annex IV specifies that U.S. commercial fisheries for Chum salmon in Areas 7 and 7A will not occur prior to October 10. For Inside Southern Chum run sizes below the critical threshold, Paragraph 10 (b) states the U.S. 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, 2022 Canada notified the U.S. that the Inside Southern Chum aggregate was estimated to be above the critical threshold of 1.0 million. Following this notification, the U.S. initiated commercial Chum fisheries in Areas 7 and 7A on October 10.

Paragraph 9 (d) states that Canada will provide an in-season estimate of Fraser River Chum salmon run size no later than October 22. If that estimate is below 1,050,000, then the U.S. will limit its fishery in Areas 7 and 7A to not exceed a catch of 20,000 additional Chum salmon from the day following notification. If the Fraser River Chum run size estimate is between 1,050,000 and 1,600,000, the U.S catch ceiling remains at 125,000. If the Fraser River run size estimate is above 1,600,000, the U.S. catch ceiling is revised to 160,000.

On October 17, 2022, Canada notified the U.S. that the Fraser River Chum run size was estimated to be below the 1.05 million threshold identified in the Treaty, and potentially lower than the escapement goal of 800,000. Therefore, the U.S. was expected to limit Chum harvest to not exceed 20,000 from the day following this notification. Areas 7 and 7A were therefore closed to commercial Chum fisheries on October 18 and through the remainder of the Chum management period. Tribal and Non-Tribal vessels landed an additional 8,947 chum from Areas 7 and 7A on October 18, the day immediately following Canada's formal notification.

Non-Tribal reef net fisheries targeting Coho salmon were conducted following the end of Fraser Panel control on September 18, with Chum and unmarked Chinook retention prohibited prior to October 1.

Retention of unmarked Coho prior to October 1 was capped at 750 fish, per the NOF List of Agreed to Fisheries.

The total 2022 Chum salmon catch by all gears in Areas 6, 7, and 7A (reported through November 21) was 73,810 fish (Table 19). Bycatch in Chum salmon-directed fisheries in Areas 6, 7, and 7A totalled 8,195 Coho, 136 Chinook, and zero Steelhead (Table 19).

Table 19. Preliminary 2022 Chum salmon harvest report for Puget Sound Salmon Catch Reporting Areas 6, 7 and 7A, by gear type1/. Bycatch2/ numbers include both landed and estimated non-landed fish.

	Area 6	Area 7				Area 7A			Area 6,7,7A
Time Periods	GN	PS	GN	RN	**Area Total**	PS	GN	**Area Total**	**Total**
Through 9/17									
9/18-9/24									
9/25-10/1				295	**295**		140	**140**	**435**
10/2-10/8				2,924	**2,924**		2	**2**	**2,926**
10/9-10/15		23,224	835	1,006	**25,065**	10,810	11,797	**22,607**	**47,672**
10/16-10/22	89	18,991	348	507	**19,846**		2,842	**2,842**	**22,777**
10/23-10/29									
10/30-11/5									
11/6-11/12									
Total	**89**	**42,215**	**1,183**	**4,732**	**48,130**	**10,810**	**14,781**	**25,591**	**73,810**
[1/]Gear Type Abbreviations: GN=Gill Net; PS=Purse Seine; RN=Reef Net									
[2/]10/10-11/19 By-catch	Coho: 8,195		Chinook: 136		Steelhead: 0				

PUGET SOUND TERMINAL AREA FISHERIES AND RUN STRENGTH

Pre-season forecasts for Chum salmon returns to Puget Sound in 2022 predicted a fall Chum run size totalling approximately 724,000 fish, with 306,000 Chum predicted to return to Hood Canal and 292,000 predicted to return to South Puget Sound. As of the date of this report, in-season estimates indicate that overall, Chum returns to Puget Sound are well above forecast. In-season run size estimates indicate that South Sound fall Chum is expected to return at around 232% of the preseason forecast, while Hood Canal fall Chum run was expected to return at 268% of the preseason forecast.

Terminal fisheries in mixed-stock marine areas were executed in 2022 in South Puget Sound and in Hood Canal. As of the date of this report, spawning escapement surveys are in progress for most Puget Sound stocks and therefore escapement estimates are not yet available. Early indications from these surveys suggest that most natural fall Chum stocks in South Puget Sound will meet or exceed escapement objectives. North Puget Sound chum stocks continue to be a conservation concern.

REFERENCES

Pacific Salmon Treaty (PST) Act of 1985. 2019 Agreement. U.S.-Canada. Public Law 99-5, 16 U.S.C. 3631.

PRELIMINARY REVIEW OF 2022 UNITED STATES FRASER RIVER SOCKEYE AND PINK FISHERIES

INTRODUCTION

The 2022 Fraser River Panel fishing season was implemented under Annex IV of the Pacific Salmon Treaty (PST), and guidelines provided by the Pacific Salmon Commission to the Fraser River Panel. The treaty establishes a bilateral (U.S. and Canada) Fraser River Panel (Panel) that develops a preseason management plan and approves in-season fisheries within Panel Area waters directed at sockeye and pink salmon bound for the Fraser River (Figure 40). In partial fulfilment of Article IV, paragraph 1 of the PST, this document provides a season review of the 2022 U.S. Fraser River salmon fisheries as authorized by the Panel. Catch and abundance information presented is considered preliminary.

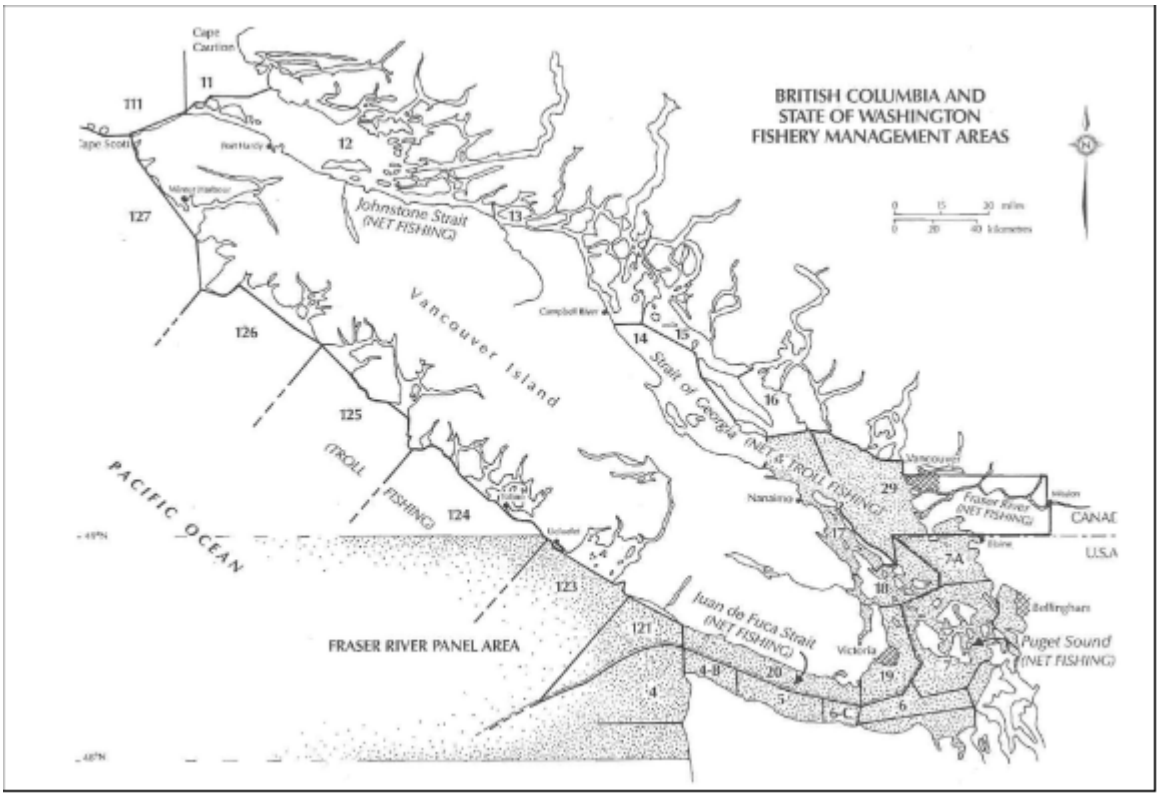


Figure 40. British Columbia and State of Washington Fishery Management Areas, 2022. The shaded area in the figure represents the marine waters managed by the Fraser River Panel.

PRE-SEASON EXPECTATIONS AND PLANS

FORECASTS AND ESCAPEMENT GOALS

Pre-season run size forecasts and escapement goals by run-timing group (run) at various probability levels were provided to the Panel by the Department of Fisheries and Oceans, Canada (DFO). Table 20 shows the 2022 preseason sockeye forecasts based on the 50 percent probability level, which represent the mid-point of the range of forecast run sizes. Table 20 also provides the escapement goals for the sockeye run-timing groups based on the preseason forecast of abundance. The escapement goals for all runs can change in-season as the run size estimates are updated.

Table 20. 2022 preseason Fraser River sockeye forecasts and escapement goals by run-timing group.

	Early Stuart	Early Summer	Summer	Late	Total
Forecast of Abundance	105,000	1,579,000	4,403,000	3,688,000	9,775,000
Escapement Goal	105,000	790,000	2,201,000	1,844,000	4,940,000

NORTHERN DIVERSION RATE

Northern diversion rate is defined as the percentage of Fraser sockeye migrating through Johnstone Strait (rather than the Strait of Juan de Fuca) in their approach to the Fraser River. The preseason forecast for diversion was 48% which was lower than the average of the recent three years on the same cycle line (2010, 2014, 2018, 69%).

MANAGEMENT ADJUSTMENT (MA) AND ENVIRONMENTAL CONDITIONS

Management adjustments (MA) for sockeye salmon reflect the anticipated difference between escapement estimates at Mission (minus catch above Mission) and actual spawning escapements. Adjustments adopted by the Panel are added to the gross escapement goal, effectively increasing the spawner escapement goal for that run-timing group. MAs are modelled using forecasts of environmental conditions and return timing or median historical differences between estimates. Table 21 provides the preseason projected MAs that were used for planning fisheries in 2022. In-season management adjustments use MA models that are based on both measured and forecasted temperatures and discharges or, for Late-run sockeye, upstream migration timing.

Table 21. 2022 preseason proportional management adjustment (pMA) and corresponding proportional difference between estimates (pDBE1) for each run-timing group.

Early Stuart		Early Summer		Summer		Late	
pMA	pDBE	pMA	pDBE	pMA	pDBE	pMA	pDBE
1.00	-50%	0.59	-37%	0.04	-4%	0.22	-18%

[1] Early Stuart pDBE = “all years” historical median (1995-2021); Early Summer pDBE = “all years” historical median; Summer pDBE = “preseason T&Q” model median; Late pDBE = “dominant cycle” (2022) median.

RUN TIMING

Run timing is temporal information about the presence of a salmon stock in a specific time and area. Run timing is an important variable when planning fisheries and updating run sizes in-season. The following Area 20 50% dates (the dates when 50% of the run is forecast to have passed through Area 20) were predicted preseason for the major Fraser River sockeye run groups.

Table 22. 2022 Area 20 median 50% run-timing dates and updated preseason timing forecasts in June.

Run-Timing Group	Area 20 50% Run-Timing Median Date	Area 20 50% Run Timing (June)[1]
Early Stuart	July 4	July 4
Early Summer	July 29	August 6
Summer	August 8	August 10
Late	August 16	August 18

[1] All remaining components used the cycle line median run timing.

U.S. TOTAL ALLOWABLE CATCH (TAC)

Following Annex IV of the PST, U.S. TAC is calculated as 16.5% of the TAC for international sharing for sockeye salmon. Pre-season, the U.S. TAC was established at 560,700 sockeye at the p50 modelled run size. The TAC available by sockeye run-timing group is shown in Table 23.

Table 23. 2022 U.S. total allowable catch (TAC) by run-timing group[1].

Run Timing Group	Pre-season U.S. TAC
Early Stuart	0
Early Summer	37,600
Summer	314,800
Late	208,300
Total	560,700

[1] Based on Panel-approved final preseason model run.

PRE-SEASON MANAGEMENT PLANS

During the preseason planning process the Panel evaluates and adopts management approaches for Fraser sockeye that address conservation and harvest objectives for each major run-timing group. The Panel develops fishing plans and in-season decision rules with the objective of meeting management goals. Managing Fraser River sockeye salmon involves a trade-off between catching abundant runs while meeting escapement objectives for less abundant run-timing groups.

Pre-season plans were developed which indicated that both Canada and the United States were likely to have harvest opportunities at the median forecast for sockeye salmon. Specifically, based on preseason forecasts, Early Summer, Summer, and Late Fraser sockeye salmon run-timing groups had preseason U.S. TAC (Table 23). Therefore, the U.S. planned to fish Fraser origin sockeye given in-season adopted run-size created available TAC based on preseason modeled management scenarios. The Fraser River sockeye management objectives based on the preseason forecasts placed high priority on achieving Fraser sockeye escapement goals for the Early Stuart, Early Summer, and Late run-timing groups.

IN-SEASON MANAGEMENT

In-season, the Pacific Salmon Commission staff analyzes a variety of information to produce best estimates of northern diversion, management adjustments, timing, abundance, and harvest by run-timing group. Stock identification information (both genetic data and scales), age data, test fishing data, escapement counts past Mission, harvest data, and environmental information are all used to provide in-season estimates that are critical to the Fraser Panel for making management decisions.

RUN ASSESSMENT

The final in-season total sockeye abundance estimated by the Fraser River Panel in 2022 was 6,806,000(Table 24), which was about 30% below the preseason forecast. The 2022 sockeye return was a strong rebound from the historic low return observed in 2020, 40% below the brood year (11M) and 33% below the historical cycle-line median (9.9M). The return of Summer-run sockeye, the group with the largest preseason forecast, was approximately 13% below the preseason forecast.

The 2022 Fraser sockeye run timing varied across run-timing groups. The Early Stuart run was two days later than the preseason forecast, while the Early Summer run was seven days earlier than expected. Summer-run sockeye arrived five days later than expected, while Late-run sockeye were one day earlier than expected (Table 25).

Table 24. Comparison of 2022 preseason to final adopted in-season abundance estimates for Fraser River sockeye salmon, by run-timing group.

Run Timing Group	Pre-Season 50% Probability Forecast	In-Season Run Size Estimate[1]	Comparison: In-Season / Pre-Season
Early Stuart	105,000	244,000	232%
Early Summer	1,579,000	607,000	38%
Summer	4,403,000	3,805,000	86%
Late	3,688,000	2,150,000	58%
Total Sockeye	9,775,000	6,806,000	70%

[1] As of September 27, 2022.

Table 25. Comparison of 2022 preliminary 50% run-timing dates through Area 20 to in-season estimates.

Run-Timing Group	Pre-season 50% Run-Timing Date	In-season 50% Run-Timing Date
Early Stuart	July 4	July 6
Early Summer	August 6	July 30
Summer	August 10	August 15
Late	August 18	August 17

SEASON DESCRIPTION

The Fraser Panel held 25 regular meetings either in-person or by conference call from July 12 through September 28 (usually on Tuesdays and Fridays) to receive updates from PSC staff on the abundance and timing of the sockeye and pink salmon returns and to review migration conditions in the Fraser River watershed. In 2019, a major landslide on the Fraser River at Big Bar (83 km north of Lillooet, B.C. by river) drastically altered flow conditions in-river limiting fish passage through the area. After the landslide and through 2021, DFO and First Nations engaged in operations to repair and monitor natural and alternative fish passage systems. During the 2022 season, water temperature and flow conditions were not a major factor affecting management decisions because of the repairs made to the landslide and low preseason and in-season marine abundance estimates that precluded US TAC for sockeye. The last Fraser Panel in-season meeting was held on September 28. Table 26 summarizes changes to run sizes made by the Fraser Panel during the 2022season and the effect on U.S. TAC.

The following summarizes the major decisions related to U.S. fishing during the 2022 season. Based on the final in-season update for all sockeye run-timing groups, there was a U.S. TAC of 326,220 for sockeye.

WEEK ENDING AUGUST 7, 2022

Areas 4B, 5, and 6C opened for Treaty Tribal drift gillnet fishing from noon August 1 through noon August 6, and extended to noon on August 10th

WEEK ENDING AUGUST 14,2022

Areas 4B, 5, 6C extended the Treaty Tribal drift gillnet fishing from August 10 through August 13. The panel adopted a run size of 244,00 for Early Stuart sockeye with an associated Area 20 timing of July 6 and a run size of 792,000 for Early Summer-run sockeye with an associated timing of August 4.

WEEK ENDING AUGUST 21, 2022

Areas 4B, 5, and 6C opened to Treaty Tribal drift gillnet fishing from August 13 through August 19. Areas 6, 7, and 7A opened for tribal net fishing from August 13 through August 15th and August17th through August 18th and from August 21 through August 22. Area 7 opened to All Citizen reef net fishing on August 13. Areas 7 and 7A opened to All Citizen purse seine and drift gillnet fishing August 20. The panel adopted a run size of 627,000 for Early Summer-run sockeye with an associated Area 20 timing of July 31, maintained the preseason forecast run size of 4,403,000 for Summer-run sockeye and updated the associated Area 20 timing to August 15, and a run size of 2,000,000 for Late-run sockeye with an associated Area 20 timing of August 18.

WEEK ENDING AUGUST 28, 2022

Areas 4B, 5, and 6C extended the Treaty Tribal drift gillnet fishing from August 19 through August 24, but was closed early on August 23. The panel adopted a run size of 600,000 for Early Summer-run sockeye with an associated Area 20 timing of July 30, a run size of 3,500,000 for Summer-run sockeye with an associated Area 20 timing of August 14, and a run size of 1,600,000 for late-run sockeye with an associated area 20 timing of August 16.

The Fraser Panel relinquished control of U.S. fishery Areas as follows:

- Areas 4B, 5 6C, 6, 6A, and 7 at 11:59 p.m. September 10, 2022
- Area 7A relinquishment at 11:59 p.m. September 24, 2022
- Apex area of 7A at 11:59 p.m. October 8, 2022

Table 26. Summary of changes to Fraser River sockeye run sizes adopted by the Fraser Panel during the 2022 season and U.S. TAC.

Meeting Date	Run-Timing Group	Change Made	U.S. Sockeye TAC
Pre-season			560,700
August 9, 2022	Early Stuart Early Summer	Increased to 241,000 Decreased to 764,000	527,770
August 12, 2022	Early Stuart Early Summer	Increased to 244,000 Increased to 792,000	528,710
August 16, 2022	Early Summer	Decreased to 614,000	517,920
August 18, 2022	Early Summer Late	Increased to 627,000 Decreased to 2,000,000	384,560
August 23, 2022	Early Summer Summer Late	Decreased to 600,000 Decreased to 3,500,000 Decreased to 1,200,000	244,170
August 26, 2022	Late	Increased to 1,600,000	258,550
September 2, 2022	Summer	Increased to 3,700,000	228,600
September 6, 2022	Late	Increased to 1,850,000	269,700
September 13, 202	Early Summer Summer Late	Increased to 607,000 Increased to 3,750,000 Increased to 2,000,000	297,790
September 16, 2022	Summer Late	Increased to 3,800,000 Increased to 2,050,000	309,390
September 27, 2022	Summer Late	Increased to 3,805,000 Increased to 2,150,000	326,220

HARVEST

Based on the preseason forecasts, U.S. harvest opportunities in 2022 were anticipated to be moderate for sockeye given the cycle line and forecasts for all runs, resulting in a preseason U.S. TAC of 560,700 for sockeye at the p50 preseason forecasted run size. From the beginning of in-season assessments, sockeye appeared to be outperforming preseason forecasts for the early Stuart component, and then returned below preseason expectations for the remaining run components. While the run size was downgraded from

9,775,000 to 6,806,000 the Fraser River Panel did estimate in-season run sizes that allowed for U.S. TAC for sockeye.

Treaty Tribes' commercial fisheries were open for 22 days in Areas 4B, 5, 6C and 4 days in Areas 6, 7, 7A. All Citizens fisheries were open for 1 day for purse seines and gill nets, and 1 days of reef nets in Areas 7/7A.

Table 27. Preliminary summary of 2022 U.S. catches of Fraser River sockeye salmon in Panel area waters.

	Treaty Tribes	All Citizens
Ceremonial and Subsistence (all Areas)	11,797	0
Commercial Catch in Areas 4B/5/6C	9,866	0
Commercial Catch in Areas 6/7/7A	256,072	75,516
Total Catch	277,735	75,516
% of U.S. Catch	79%	21%

The 2022 Fraser sockeye salmon season presented many management challenges:

- The total Fraser sockeye salmon return was 32% below the preseason forecast and 40% below the brood year (11M)
- Timing predictions were 7 days later than estimated for Early Summers and 5 days earlier for Summers
- Early Summers returned at only 38% of the forecasted run size.
- Run timing varied with Early Stuart delayed, Early Summer arriving early, Summer delayed, and Late delayed.
- There was substantial delay on the late run and the number of days are yet to be determined.
- Diversion increased rapidly in early August until around 18th when it peaked and then subsequently plummeted, followed by a slow increased from the 23rd and through September.
- Uncertainty in preseason forecasts, in-season test fishing, diversion, and mission hydroacoustics estimates decreased confidence in run abundance estimates during the middle to late period of the season.

2022 POST-SEASON REPORT FOR CANADIAN TREATY LIMIT FISHERIES

INTRODUCTION

The chapters in Annex IV of the Pacific Salmon Treaty (PST) outline the joint conservation and harvest sharing arrangements between Canada and the United States of America (U.S.) for key stocks and fisheries subject to the Treaty. In August 2018, the PSC recommended new provisions, under Annex IV of the PST, to the Governments of Canada and the U.S. for review and ratification. Both governments agreed to the provisional application of the new agreements as of January 1, 2019, while the ratification process was completed. Effective May 3, 2019, the Annex IV amendments came fully into force through the exchange of diplomatic notes between Canada and the U.S. and will remain in place for 10 years. Chapter 4 (Fraser River Sockeye and Pink) expired on December 31, 2019. In February 2019, agreement-in-principle was reached, and the proposed amendments were referred to the Governments of Canada and the U.S. for review and ratification. Both governments agreed to the provisional application of the amendments as of January 1, 2020, while the ratification process is completed. The new amendments came into force in Spring 2020 and will remain in place for 9 years, bringing Chapter 4 into alignment with the five other fishing Chapters under the PST.

Annex fisheries are reported in the order of the Chapters of Annex IV. Fishery summaries include expectations and management objectives, escapements (where available and appropriate) and catch results by species. The focus is on those stocks and fisheries covered by the Pacific Salmon Treaty, and not all Canadian domestic salmon fisheries are covered in this document.

Annually, DFO releases a Salmon Outlook document which is referenced in various sections of this report; this document provides a categorical indication of salmon production (using a 4 point rating scale), and associated fishing opportunities by geographic area and species stock groups called an Outlook Unit for the coming season. Pre-season quantitative forecasts are documented where they are produced.

The catch information reported in this document provides the best information available at this time. The catches are based on in-season estimates (hailed statistics); on-grounds counts by DFO, logbooks, dockside tallies, landing slips (First Nation fisheries), fish slip data (commercial troll and net), creel surveys, and observers (recreational and commercial). Appendix 1 summarizes catches from years 2011 to 2022 in Canadian fisheries that have at some time been under limits imposed by the Pacific Salmon Treaty. More detailed catch data is provided for the current year for commercial, recreational, First Nations, Excess Salmon to Spawning Requirements (ESSR), and test fisheries in Appendices 2 to 7.

TRANSBOUNDARY RIVERS

STIKINE RIVER

Following the 2022 pre-season meeting of the Transboundary Panel, Canada developed its fishing strategy for Stikine River salmon fisheries based on the catch sharing and management arrangements outlined in PST Annex IV, Chapter 1. Canada's intent was to achieve the following objectives: 1) to harvest its share (47%) of the total allowable catch (TAC) of Stikine River Sockeye Salmon through the First Nation food, social, and ceremonial fishery; 2) to allow harvesting opportunities for Sockeye Salmon that were surplus to spawning requirements; and 3) to harvest up to 5,000 Coho Salmon through a directed fishery. The pre-season forecast of 7,400 large Chinook Salmon was well below the Chapter 1 fishery forecast run size

threshold of 24,500 and did not allow for a directed Canadian Chinook fishery. The 2022 Chinook pre-forecast also resulted in the cancellation of the 2022 assessment fishery. The pre-season forecast of 63,000 Sockeye Salmon was sufficient to allow for a limited directed Canadian commercial Sockeye Salmon fishery in 2022.

The 2022 Canadian lower Stikine River commercial Sockeye Salmon fishery opened on July 6 (statistical week 28) and ended on July 15 (statistical week 29) for a combined total of five fishing days. Subsequently, the lower Stikine River commercial Coho Salmon fishery opened on August 28 (statistical week 36) and ended September 16 (statistical week 38). Commercial fishing gear permitted for the 2022 season was limited to one 135-metre (443 ft.) gill net per licence holder. The maximum mesh size permitted was 204 mm (8”). The lower Stikine commercial fishing zone covered the area from the international (U.S./Canada) border upstream to near the confluence of the Porcupine and Stikine Rivers, and also included the lower 10 km (6 mi.) reach of the Iskut River.

Openings in the upper Stikine River commercial fishery generally mirrors those in the lower Stikine River commercial fishery but lagged by one week. The upper Stikine River commercial fishing area was located upstream of the Chutine River to the mouth of the Tuya River and was open for a total of 6 fishing days in 2022.

The Canadian First Nation Food, Social and Ceremonial (FSC) fishery located near the community of Telegraph Creek, British Columbia (BC) was active from July to the second week of August. To facilitate Chinook Salmon conservation, efforts were implemented within the First Nation FSC to minimize Chinook Salmon catch.

Canadian recreational fishery effort was minimal for the majority of the 2022 season due to area, retention, and size restrictions for Chinook Salmon. Recreational fishery effort for Coho Salmon was minimal in 2022.

CHINOOK SALMON

The pre-season forecast of 7,400 large Chinook Salmon developed by the Transboundary Technical Committee (TTC) did not provide for a total allowable catch allocation in 2022. The current, bilaterally recognized, fishery management strategy specifies that a pre-season forecast run size of <24,500 precludes either Party from administering directed Chinook Salmon fisheries. As a result, specific fishery management measures were implemented within all Canadian fisheries to minimize the likelihood of interception of Chinook Salmon in 2022.

The 2022 total Canadian fishery catch of Chinook Salmon was 269 large Chinook and 118 jacks (within the First Nation FSC fishery). This was well below the 10-year average of 1,718 large Chinook and 796 jacks. No Chinook Salmon were harvested within the 2022 recreational or commercial fisheries as retention was prohibited.

The preliminary post-season estimate of the 2022 Stikine River Chinook Salmon terminal run was 9,421 large Chinook. Accounting for the total Canadian catch of Chinook Salmon, the spawning escapement was estimated at approximately 9,090 large Chinook. The Chinook Salmon escapement estimate of 9,090 is 48% below the management objective of 17,400 large Chinook and did not achieve the lower end of the escapement goal range of 14,000.

SOCKEYE SALMON

The forecast for Stikine River Sockeye Salmon as developed by the TTC was for a terminal run size of 63,000 fish which was comprised of 42,000 Tahltan Lake origin Sockeye Salmon (12,000 wild and 30,000 enhanced) and 21,000 non-Tahltan wild Sockeye Salmon. The 2022 Stikine River Sockeye Salmon terminal run size forecast was below the 10-year average terminal run size of approximately 100,000 fish.

The Stikine River terminal Sockeye Salmon run size estimate is based on the in-river run reconstruction of the Tahltan Lake Sockeye Salmon run expanded by run timing, along with stock identification data from lower river assessment projects and estimated harvests of Stikine River Sockeye Salmon in U.S. terminal gill net fisheries. The preliminary post-season estimate of the terminal Sockeye Salmon run size is 124,515. This estimate includes Tahltan Lake origin fish (74,100) and Sockeye Salmon of the non-Tahltan stock group (50,414).

A total of 53,172 Sockeye Salmon returned to Tahltan Lake in 2022. The Tahltan Lake Sockeye Salmon escapement goal range is 18,000 to 30,000 while the most recent 10-year average return is 26,865. The proportion of Sockeye Salmon returning to Tahltan Lake in 2022 originating from the Stikine Enhancement Production Program is estimated to be 42,272. A total of 1,624 adult Sockeye Salmon were removed from Tahltan Lake as part of the 2022 Stikine Sockeye Enhancement Production Plan program. Four hundred Sockeye Salmon were removed for stock identification purposes, and it is estimated that approximately 51,148 Sockeye Salmon spawned in Tahltan Lake 2022.

The spawning escapement for the non-Tahltan Lake Sockeye Salmon stock group is calculated using stock identification, assessment fishery, and in-river commercial catch and effort data. The escapement estimate for non-Tahltan Lake Sockeye Salmon for 2022 is 45,250. The non-Tahltan spawning escapement goal range is 20,000 to 40,000 fish, and the 10-year average is 21,920 fish.

Based on in-season run size information, there was an allowable catch for Stikine River Sockeye Salmon in 2022, allowing for a normal First Nation and limited directed commercial Sockeye Salmon fisheries (fishery delayed to avoid Chinook Salmon interceptions and to confirm Sockeye Salmon allowable harvest).

The total 2022 Canadian fishery harvest of Stikine River Sockeye Salmon was 12,428, well below the 10-year average of 42,556 fish. The First Nation FSC fishery harvested a total of 5,723 Sockeye Salmon. The estimate of Canadian fishery Sockeye Salmon commercial harvest originating from the Stikine Enhancement Production Program will be determined post-season based on the thermal mark analysis of the harvest.

COHO SALMON

The total Canadian fishery harvest of Coho Salmon in 2022 was 5,081. Of the total harvest, 5,080 were harvested during a directed fishery period between statistical weeks 36 to 38. The total Canadian fishery harvest was below the recent 10-year average of 5,336 fish.

A Coho Salmon assessment fishery was not conducted in 2022. The catch per unit effort (CPUE) observed in the targeted Coho Salmon fishery was near average for statistical weeks 36 to 38. Aerial surveys of the index spawning sites for Coho Salmon were successfully completed in 2022.

JOINT SOCKEYE SALMON ENHANCEMENT PROGRAM

In Fall 2021, 1.5 million Sockeye Salmon eggs were collected from Tahltan Lake, British Columbia. All eggs were hatched and reared at Snettisham Hatchery (Alaska) during the 2021/2022 winter period. All fry

were mass-marked at the Snettisham hatchery with thermally induced otolith marks for identification and assessment purposes. Green egg to released fry survival was approximately 72%. Sockeye Salmon enhancement programs have been subject to Infectious Hematopoietic Necrosis virus (IHNv) outbreaks before as the disease is naturally occurring in Stikine Sockeye Salmon stocks. Disinfection procedures are used in accordance with the World Health Organization protocols during egg collections to limit the risk of transmission. Subsequent to the 2021 egg collection and rearing at Snettisham Hatchery, no losses to IHNv occurred. On May 30, 2022, approximately 1.1 million emergent Sockeye Salmon fry were transported to Tahltan Lake for release.

For 2022, the bilateral Stikine River Enhancement Production Plan (SEPP) identified an egg collection objective of 5.0 million Sockeye Salmon eggs from Tahltan Lake. In-season, the 2022 Sockeye Salmon egg collection target was revised to 2.0 million eggs. A total of 2.1million Sockeye Salmon eggs were collected from Tahltan Lake in the fall of 2022.

TAKU RIVER

Following the 2022 pre-season meeting of the Transboundary Panel and the Pacific Salmon Commission (PSC), Canada developed its fishing strategy for Taku River salmon fisheries based on the catch sharing and management arrangements outlined in Annex IV, Chapter 1 of the PST. Accordingly, the Canadian fishery strategy incorporated specific conservation considerations and contained the following harvest objectives: 1) to harvest 23% of the TAC of Taku River Sockeye Salmon (adjusted as necessary according to projections of the number of enhanced Sockeye), plus harvest any salmon in excess of spawning and brood stock needs; 2) to harvest enhanced Taku River Sockeye Salmon incidentally to wild Sockeye Salmon; and, 3) to harvest 5,000 Coho Salmon plus Canada’s share of the TAC and any salmon surplus to spawning needs in a directed Coho Salmon fishery.

The 2022 commercial fishing season on the Taku River opened on July 29 (statistical week 27) and closed on September 13 (statistical week 38). Fishing gear was limited to one drift gillnet and one set net per licence and incorporated the maximum gill net length of 36.6 metres, established in 2008 for drift gill nets and in 2009 for set gill nets.

The Taku River commercial fishing area in Canada consists 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. Most of the commercial fishing activity takes place in the lower half of this area, downstream of the Tulsequah River / Taku River confluence.

The First Nation Taku River FSC fishery is primarily located in the lower Taku River in the same area as the Canadian commercial fishery. Small numbers of fish are also harvested on the lower Nakina River and at the outlet of Kuthai and King Salmon lakes.

Canadian recreational fishery effort was largely absent again in 2022 due to area, retention and size restrictions for the duration of the Chinook Salmon season. Restrictions were implemented within the recreational fishery to prohibit the harvest of Taku River Chinook Salmon as abundance was well below the minimum spawning escapement requirement. Recreational fishery effort for Coho Salmon was also minimal in 2022.

CHINOOK SALMON

The bilateral pre-season forecast was for a terminal run of 6,600 large Chinook Salmon, approximately 59% below the previous 10-year average of 16,200 fish. A run size of 6,600 fish was well below the management

objective of 25,500 fish (below the lower end of the escapement goal range of 19,000 to 36,000), and as a result, there was no allowable catch (AC) for either the U.S. or Canada. In response, Canada did not prosecute a directed commercial Chinook Salmon fishery. Additionally, significant efforts were made in all other fisheries to avoid the incidental catch of Chinook Salmon. For 2022, the in-river Chinook assessment fishery was not conducted to allow for as many in-river adult Chinook Salmon to pass to the spawning grounds.

The Taku River large Chinook Salmon terminal run estimate for 2022 is 12,966 large fish. The spawning escapement estimate for 2022 was approximately 12,700 large fish, which was below the management objective of 25,500 and the lower end of the escapement goal range (19,000). The most recent 10-year average spawning escapement was 14,500 large Chinook Salmon.

The harvest of large Chinook Salmon in the Canadian fisheries were: 0 large Chinook Salmon harvested in the directed commercial Sockeye and Coho fisheries; 33 large Chinook Salmon in the First Nation FSC fishery; and 0 large Chinook Salmon in the recreational fishery. The total base level and test/assessment fishery harvest of 33 large Chinook Salmon was well below the Chapter 1 Canadian fishery allowance of 2,900 fish.

The total Canadian harvest of large Chinook Salmon was 33, which was well below the 10-year average of approximately 400 fish (excluding test/assessment fisheries).

SOCKEYE SALMON

The Canadian pre-season run outlook for wild Sockeye Salmon was 128,000 fish, approximately 15% below the most recent 10-year average total run size of 150,000 fish. In addition, approximately 5,500 adult Sockeye Salmon of Tatsamenie Lake origin and a small number of Trapper Lake origin Sockeye Salmon were expected to return from fry outplants associated with the Canada/U.S. joint Taku Sockeye Salmon enhancement program. The forecasted return of enhanced Tatsamenie Lake origin Sockeye Salmon was anticipated to be average.

The post-season terminal run size estimate is 188,000. Subtracting the management objective of 58,000 from the terminal estimate resulted in a TAC of approximately 130,000 wild fish. The 2022 Canadian allowable catch, based on a 23% harvest share (associated with an enhanced Sockeye Salmon return range of 5,001 to 15,000 fish), was 32,500 wild fish. The total 2022 Canadian Sockeye Salmon fishery harvest (wild) was approximately 24,000, slightly below the allowable catch limit. The estimated total spawning escapement of Canadian-origin wild Sockeye Salmon was 84,400, which is above both the management objective (58,000) and the upper end of the spawning escapement goal range of 75,000 fish.

To reduce the likelihood of incidental harvest of Chinook Salmon, the directed commercial Canadian Sockeye Salmon fishery commenced on June 29 (statistical week 27) which is two weeks later than the historical start. Additionally, retention of incidentally caught Chinook Salmon in the directed commercial Sockeye Salmon fishery was prohibited. The maximum permissible mesh size in the first three weeks of the directed Sockeye Salmon fishery was 140 mm (5.5”), which was intended to reduce likelihood of entanglement of large Chinook Salmon and to facilitate live release. Projected estimates of the total wild Sockeye Salmon run size, TAC and total escapement were made weekly throughout the fishing season. As in past years, projections were based on the joint mark-recapture program, the estimated catch of Taku River Sockeye Salmon in U.S. fisheries, the catch in the Canadian fishery and historical run timing information.

The total Canadian fishery catch of Taku River Sockeye Salmon was 27,605 fish, of which 27,217 were taken within the commercial fisheries, 388 in the First Nation FSC fishery, and 0 in assessment/test fisheries. The proportion of the Canadian harvest associated with enhancement activities associated with the bilateral Taku Enhancement Production Plan will be determined after lab analysis of thermal marks are complete.

COHO SALMON

The 2022 total Canadian fishery catch of 7,796 Coho Salmon (7,534 commercial and 262 First Nation FSC) was 30% below the 10-year average of 11,200 fish. The catch during the directed commercial/assessment Coho Salmon fishery (after statistical week 33) was 6,075 fish. The bilateral estimate of 2022 total Canadian-origin Coho Salmon terminal abundance is 87,260 fish. The 2022 post-season spawning escapement estimate is 66,034 Coho Salmon which is near the management target of 70,000 and is within the escapement goal range of 50,000 to 90,000 fish.

JOINT SOCKEYE SALMON ENHANCEMENT PROGRAM

In the fall of 2021, 2.4 million Sockeye Salmon eggs were collected from Tatsamenie Lake and 923,500 Sockeye eggs collected from Little Trapper Lake, British Columbia. These eggs were hatched and reared at Snettisham Hatchery (Alaska) during the 2021/22 winter period. All fry were mass-marked at the Snettisham hatchery with thermally induced otolith marks. Between May 31 and June 25, 2022, approximately 1.7 million emergent Sockeye fry were transported to Tatsamenie Lake, and 189,000 Sockeye fry were transported to Trapper Lake for release. No Infectious Hematopoietic Necrosis virus (IHNV) was observed in Tatsamenie Lake Sockeye fry. IHNV was detected in 2 incubators resulting in the loss of 213,800 Trapper Lake Sockeye fry in 2022. Trapper Lake eggs also suffered low survival for as yet unknown reasons. Of the 1.7 million fry transported to Tatsamenie Lake, approximately 353,000 fry were released into net pens for rearing as part of an extended rearing evaluation project, while the remaining fry were released directly into the lake. Fry held within the extended rearing evaluation project were released into Tatsamenie Lake at approximately 1.5 grams. A sub-sample of Tatsamenie Lake Sockeye smolts outmigrating in 2022 are being assessed to evaluate both enhanced contribution and survival rates. The results of this analysis will be used to inform future release strategies and enhancement programs.

For 2022, the bilateral Taku River Enhancement Production Plan (TEPP) identified collection of up to 2.5 million Sockeye eggs from Tatsamenie Lake and 1.0 million Sockeye eggs from Little Trapper Lake for transport to Snettisham Hatchery in Alaska for incubation and thermal marking. Approximately 2.7 million Sockeye eggs were collected from Tatsamenie Lake, and approximately 1.0 million Sockeye eggs were collected from Little Trapper Lake.

ALSEK RIVER

Although abundance-based catch sharing provisions for Alsek River salmon stocks have not yet been established, Annex IV, Chapter 1 of the PST obligates Canada and the U.S. to cooperatively develop and implement abundance-based management plans and programs for Alsek River Chinook and Sockeye. In 2013, biological escapement goal ranges for Alsek River Chinook and Sockeye were bilaterally recommended by the Transboundary Panel and adopted by the Parties (3,500 to 5,300 for Canadian-origin Chinook Salmon and 24,000 to 33,500 for Canadian-origin Sockeye Salmon). Additionally, the escapement targets were revised for Klukshu River Chinook and Sockeye; these are: 800 to 1,200 Chinook and 7,500 to 11,000 Sockeye. The principal escapement-monitoring tool for Canadian-origin Chinook, Sockeye, and

Coho stocks on the Alsek River is the Klukshu assessment program, which has been operated by DFO in collaboration with the Champagne and Aishihik First Nations (CAFN) since 1976.

In 2022, the Parties continued the development and design of basin-wide stock assessment programs to support the implementation of abundance-based management and to more accurately assess annual Chinook and Sockeye returns to the watershed. At this time, there are no programs in place to estimate Alsek River Coho Salmon returns or spawning escapement. Current abundance assessment and spawning escapement monitoring programs include: the Klukshu River multi-species video enumeration system; the Village Creek Sockeye Salmon video enumeration; mark-recapture; and genetic stock identification of samples collected from U.S. terminal fisheries. The long-term comparative escapement index for Alsek River drainage salmon stocks are the Klukshu River counts. An evaluation of new Chinook Salmon abundance assessment programs on the Blanchard and Takhanne rivers has been initiated (Year 2) to develop an improved understanding of Alsek River Chinook Salmon production.

The total return of Sockeye Salmon to the Klukshu River in 2022 was 30,490 while the spawning escapement was estimated to be 29,600 fish. Both the return and spawning escapement were well above the most recent 10-year average of 11,423 and 11,000 respectively and significantly exceeded the upper end of the escapement goal range (11,000). The 2022 total Sockeye Salmon count at Village Creek was 469 fish, which is slightly below the most recent 10-year average of 515 fish (noting that this most recent 10-year period has experienced several years of very low Sockeye Salmon returns).

The total return of Chinook Salmon to the Klukshu River in 2022 was 941 while the spawning escapement was 926 fish. Both the return and spawning escapement were below the most recent 10-year average of 1,090 and 1,000 respectively.

The 2022 Klukshu River Coho Salmon count was 971. The Klukshu River enumeration program is not operated for the full duration of the Coho Salmon run and as a result the annual count does not represent total abundance. When used as a partial indicator of run strength, the 2022 Coho Salmon count was well-below the most recent 10-year average of ~2,300.

The 2022 Canadian Alsek River First Nation FSC fishery harvest was 14 Chinook, 1,722 Sockeye and 0 Coho. The 10-year average harvest in the Canadian First Nation FSC fishery on the Alsek River is 36 Chinook, 878 Sockeye and 15 Coho (noting that this most recent 10-year period has experienced several years of very low Chinook and Sockeye returns and associated fishery harvests). In response to poor pre-season forecasts for Chinook, angling for salmon was prohibited until August 15th, and retention of Chinook Salmon was prohibited for the 2022 season in the recreational fishery. Retention of Sockeye Salmon was permitted after September 3, 2022, in response to higher-than-expected abundance.

NORTHERN BC

NORTHERN BC CHINOOK AGGREGATE ABUNDANCE-BASED MANAGEMENT (AABM) FISHERIES

OBJECTIVES AND OVERVIEW

Chinook fisheries in Northern BC are managed by either AABM or individual stock-based management (ISBM) regimes. AABM fisheries are managed to an annual total allowable catch (TAC) based on the forecast abundance of the aggregate stocks that contribute to each fishery. Allowable harvest impacts in the AABM areas are determined by provisions in the PST and subject to domestic considerations, such as conservation and the allocation policy. Chinook Salmon fisheries implemented in Northern BC under the PST AABM management regime include the Northern British Columbia troll and Haida Gwaii recreational fisheries.

In Canada, conservation is the first priority in fisheries management. Once conservation obligations are met, priority access is given to First Nations for food, social, ceremonial and treaty requirements. Once those obligations are met, priority access to Chinook is provided to the recreational fishery, with commercial fisheries last in priority as abundance permits. Management constraints to the fishery include management for stocks of conservation concern, minimizing encounters of undersized Chinook Salmon and non-target species, and minimizing fisheries where legal and sublegal-sized Chinook Salmon have to be released.

Escapements of Northern Chinook Salmon have declined in recent years. Reduced survival rates and reduced productivity have been observed across British Columbia and Southeast Alaska. Domestic considerations for managing Chinook catch in Northern BC AABM fisheries are driven by concerns of low abundance in Fraser River Chinook and West Coast Vancouver Island Chinook.

The forecasted pre-season Chinook abundance index was 1.17 of the PST base period; therefore, under Treaty provisions, the maximum allowable catch was 142,800 Chinook for Northern BC AABM fisheries. A 20% reduction in the recreational forecast TAC in-season due to reductions in lodge capacity in 2022.

The pre-season distribution of the NBC AABM TAC by fishery is shown in Table 29 below. The total Chinook catch in the Area F Troll fishery and recreational fishery can be found in Appendix 3.

Table 29. Pre-Season Total Allowable Catch Estimate and In-Season Catch for NC AABM Chinook

	Pre-Season	In-season	Catch
NC BC Troll AABM and Haida Gwaii Sport Abundance Index	1.17	1.17	-
NC BC Troll AABM and Haida Gwaii Sport Chinook TAC	142,800	142,800	142,800
NC BC Troll AABM Chinook TAC	101,100	109,440	57,479
Haida Gwaii Sport Chinook TAC	41,700	33,360	Actual catch 25,674
Total NBC AABM	142,800	142,800	Actual catch: 83,153

RECREATIONAL FISHERIES

The Northern BC AABM recreational Chinook fishery takes place in the waters surrounding Haida Gwaii in Areas 1, 2, 101, 102, and 142. In Area 1, the recreational salmon fishery primarily occurs between Masset and Langara Island along the north shore of Graham Island. In Area 2W, the recreational salmon fishery primarily occurs between Englefield Sound and Port Louis. The majority of the fishery normally occurs between mid-May and mid-September with little effort in the winter.

Recreational fishing effort continues to be lower than in previous years due to reductions in operating lodges on Haida Gwaii. Catch estimates are subsequently significantly lower than the pre-season TAC (Table 29). While the harvest of Chinook in Area 2E is unknown, it is assumed to be fewer than 500 pieces and a small proportion of the recreational catch in Areas 1 and 2W. Recreational effort (>99%) primarily occurs in Area 1 and 2W.

Domestic Chinook management measures are in place in the AABM areas to protect migrating Chinook of Skeena, Fraser, and WCVI origin. In 2022, the daily and possession limits for Chinook salmon in Areas 1, 2, 142, and that portion of Area 101 West of 131 degrees 40.0 minutes West Longitude were reduced to 1 daily and 2 in possession from June 15 to July 31 to protect passing Skeena Chinook. The annual Chinook limit remained at 10 across the region as a precautionary measure towards protection of Southern at-risk Chinook stocks. A minimum size limit of 45 cm was in effect and barbless hooks were mandatory in the sport fishery. The majority of all sport releases in AABM areas are of legal size.

Estimates of AABM tidal sport catches near the mainland coast of Northern BC were obtained from creel surveys and lodge catch reports from lodges operating on Haida Gwaii.

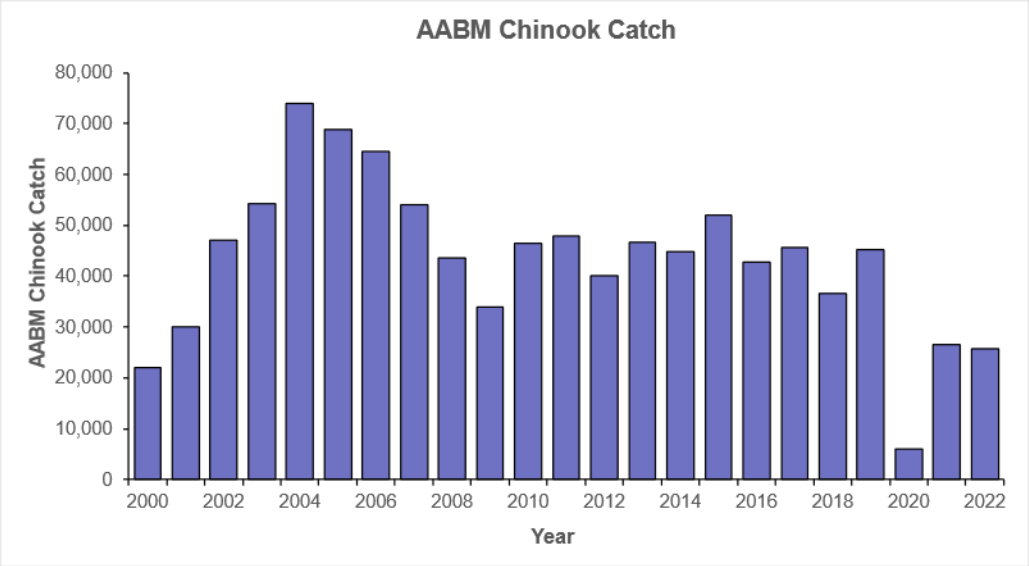


Figure 41. Northern BC Recreational AABM Catch – Chinook, 2000-2022.

COMMERCIAL FISHERIES

The Northern AABM fishery includes commercial troll (Area F) caught Chinook Salmon in Pacific Fishery Management Areas 1 to 5, 101-105 and 142. The North Coast BC troll fishery opening for Chinook fishing was delayed and opened from August 10 to September 30 as part of fishery restrictions designed to pass through Fraser Summer 41 (South Thompson) Chinook and WCVI Chinook to Southern fisheries and increase escapements.

The entire 2022 Northern BC troll fishery was conducted under a system of individual transferable quotas. The minimum size limit was 67 cm and barbless hooks and revival boxes were mandatory. No troll test fisheries were conducted in the North Coast of BC in 2022.

NORTHERN BC CHINOOK INDIVIDUAL STOCK-BASED MANAGEMENT (ISBM) FISHERIES

OBJECTIVES AND OVERVIEW

Northern BC Chinook Individual Stock-Based Management (ISBM) Fisheries include all First Nations fisheries in both marine and fresh waters, all commercial gillnet and seine fisheries, all freshwater recreational fisheries, marine recreational fisheries in PFMA's 3 to 10, 103 to 110 and 130, and troll fisheries in PFMA's 6 to 10, 106 to 110 and 130. 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 or catch year exploitation rate, CYER objectives where populations are below escapement goals).

STOCK STATUS

Since assessments of the ISBM fisheries are relative to the escapements achieved in the Chinook indicator stocks, a brief overview of the 2022 returns are provided. Chinook escapements to the upper Nass River were 13,190 (based on mark-recapture data). The estimated 2022 escapement for the Skeena River aggregate Chinook was 24,274 based on the Maximum Likelihood Open Population Modeling. The Skeena River aggregate Chinook estimate is based on a Kitsumkalum River estimate of 5,214 fish. The estimated total escapement in the Bella Coola/Atnarko River in 2022 was 9,526 large Chinook (Maximum Likelihood Open Population Modeling). The total Chinook catch in the Tyee Test fishery on the Skeena River was 1,255 (908 Large Chinook and 347 Jack Chinook). ISBM catch data can be found in Appendix 3.

FIRST NATIONS FSC FISHERIES

Chinook Salmon FSC Fisheries were not restricted in Northern BC in 2022. First Nations catch summaries from the Nass, Skeena, and Central Coast can be found in Appendix 3.

RECREATIONAL FISHERIES

TIDAL WATERS

Domestic management of ISBM tidal sport fisheries was driven by the decline in Northern Chinook escapement since 2017. Restrictive management measures have been implemented since 2018 in response to this decline in returns. A precautionary approach was implemented again in 2022 to support the rebuilding of this stock.

The minimum size limit for Chinook is 45 cm for Northern BC ISBM sport fisheries.

The following regulations were in place for the tidal waters of Areas 3, 4, and 5 in 2022:

- Chinook daily limits started at 2 (two) per day
- June 15, 2022 to July 31, 2022 the Chinook daily limit set to 0 (zero).
- August 1, 2022 to August 31, 2022 increased to 1 (one) Chinook per day.
- September 1, 2022 the daily limit increased to 2 (two) Chinook per day for the remainder of the season.

The above reductions were planned pre-season, and were designed to address concerns for a weak 2022 forecast for Skeena Chinook, and to provide for FSC priority access.

In 2022, tidal sport fisheries were monitored by the Area 3 & 4 Creel Program which collects catch information from the recreational fishery surrounding Prince Rupert and Port Edward on the North Coast of B.C. It is focused in Areas 3 and 4, comprising the waters of Chatham Sound between the mouths of the Nass and Skeena Rivers. The Area 3 & 4 Creel Program operated from May 1, 2021 to August 31, 2022.

Area 6-10 had a daily limit of 2 per day for the 2022 season.

Tidal sport catch from lodges operating in the Smiths Inlet, Rivers Inlet, Hakai Pass, and Bella Bella areas were estimated using log books. For 2021, recreational fishing lodge operations were reduced as many lodges did not operate, while others operated at reduced capacity.

NON-TIDAL WATERS

Domestic management of ISBM non-tidal sport fisheries in 2022 were driven by the low abundance of Nass and Skeena Chinook stocks.

Nass River (Area 3)

The Nass River watershed started with normal daily limits and opening times for Chinook. On June 15, 2022 the Chinook daily quota was reduced to two (2) Chinook per day, only one of which could be over 65cm in length. This reduction is in place until March 31, 2023.

Skeena River (Area 4)

The Skeena River watershed started with normal daily limits and opening times for Chinook in 2022. Effective May 24, 2022, the entire Skeena River watershed was closed to fishing for Chinook Salmon to address concerns for Skeena Chinook. The May 24 closure affected the entire Skeena River watershed and all rivers and lakes in Region 6 flowing into PFMAs 3 to 6, not including the Nass and Kitimat rivers, to fishing for Chinook Salmon for the remainder of the 2022/2023 fishing season.

COMMERCIAL FISHERIES

Area C

Areas 3 to7,9, and 10

There were no Area C gill net fisheries for ISBM Chinook in 2022.

Area 8

The Chinook targeted gill net fishery opened for 24 hours on the following dates: May 30, June 6, June 13, and June 20, 2022. In total, there were 4 openings in Area 8, with a total effort of 93 boat days.

Additionally, there was a small-scale economic opportunity demonstration fishery conducted on June 23, 2022 by the Nuxalk First Nation under the Commercial Salmon Allocation Framework (CSAF) with a total effort of 10 sets.

Refer to Appendix 3 for Chinook catch totals.

NORTHERN BC PINK SALMON FISHERIES

OBJECTIVES AND OVERVIEW

In 2022, Canada was to manage the Area 3-1 to 3-4 Pink-directed net fisheries to achieve an annual catch share of 2.49% of the annual allowable harvest (AAH) of Alaskan Districts 101, 102, and 103 Pink Salmon. Canada was also to manage the Area F (NBC) troll fishery to achieve an annual catch share of 2.57% of the annual allowable harvest (AAH) of Alaskan Districts 101, 102, and 103 Pink Salmon.

With a total return of approximately 56.75 million Pink Salmon, the Alaskan Districts 101, 102 and 103, the AAH was approximately 45.99 million Pink Salmon. The resulting Area 3-1 to 3-4 and Area 1 (Area F Troll) Canadian commercial net total allowable catch of this AAH was approximately 1.15 million and 1.18 Pink Salmon of Alaskan Districts 101, 102 and 103 origin, respectively.

COMMERCIAL FISHERIES

Areas 3-1 to 3-4 Pink Net Catch

In the Canadian Northern Boundary Area 3, the 50p estimate of TRTC for Nass Pink Salmon was 416,000 with a range of 244,000 (75% probability) to 710,000 (25% probability) and was projected to return above average (324,000) based on returns from 1994-2021. Actual returns in Area 3 and Area 4 were higher than anticipated.

The Area A seine fishery management is designed to meet stream-specific escapement goals while keeping within the PST annex considerations. Targeted net Pink fisheries are based upon identified surpluses with consideration for stocks of concern. In Area 3, due to ongoing concerns for wild Chum populations, Pink directed fisheries in Area 3 close at the end of July when wild Chum abundance in the fishery area increases.

The Area A catch in 2022 occurred in four openings from July 12 to July 25. Catch is summarized in Appendix 3.

Area F (NBC) Pink Troll Catch

The Canadian commercial troll fishery targeting Pink Salmon with retention of Coho Salmon was open in the northern portion of Area 101 (Dixon Entrance AB Line) from July 1 to August 9. Pink retention was also permitted during the Chinook directed fishery, in Area 101 and portions of Area 1, 2W and 142, which opened from August 10 to September 30. Pink Salmon directed effort during the Chinook opening was minimal and the total Pink catch in the Area F Troll fishery and recreational fishery can be found in Appendix 3.

NORTHERN BC SOCKEYE SALMON FISHERIES

OBJECTIVES AND OVERVIEW

In Northern B.C. two Sockeye Salmon populations are relevant under the Pacific Salmon Treaty, the Skeena and Nass Rivers Sockeye.

Under the Annex IV, Chapter 2 of the PST obligates the U.S. shall manage the Alaskan District 104 purse seine fishery prior to statistical week 31 to achieve an annual catch share of Nass and Skeena Sockeye of 2.45% and manage the Alaskan 101 drift gillnet fishery to achieve an annual catch share of Nass Sockeye of 13.8%. Both parties agree that the 50% probability (p50) of the run size forecasts may be used to make management decision regarding fishing plans for Canada and U.S., respectively.

In the Skeena River, the escapement target is 900,000 Sockeye Salmon, below this escapement there are no Canadian commercial marine harvests and the U.S. undertake measures to reduce impacts in the D104 fishery. For domestic Canadian management, commercial fisheries in the Skeena River do not proceed until escapement past Tyee is forecast to be above 1.05 million Sockeye. The allowable commercial exploitation rate is 0% for returns to Canada less than 1,050,000. The allowable exploitation rate increases linearly from 0% at 1,050,000 to 20% at a run size of 2.0 million, 30% at 3.0 million, and up to a maximum of 40% at a return of 4.0 million or greater. Management plans for the Skeena River Sockeye include considerations for weak and wild stocks as well as bycatch species, such as wild Chum and Steelhead.

In the Nass River, the escapement goal is 200,000 Sockeye Salmon, where below this escapement commercial Canadian marine harvests are not permitted. Below this escapement the US undertake measure to reduce the impact of D101 and D104 fisheries on Nass Sockeye. Domestically in Canada, actual in-season harvest opportunities are dependent on in-season stock assessments. Fisheries that target Nass Sockeye in Canada are managed to meet commitments with the Nisga'a Final Agreement (NFA), First Nations FSC goals, Pacific Salmon Treaty obligations, and to provide ocean commercial and inland commercial fisheries harvest opportunities.

STOCK STATUS

Nass River

Nass River Sockeye returns were forecast pre-season to be average to below average, compared to historical returns, with an expected total return from 380,000 (75% probability) to 828,000 (25% probability) and a point estimate of 560,000 (50% probability) based on a sibling-regression model. This forecast is an improved return compared to 2020, which was the lowest return to the Nass River since 1992. The total return to Canada forecast is also slightly below the long term average (482,000, 2009-2021) with an expected TRTC of 471,000 (p50) ranging from 320,000 (75% probability) and 696,000 (25% probability).

Kwinageese Sockeye returns, a Sockeye stock in the Nass River, for 2022 were expected to be poor following moderate brood year escapement in 2017 and very low brood year escapement in 2018. The majority of Kwinageese Sockeye pass through the Area 3 commercial fishery areas from July 8 to July 28, with the peak occurring between July 12 and July 24. A temporal closure has been in place to reduce impacts to Kwinageese Sockeye in commercial fisheries. In 2022, the commercial closure occurred from July 17 to July 23.

In-season decisions are made for Nass River fisheries based on escapement information from the Nisga'a Fishwheel Program conducted at test fishing sites near Gitwinksihlkw on the Nass River, fish counts at the

Meziadin fishway, fish counts at Kwinageese weir, and stream inspections. Returns in 2022 showed a return above the pre-season forecast, with a p50 TRTC estimate of 487,000.

Skeena River

The total Skeena Sockeye return was expected to be average compared to the long-term average of 1.6 million (2009-2021) with a pre-season return forecast from 0.965 million (90% probability) to 4.369 million (10% probability) and a point estimate of 2.054 million (50% probability) based on the sibling model. Rates of return have become more uncertain in recent years, with greater variability among the wild Skeena stock components compared to with the Skeena aggregate. Modest returns were expected for 2022, with a small commercial fishery anticipated.

In-season, the Tyee Test fishery is the main in-season stock assessment tool for estimating the relative abundance of Skeena River Sockeye. Daily in-season escapements and total run size are estimated for Sockeye and used to inform in-season fisheries decisions. Total return to Canada in 2022 based on Tyee escapement showed a strong return of Skeena Sockeye with the final in-season forecast on September 13 showing a p50 return of 4.40 million.

FIRST NATIONS FSC/TREATY FISHERIES

Sockeye Salmon FSC Fisheries were not restricted in Northern BC in 2022. First Nations catch summaries from the Nass, Skeena, and Central Coast can be found in Appendix 3.

In the Nass River, the Nisga'a implemented their Treaty harvest and individual sales fisheries in 2022. Catch information can be found in Appendix 3.

RECREATIONAL FISHERIES

TIDAL WATERS

Recreational fisheries directed on Nass and Skeena Sockeye occurred in 2022. The marine recreational fishery started the year closed to Sockeye retention in Skeena and Nass marine waters. On July 20, the fishery opened to four (4) per day and remained open for the rest of the year. Recreational salmon fishing occurs in the tidal waters adjacent to the Skeena River, with the peak of the season being from June to August. The daily limit for Sockeye in Areas 3 and 4 is four (4) per day, unless otherwise varied, and open based on in-season estimates of escapement at the Tyee Test Fishery. The minimum size limit for Sockeye salmon is 30 cm, in tidal waters and freshwater.

Catch information can be found in Appendix 3.

NON-TIDAL WATERS

Meziadin Lake and the Nass mainstem from July to September. The minimum size limit is 30 cm, and daily and total possession limits are in effect. A trigger of 120,000 for the recreational fishery in Meziadin Lake was implemented in 2020 and continued into the 2022 season in response to recent poor returns of Meziadin Sockeye.

The Skeena River and tributaries are in Region 6 freshwater fishing area, and there are openings for Skeena Sockeye in Babine River and Lake, Pinkut Creek, Fulton River, and the Skeena mainstem. For the 2022 season, the daily limit for Sockeye was 0 per day from the start of the season until the in-season trigger of 800 thousand estimated past Tyee.

Non-tidal Sockeye directed fisheries also took place in the following areas:

- Nass: Meziadin Lake on August 2. Daily limit of 1. Increased to 2 Sockeye per day on August 13 in response to escapement triggers in Meziadin Lake being reached.
- Skeena River - July 19 opening. Daily limit of one (1). Increased to 2 per day on July 20 and 4 per day on July 27.
- Skeena: Babine River opened August 1 until September 15 with daily limits of 2. The limit in Babine Lake increased to 4 Sockeye per day as of August 19 until September 15.

COMMERCIAL FISHERIES

There were no regular commercial directed Sockeye fisheries on Nass Sockeye in 2022. One commercial demonstration fishery was approved in 2022 targeting Meziadin Sockeye. This fishery opened on August 8 for seven days on the Meziadin River with a total catch of 15,000 pieces.

There were both gillnet and seine commercial fisheries targeting Skeena Sockeye in 2022.

Area A

For the 2022 fishing season there were three, five-day seine ITQ fishery openings in Area 4 spanning the period of July 20 until August 7. Pink Salmon retention was also permitted in this fishery.

Area C

In the 2022 fishing season, there were eight, two-day gillnet openings spanning the period of July 15 until August 7.

Catch information is included in Appendix 3.

There were both marine and in river demonstration fisheries targeting Skeena Sockeye in 2022. There were 10 marine openings in the period from July 18 until August 7, with a total of 20 vessels participating. In 2022, there were six in river Sockeye directed demonstration fishery openings, all of which use beach seines or dip nets.

EXCESS SALMON TO SPAWNING REQUIREMENTS (ESSR) FISHERIES

No ESSR fisheries took place on the Nass River in 2022.

In the Skeena River, two ESSR fisheries were implemented in 2022. The Babine Jack Sockeye ESSR opened at the Babine River counting fence August 4 until September 7. The Babine large Sockeye ESSR targeting Fulton River spawning channel fish opened on August 19.

SOUTHERN BC CHINOOK SALMON

SOUTHERN BC AGGREGATE ABUNDANCE-BASED MANAGEMENT (AABM) CHINOOK

OBJECTIVES AND OVERVIEW

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

For the period of October 2021 through September 2022, the forecast Chinook abundance index was 0.88 of the PST base period; therefore, under Treaty provisions, the maximum allowable catch was 100,700 Chinook for WCVI AABM fisheries, which includes a 12.5% reduction consistent with the Treaty provisions that came into effect in January 2019.

Domestic considerations for managing Chinook catch in WCVI AABM fisheries are driven by concerns regarding the low status of natural WCVI, Lower Strait of Georgia (LGS), and Fraser River Chinook, as well as Interior Fraser Coho and Interior Fraser River (IFR) Steelhead populations. Management measures in AABM Chinook fisheries to limit impacts to these domestic stocks of concern are summarized in the fishery subsections.

To protect Fraser Chinook stocks of concern Five Nation and recreational retention of Chinook was closed in the offshore area (seaward of 1 mile outside the surfline) of WCVI between April 1 and July 15. Area G troll fisheries were closed between March 15 and July 31. Additionally, a 27-day rolling window closure was applied in portions of September/October to protect IFR Steelhead.

The pre-season distribution of the total WCVI AABM TAC for planning by fishery is shown in Table 30 below. The Area G troll allocation was adjusted in-season based on increases to the Five Nations communal sale allocation and revised in-season projections of the recreational harvest.

AABM Chinook catch and release information from all fisheries can be found in Appendix 4.

Table 30. Pre-Season Total Allowable Catch Estimate for October 2021 to September 2022 WCVI AABM Chinook

	Pre-Season	**In-Season**
WCVI AABM Abundance Index	0.88	0.88
WCVI AABM Chinook TAC	100,700	100,700
AABM Recreational Harvest Projection	35,000	Actual catch: 33,171
First Nations Harvest Projection (FSC)	5,000	Actual catch: 9,247
Maa-nulth First Nations Domestic Allocation (FSC)	3,667	Actual catch: 3,963
Five Nations Allocation	12,494	TAC In-season: 14,701; Actual catch: 16,029
Area G Troll Allocation	44,539	TAC In-season: 42,211 Actual catch: 24,686
Total AABM	100,700	87,096

FIRST NATIONS DOMESTIC AND FSC FISHERIES

The 2022 WCVI AABM FSC Chinook reported catch (to date) can be found in Appendix 4. Catch from Maa-nulth Nations Domestic fisheries can also be found in Appendix 4.

FIRST NATIONS COMMERCIAL HARVEST

Five Nations Communal Sale Fishery

In 2022, the Department provided communal sale fishery opportunities for the Five Nations (five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht) that included AABM Chinook. These opportunities were categorized as Offshore Integrated Hook and Line communal sale fisheries.

The AABM Chinook allocation was 12,494 to start the season and was revised in-season to 14,701 pieces following ongoing consultations with the Five Nations and review of the April 2021 British Columbia Court of Appeal decision. The fishery was carried out in portions of Areas 24, 25, 26, 124, 125, and 126 on the west coast of Vancouver Island over several openings from February to August, 2022. A 100% independent dockside monitoring program was in place for the entire season. Sale of Chum, Pink, Sockeye and hatchery-marked Coho caught as bycatch was also permitted, as well as several groundfish species. Total salmon catch from the Five Nations AABM Chinook fishery, can be found in Appendix 4.

COMMERCIAL FISHERIES

For the 2021/2022 Chinook year (October 1, 2021 to September 30, 2022), fisheries were shaped by conservation concerns for the following domestic stocks: Fraser River Spring 42 Chinook, Fraser River Spring 52 and Summer 52 Chinook, WCVI wild Chinook, LGS Chinook, IFR Coho, and IFR Steelhead.

The distribution of the WCVI AABM TAC between fisheries is shown above in Table 30.

Area G Troll

The Area G troll annual management plan is designed to maintain exploitation rates (ERs) on domestic stocks of concern within established limits through the use of fishing time and area closures in conjunction with fishing effort limits. The management plan is subject to change when required to address specific conservation concerns. For the 2022 fishing season, the following changes to the annual fishing plan were implemented similar to 2019-2021:

Additional conservation measures to further protect low returns of Fraser River Chinook were implemented. For Area G troll this was addressed by implementing a fishery closure between March 15 and August 1, 2022.

A 27-day rolling window closure starting in September was applied to protect IFR Steelhead.

The Area G catch in 2022 occurred in two openings: one opening from February 7 to March 14 and a second opening from August 1 to September 15. Catch is summarized in Appendix 4.

RECREATIONAL FISHERIES

The WCVI AABM recreational Chinook fishery primarily takes place in offshore Areas 121 to 127 from June to September. Chinook catch from inshore Areas 25 to 27 prior to July and Areas 21 to 24 prior to August are also included in the AABM estimate. Catch and effort are largely driven by abundance and

weather, and together both have impacts on annual harvest. Previous sampling has indicated that there is minimal AABM catch and effort outside of this period.

Domestic Chinook management measures are in place in the near-shore AABM areas to protect migrating WCVI-origin Chinook. In 2022, management measures continued to include finfish closures in several areas, increasing terminal Chinook non-retention areas, and focusing recreational opportunities in areas where DNA samples indicated that WCVI Chinook presence is lower.

The domestic management actions that were first implemented in 2019 continued in 2022, designed to further protect Fraser River Chinook populations. This includes a Chinook non-retention area in effect from April 1 to July 14 (inclusive) in Areas 121 to 127 seaward of a 1 nm surfline boundary and a maximum size to 80 cm for Chinook from July 15 – to July 31.

Chinook catch in the AABM recreational fishery is estimated through several catch monitoring programs, including a creel survey, a logbook program and DFO's electronic survey information (iREC). The creel survey continues to be the most utilized catch monitoring program in this area particularly because it collects effort (number of boat trips) and catch per unit effort data. Catch for any given species within a defined time-area stratum is estimated by multiplying effort estimates 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. Logbook effort is removed from effort estimates where there is overlap. 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.

The Chinook recreational catch estimate from the creel survey for the 2022 WCVI AABM fishery is provided in Appendix 4.

See Figure 42 below which illustrates catch and effort from 2000 through 2022.

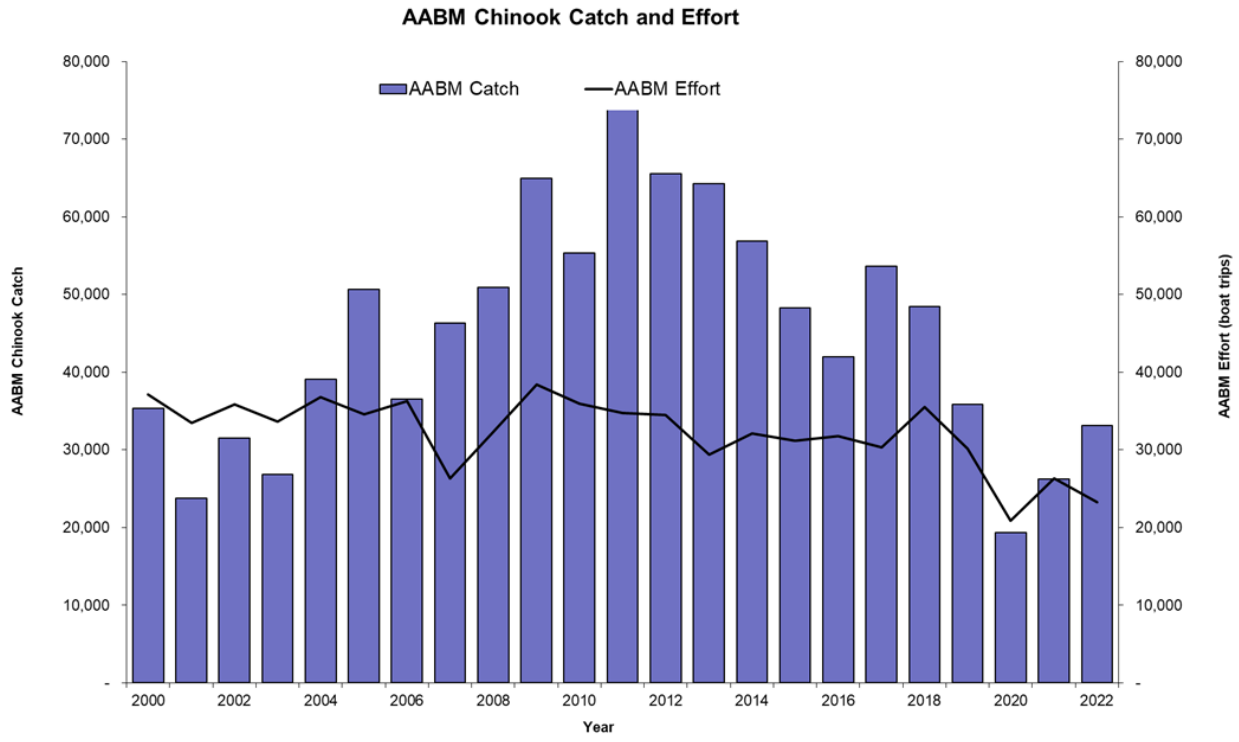


Figure 42. WCVI Recreational AABM Catch and Effort- Chinook, 2000-2022

SOUTHERN BC CHINOOK INDIVIDUAL STOCK BASED MANAGEMENT (ISBM) FISHERIES

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 2022 in First Nations FSC, recreational, and commercial Chinook fisheries to protect West Coast Vancouver Island (WCVI), Southern Strait of Georgia and Fraser River Chinook stocks of concern.

Specific management actions were taken to protect WCVI-origin Chinook in Canadian ocean fisheries (not including enhanced terminal areas), the harvest of which is managed to an ER of 10%. Fisheries to which this limit applies are the northern troll, Haida Gwaii recreational, WCVI troll, and WCVI recreational. Most Southern BC fisheries were managed such that impacts on WCVI wild Chinook stocks were minimized, with the exception of terminal fisheries focused on enhanced stocks.

Southern Strait of Georgia Chinook stocks are improving from historic lows seen in 2009 and are stable or rebuilding. Significant management measures in recreational and commercial fisheries continued to be in place to protect these stocks. Some LGS Chinook stocks are seeing an increase in terminal returns, particularly in the Cowichan River.

A suite of precautionary fishery restrictions were intended to provide a high degree of protection to at-risk Fraser Spring 42, Spring 52, and Summer 52 Chinook returning in 2022. This approach was expected to reduce overall Canadian fishery mortalities on these populations to very low levels. Expected fishery mortalities were not intended to be a management target and the objective was to allow as many fish to pass through to the spawning grounds as possible.

First Nations FSC management actions in the Fraser River included time and area closures and reduced fishing times. Specifically, Fraser River First Nations FSC fisheries were restricted to unplanned events (e.g., funerals) or First Fish ceremonies until July 15, followed by opportunities to target healthy Summer 41 Chinook primarily in August.

South Coast FSC fisheries opportunities on mixed stocks was permitted in marine areas with the exception of the approaches to the Fraser River (Subareas 29-6, 29-7, 29-9, and 29-10). To improve the collective understanding of stocks of concern, in terms of their migration routes, timing and fisheries impacts, First Nations were encouraged to collaborate with the Department on shaping a catch monitoring and biological sampling plan for fisheries between April 1 and July 15 to provide stock composition information for Chinook. Recreational fisheries in Johnstone Strait, Strait of Georgia, Juan de Fuca Strait, and the approach waters to the Fraser River were managed to Chinook non-retention between April 1 and varying dates between July 14 and August 31, with a maximum size limit of 80 cm in effect where Chinook retention was permitted before August 31. In 2022, commercial fisheries in Barkley Sound targeted ISBM Chinook. Chinook non-retention was in place for other southern BC commercial fisheries (excluding AABM Chinook).

ISBM Chinook catch and release information from all fisheries can be found in Appendix 4.

STOCK STATUS

WEST COAST VANCOUVER ISLAND CHINOOK

Wild WCVI Chinook are identified as a stock of concern in the IFMP. The general status has been characterized as low and stable: not rebuilding. A precipitous decline in abundance occurred in the mid 1990s due in part to consecutive El Nino events from 1991-93 and again 1997-98. Ecosystem changes especially affected early marine survival of these ocean type Chinook. Two areas of the WCVI are key indicators of wild Chinook status: Kyuquot Sound (Nootka-Kyuquot Conservation Unit) and Clayoquot Sound (SWVI Conservation Unit). The abundance of Chinook returning to Clayoquot Sound continues near a lower reference point and so is the basis for DFO fishery management measures.

In other areas of the WCVI, hatchery production supports terminal fisheries directed at surplus production with management measures in place to reduce impacts on wild origin stocks. These areas include Alberni/Barkley, Nootka, and Nitinat. In these areas, catch is dominated by the hatchery stock; therefore, higher ERs are permitted than in times and areas dominated by naturally produced WCVI Chinook stocks.

In 2022, poor environmental conditions because of the unprecedented drought that occurred in September through to October had an impact on Chinook migration and spawning in many WCVI systems. It is unknown at this time how those conditions will affect the spawning success of the Chinook this year, but evidence of pre-spawn mortality was observed in fish staging in the freshwater along with intertidal spawning in some areas. The majority (80%) of WCVI indicator streams received below- to well-below average escapements in 2022; notable exceptions were the Nahmint and Sarita Rivers (PFMA 23) and the Kaouk and Tashish Rivers (PFMA 26), all of which received roughly double their average escapements. In 2022, a strong Chinook return was observed to Robertson Creek hatchery (Stamp River; PFMA 23) and a moderate return was observed to Conuma River hatchery (PFMA 25).

STRAIT OF GEORGIA CHINOOK

Fall Season

Adult returns of fall-run Chinook to SEP facilities south of Campbell River were average to above average again in 2022. Puntledge River escapements were below average with 6,693 adults returning compared to the 12-year average of 8,350. Further south, the Big Qualicum River escapement was well above the 12-year average of 7,600 with 10,060 fish. Little Qualicum River escapement was also above the 12-year average of 5,690 at 9,359.

Chinook escapements to mid-island streams were also average to above average in 2022. Nanaimo River abundance was above the four-year average of 4,570 with an estimate of 15,074 total return. Cowichan River escapement estimates were above the target of 6,500 naturally spawning adults for the seventh year in a row with a fence count of 9,013 adults and 2,415 jacks. An expanded mark-recapture estimate using PIT tags determined a total return estimate of 28,735. This includes 23,429 natural spawners, 503 hatchery removals, and 4,803 lower river spawners and loses, such as fish that didn't migrate past the fence and spawned in the lower river, were harvested for FSC purposes or pre-spawn mortality. The peak count based on swims in the Englishman River was 209 fish which was lower than the 12-year average of 1,030.

On the mainland side of the northern Strait of Georgia, Sliammon and Lang hatcheries continue to have variable returns; however, adult Chinook returns to Sliammon Creek were low in 2022 with 0 fish observed compared to the 12-year average of 150. Lang Creek returns were 258, which is below the 12-year average of 1,220.

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 migrate into central and northern BC and Alaska. ERs 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 2022, 12 Chinook were counted in Theodosia, two in Chapman Creek, and five in Skwakwa.

Spring/Summer Season

The Puntledge, Nanaimo, Cowichan, and Chemainus systems have identified early runs of Chinook in the Strait of Georgia. Efforts to recover Puntledge summers to viable levels have resulted in improved returns to the river since 1999. The 2022 escapement estimate for Puntledge was 410 fish, which is less than the four-year average of 600 adults. This was not unexpected due to reduced hatchery releases in contributing brood years. Monitoring of Nanaimo spring/summer Chinook escapement was improved in 2022 with a DIDSON/video system in the lower river in addition to a series of swims from April through September. A comprehensive review of DIDSON and video data produced and estimate of 417 summer run fish for 2022, which is below the 4-year average of 610. The Chemainus River showed a slight increase, with 39 Chinook during summer swim surveys compared to 33 in 2021. Recent counts in this system have been very low but the rockslide in the lower canyon was cleared naturally in winter 2018/2019, restoring access to a significant portion of the system. A handful of Chinook were observed in the annual summer trout survey in the Cowichan River but no comprehensive count was conducted.

JOHNSTONE STRAIT MAINLAND INLET CHINOOK

Currently, Chinook Salmon escapement is consistently monitored in three systems in the North Island/Mainland Inlets region. In Area 12, the Nimpkish River is assessed using standardized swim surveys by hatchery staff. In Area 13, the Campbell/Quinsam and Phillips Rivers are assessed by intensive mark-recapture programs. The Campbell/Quinsam is a long-term Chinook indicator, assessed yearly since 1984. Since 2021, the Department has expanded snorkel survey coverage on the Adam/Eve and Salmon Rivers, established a video counting system on Devereux Creek (Knight Inlet), and in 2022 have embarked on an intensive mark-recapture program on the Southgate River (Bute Inlet). The Department’s surveys targeting Pink Salmon in the Mainland Inlets monitor Chinook Salmon returning to those systems, as their return timing is similar. Other systems are covered using intermittent visual surveys.

Nimpkish River

Snorkel survey coverage was greatly improved in 2022, but conditions were poor. The extensive drought, followed by high water conditions limited migration, and hampered the Department’s ability to conduct surveys. The estimate of 261 adult Chinook Salmon is likely an underestimate due to these challenging conditions. Hatchery broodstock targets were not met.

Campbell/Quinsam System

The estimated 4,596 Chinook returning to the Campbell/Quinsam system is a reduction from previous years, and below the five year mean return of 7,072 Adult Chinook. This estimate is somewhat uncertain due to the extended drought and unusually active bears that removed carcasses rapidly from the deadpitch program. A total of 1563 Chinook were taken for broodstock and none were removed by the recreational freshwater fishery. While Chinook spawners were in both the Campbell and Quinsam rivers, the distribution seemed to favour the Campbell River as flows were significantly lower than the fisheries flow targets.

Phillips River

Escapement to the Phillips River was 1,679 adult Chinook Salmon. High river temperatures delayed tagging activities during late July and August; however, tag application levels remained consistent with past years. A typical number of carcasses were recovered throughout the system, although fewer tagged fish were found in the upper Phillips River compared to previous years. In the lower Phillips River, there was a high incidence of pre-spawn mortalities. The 2019 brood was the final enhanced release of Phillips Chinook.

South Coast Mainland Inlets

The Mainland Inlets of the South Coast of BC represent a significant data gap for Chinook Salmon. In 2022, the Department enumerated Chinook Salmon on Devereux Creek in the Klinaklini River watershed, and for the Southgate River in Bute Inlet. There was an estimated total return of 816 adult Chinook Salmon to Devereux Creek, and 5,175 adult Chinook Salmon returning to the Southgate River. Operations in these areas are challenging, but efforts are ongoing to identify candidates for a future indicator in this remote area of the South Coast.

FRASER RIVER CHINOOK

Fraser River Chinook are assessed as five naturally spawning stock groups for PSC management under the 2019 PST agreement, including Fraser Spring 42, Fraser Spring 52, Fraser Summer 52, Fraser Summer 41, and the Harrison River (Fall 41).

Within the Fraser, there are four active and one discontinued CWT-indicator stocks: Nicola River (Fraser Spring 42), Lower Shuswap (Fraser Summer 41), Harrison River and Chilliwack River (Fraser Fall 41), and Dome Creek (Fraser Spring 52) that was discontinued in 2005. Two new CWT-indicator stocks are under development: Lower Chilcotin River (Fraser Spring 52) to replace Dome Creek and Chilko River (Fraser Summer 52).

In 2019, the Big Bar Landslide on the Fraser Mainstem obstructed the migration of some populations in the Fraser Spring 52 and Fraser Summer 52 stock groups. For Chinook returning to rivers upstream of the landslide, only 13% of the Spring and 48% of the Summer Chinook were estimated to be able to pass the landslide and return to their spawning grounds in 2019. Preliminary analysis indicates considerable improvement of survival estimates past the slide site in 2021 and 2022, in addition to higher passage thresholds for Chinook. Salmon passage at the Big Bar landslide was not considered an issue for the 2022 season due to mitigation efforts in previous years, which aided natural salmon passage through the slide area. Although, throughout June and mid-July, exceptionally high discharge throughout the Fraser watershed created substantial migration challenges for all salmon further downstream of the slide. Once discharge levels began to drop, SONAR counts downstream and upstream of the landslide indicated no significant delays. Despite the passage success in 2021 and 2022, a migration passage problem continues to exist at Big Bar (particularly during periods of high river discharge) and further management actions are required to completely mitigate the impacts of the slide on migrating salmon. Planning for the 2023 salmon migration includes continued monitoring, conservation enhancement, and assisted transport when the passage is impaired.

The Fraser Spring 42 stock group spawning escapement for 2022 based on the CTC index for the aggregate is ~10,160. The escapement estimate is near the long-term (1999-2022) average (~11,200) and above the parental brood escapement of ~2,100 in 2018. The Nicola River escapement estimate of ~7,440 is above the parental brood and the long-term (1999-2022) average (~5,500).

The 2022 Spring 52 stock group spawning escapement estimate based on the CTC index for the aggregate is ~22,930. The escapement estimate indicates that this MU was above the parental brood escapement of ~8,540 in 2017, and near the long-term (1999-2022) average (~19,900). However, there is considerable variation amongst the populations in the stock group.

The 2022 Summer 52 stock group spawning escapement estimate based on the CTC index for the aggregate is ~26,460. The escapement estimate indicates that the MU was above the parental escapement brood of ~6,390 in 2017 and above the long-term (1999-2022) average (~18,900). However, there is considerable variation amongst the populations in the stock group.

Escapements to the Fraser Summer 41 stock group increased during the 1990s and remained abundant until 2011, followed by lower years in 2012, 2014, and 2016-2018. Escapement estimates in 2019-2021 were above the long-term average, with 2019 near brood and 2020 and 2021 above brood. The 2022 spawning escapement estimate of ~110,880 is above the long-term (1999-2022) average (~104,900) and parental brood of ~46,540 in 2018. One exception is Maria Slough where abundance remained extremely low. The 2022 Lower Shuswap River escapement estimate exceeded the escapement goal of 12,300.

The Harrison River (Fraser wild Fall 41 stock group) escapement estimate for 2022 is ~81,650. The estimate is above the parental brood of ~46,100 in 2018, near the long-term (1984-2022) average of ~89,300, and above the escapement goal of 75,100. The Harrison River escapement estimate has met the escapement goal twice in the past ten years.

Returns in 2022 are an improvement over recent years when the three Fraser stock groups with yearling smolt life history (Spring 42, Spring 52, and Summer 52) and Harrison (Fall 41) Chinook have experienced low abundances related to depressed parental escapements, continuing unfavorable marine and freshwater survival conditions, and low productivity. These four stock groups are of continuing conservation concern. Canadian marine and Fraser River fisheries were restricted in 2022 to continue to address these conservation concerns.

FIRST NATIONS DOMESTIC AND FSC FISHERIES

WCVI FSC Fisheries and Treaty Domestic Fisheries

Somass First Nations (Tseshaht and Hupacasath First Nations) caught Chinook by gill net, rod and reel, and as bycatch during other salmon fisheries in Area 23. Maa-nulth Treaty Nations harvested Chinook through rod and reel, gill net, and troll. Catch reports (to date) for Maa-nulth Treaty harvest and other WCVI Nuu-chah-nulth FSC harvest can be found in Appendix 4.

Strait of Georgia FSC Fisheries and Treaty Domestic Fisheries

Chinook Salmon FSC and Treaty Domestic fisheries were not restricted in the Strait of Georgia in 2022. Effort was low in the mixed stock areas; effort almost exclusively using hook and line gear. Data for terminal harvests for FSC can be found in Appendix 4. Tla’amin Treaty and other First Nations catch reports in the Strait of Georgia can also be found in Appendix 4.

Johnstone Strait FSC Fisheries

Chinook Salmon FSC Fisheries were not restricted in Johnstone Strait in 2022. Fisheries in the mixed stock areas were mainly with hook and line gear. First Nations catch summaries from Johnstone Strait can be found in Appendix 4.

Fraser River FSC Fisheries

Chinook-directed FSC fisheries took place in the Lower Fraser River (LFR) between the mouth and Sawmill Creek from January through September 2022. The total number of Chinook harvested from Chinook-directed, Sockeye-directed, and Chum-directed FSC openings or limited participation openings can be found in Appendix 5. Sockeye, Pink, Coho, and Chum bycatch that occurred during Chinook-targeted FSC openings is also listed in those appendices. Chinook-directed FSC fisheries in the LFR also occurred in the Sumas and Chilliwack River (July to August), the Chehalis River (July to September), and the Birkenhead River (April to June).

Chinook-directed FSC fisheries took place in the Fraser River and tributaries above Sawmill Creek from June through early October 2022. Sockeye-directed fisheries with Chinook bycatch took place in areas above Sawmill Creek from August to early October. The total number of Chinook harvested, as well as bycatch estimates, can be found in Appendix 5.

FIRST NATIONS COMMERCIAL HARVEST

Somass Economic Opportunity

Agreements were reached with the Hupacasath and Tseshaht First Nations for Economic Opportunity (EO) fisheries for 2022. Robertson Creek hatchery Chinook is a targeted species for these fisheries. These terminal Chinook fisheries occurred in portions of Subareas 23-1 and 23-2, in upper Alberni Inlet, including the tidal portion of the Somass River. Initial pre-season TAC was 31,042 and was revised in-season to 38,338. The total EO Chinook catch can be found in Appendix 4.

Five Nations Communal Sale Fishery

In 2022, the Department provided communal sale fishery opportunities for the Five Nations (five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht and Tla-o-qui-aht) that included ISBM Chinook. These opportunities were categorized as Nearshore Integrated Hook and Line, Terminal salmon fisheries, and a Surplus to Escapement Salmon fishery.

The Nearshore Integrated Hook and Line fisheries occurred in Area 25 and targeted Conuma River enhanced Chinook using troll and gillnet gear. Fishery openings for Conuma Chinook occurred between July 15 and September 30. The initial pre-season TAC was 8,054 Chinook and revised in-season to 10,280 following ongoing consultation with the Five Nations and review of the April 2021 British Columbia Court of Appeal decision. The Conuma Chinook run size was downgraded in-season, resulting in a revised TAC of 5,114 Chinook. The in-season TACs include a 350 piece reduction in Conuma Chinook as a result of an allocation swap with Area D Harvest Association for 350 pieces of Muchalat Inlet Chinook.

The Terminal fishery targeted Burman and Gold River enhanced Chinook returns in Muchalat Inlet using gillnet and troll gear, along with beach-seine gear in the lower reaches of the Gold River. Fishery openings occurred between August 8 and September 30. The TAC for this fishery was 1,500 Chinook, which includes the additional 350 pieces swapped with Area D Harvest Association for Conuma Chinook.

The Surplus to Escapement Salmon fishery targeted Conuma River enhanced Chinook in the tidal and non-tidal portions of the Conuma River using beach seine gear to harvest excess salmon to spawning requirements. The fishery occurred on September 13 and 14. Surpluses to escapement were identified in-season based on Conuma Hatchery and stock assessment information indicating that broodstock requirements and escapement needs would be met.

The total Chinook catch from the Five Nations communal sale fisheries targeting Conuma, Burman and Gold River Chinook, can be found in Appendix 4. Hatchery marked and wild Coho caught in Nearshore and Terminal Chinook directed fisheries were also permitted to be sold.

Fraser River Economic Opportunity and Inland Demonstration Fisheries

EO or Inland Demonstration fisheries did not occur in 2022 for ISBM Chinook in either the upper or lower reaches of the Fraser River as part of additional management actions to provide protection for Fraser Chinook stocks.

In 2022, small scale EO fisheries occurred for Fraser Sockeye early in September. There is currently one Inland Commercial Fishing Enterprise (CFE) operating in the Lower Fraser: Harrison Fisheries Authority (HFA). HFA did not conduct a demonstration fishery for Sockeye in 2022. Chinook bycatch in the Fraser EO fisheries can be found in Appendix 4.

In 2022, there were no EO/Demonstration fisheries for Fraser Chum in the lower reaches of the Fraser River.

There are three Inland CFEs that have operated in the BC Interior. In 2022, there were no Chinook-directed Inland Demonstration Fisheries.

COMMERCIAL FISHERIES

Area B Seine

Due to a relatively large pre-season forecast for Robertson Creek Hatchery Chinook, Area B seine fisheries occurred in Area 23. The fisheries occurred in portions of Subarea 23-1 and 23-2, in upper Alberni Inlet, targeting Chinook. The fisheries were operated using a pool system with only designated vessels permitted to fish. Initial pre-season TAC was 10,347 Chinook and was revised in-season to 12,779. The seine Chinook catch can be found in Appendix 4. Due to ‘moderate’ WCVI Coho forecasted returns, Coho retention was not permitted in any commercial fisheries.

Area D Gill Net

Area D gill net fisheries occurred in Area 23. The fisheries occurred in portions of Subarea 23-1 and 23-2, in upper Alberni Inlet, targeting Chinook with no retention of Coho permitted. Initial pre-season TAC was 20,695 and was revised in-season to 25,559. The fisheries were opened one night a week in the last two weeks of August and for two nights in the first week of September. Fisheries were also opened nightly from September 11 to 13 due to low catch rates. The total gillnet Chinook catch can be found in Appendix 4.

There were no Area D gill net fisheries for Chinook in Tlupana Inlet (Area 25) in 2022.

Area E Gill Net

There were no Area E gill net fisheries for ISBM Chinook on WCVI in 2022.

There were no Area E gill net commercial salmon openings in the Fraser River (Area 29) in 2022.

RECREATIONAL FISHERIES

ISBM Chinook catch and release information from all fisheries can be found in Appendix 4.

West Coast Vancouver Island

In 2022, a strong return of Chinook was observed to the Robertson Creek hatchery (Stamp River) and a return to the Conuma River hatchery in the moderate range for fisheries management. Actual returns were above forecast for Robertson Creek and below forecast for Conuma River and provided above average recreational fishing opportunities in many areas of the WCVI.

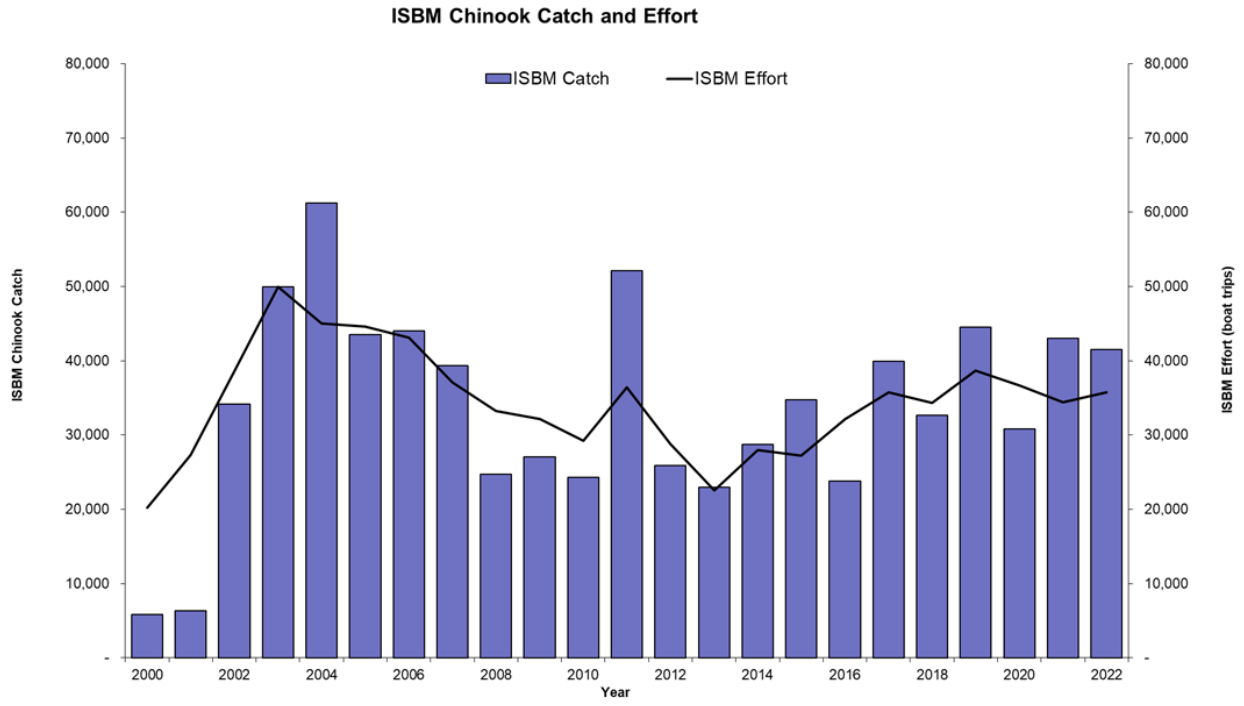


Figure 43. Recreational WCVI Chinook ISBM Catch and Effort, 2000 to 2022.[1]

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

The 2022 recreational fisheries in the Inside Areas of Johnstone Strait, Strait of Georgia, Juan de Fuca Strait, and the approach waters to the Fraser River were managed to Chinook non-retention between April 1 and varying dates between July 14 and August 31. There was a maximum size limit of 80 cm in effect where Chinook retention was permitted before August 31 to minimize impacts on returning Fraser River Chinook stocks of concern. Salmon closures and Chinook non-retention areas were also implemented in portions of the Fraser River approach waters, Southern Gulf Islands and Juan de Fuca Strait to support the recovery of Southern Resident Killer Whales.

The following regulations were in place for the inside areas for 2022:

Queen Charlotte and Johnstone Straits (Subareas 12-1 to 12-13, 12-15 to 12-48):

- 00:01 hours January 1 to 23:59 hours March 31, two (2) Chinook per day;
- 00:01 hours April 1 to 23:59 hours July 14, Chinook non-retention;

[1] The data used to create this graph does not include catch from the western portion of PFMA 20, which is considered WCVI for area management / accounting purposes, but the catch from 20W is included in the WCVI ISBM catch in the appendix table.

- 00:01 hours July 15 to 23:59 hours August 16, one (1) Chinook per day with a maximum size limit of 80 cm;
- 00:01 hours August 17 to 23:59 hours August 31, one (1) Chinook per day;
- 00:01 hours September 1 to 23:59 hours December 31, two (2) Chinook per day.

Strait of Georgia - North - Areas 13 to 17, Area 28 and Subareas 29-1 and 29-2:

- 00:01 hours January 1 to 23:59 hours March 31, two (2) Chinook per day;
- 00:01 hours April 1 to 23:59 hours July 14, Chinook non-retention;
- 00:01 hours July 15 to 23:59 hours August 31, one (1) Chinook per day with a maximum size limit of 80 cm;
- 00:01 hours September 1 to 23:59 hours December 31, two (2) Chinook per day.

Strait of Georgia - South and Juan de Fuca - Areas 18, 19 and Subareas 20-3 to

20-7, 29-3 to 29-5 and 29-8:

- 00:01 hours January 1 to 23:59 hours March 31, two (2) Chinook per day.
- 00:01 hours April 1 to 23:59 hours July 31, Chinook non-retention;
- 00:01 hours August 1 to 23:59 hours August 31, one (1) Chinook per day with a maximum size limit of 80 cm;
- 00:01 hours September 1 to 23:59 hours December 31, two (2) Chinook per day.

In 2022 recreational mark-selective fishing opportunities for Chinook were also approved in the following areas:

Subareas 12-27, 12-28, 12-35, 12-38, and 12-40 and portions of Subareas 12-26 and 12-39; Subarea 13-21 and portions of Subarea 13-19; Portions of Subareas 15-5 and 15-6; Subareas 16-6, 16-9, and 16-12 and portions of Subareas 16-7, 16-8, 16-10, 16-11 and 16-13:

- 00:01 hours April 1 to 23:59 hours July 14, one (1) Chinook per day. Unmarked Chinook maximum size limit of 80 cm.

Portions of Subarea 20-5:

- 00:01 hours April 1 to 23:59 hours July 31, one (1) Chinook per day, hatchery-marked only.

In 2021 and 2022, changes to the management measures in Area 14 were made in order to provide increased protection for Puntledge Summer Chinook which included:

Subareas 14-8, 14-9, 14-10, 14-15; and that portion of Subarea 14-13 inside a line commencing at Cape Lazo, then following the PFMA boundary to a point in water (49 42.288N, 124 50.082W), then following a straight line to a point in water (49 52.297N, 125 5.360W), then due west to a point on land (49 52.300N, 125 6.933W) [near Pacific Playground Marina], and thence southeasterly following the shoreline back to the point of commencement

- 00:01 hours July 15 to 23:59 hours July 31, Chinook non-retention.

Subarea 14-11

- 00:01 hours July 15 to 23:59 hours August 15, closed to fishing for finfish.

In 2022, changes to the management measures in Area 14 were used to increase access to surplus Puntledge and Qualicum River Fall Chinook.

Subareas 14-7, 14-8, 14-9, 14-10, 14-15, and those portions of 14-4 and 14-5 southwest of a line from Flora Islet Light (49°31.055N, 124°34.573W) to French Creek Breakwater Light (49°21.097N, 124°21.278W).

- 00:01 hours August 5 to 23:59 hours August 31, two (2) Chinook per day, maximum size 80 cm.

Subarea 14-11

- 00:01 hours August 16 until 23:59 hours August 31, 2022, two (2) Chinook per day, maximum size 80 cm.

In consideration of the increased management measures for Fraser Chinook implemented in the Strait of Georgia and other mixed-stock areas, the previous annual finfish closure near Cape Mudge on Quadra Island and the Chinook non-retention closures near Sentry Shoals, Harwood Island, Denman Island-Hornby Island and Kitty Coleman were no longer in effect as of the 2019 season. Reductions to the annual limit to 10 Chinook Salmon per year first implemented in 2019 in BC tidal waters, including the inside areas listed above and have continued each year since. Chinook management measures also include a minimum size limit of 62 cm in the Johnstone Strait/Queen Charlotte Strait and Strait of Georgia, and Areas South to Cadboro Point (Subarea 19-5). For the Canadian portion of Juan de Fuca Strait south of Cadboro Point, the minimum size limit is 45 cm.

Salmon fishing closures were also implemented in the following portions of the Southern Gulf Islands and Juan de Fuca to support Southern Resident Killer Whales (SRKW):

- May 27 to October 31: Subareas 18-9 and portions of 18-2, 18-4 and 18-5.
- July 15 to October 31: portions of Subarea 20-1.
- August 1 to October 31: portions of Subarea 20-5.
- August 1 to September: portions of Subarea 29-3.

Subareas 29-7, 29-9 and 29-10.

- Subarea 29-6 was closed to salmon fishing from June 1 to July 31 and was Chinook non-retention from August 1 to September 30.

In 2022, marine sport fisheries were monitored by creel surveys in three main areas: 1) Juan de Fuca including Victoria south of Cadboro Point (subareas 19-1 through 19-4 and Juan de Fuca Strait east of Sheringham Point (subareas 20-5 and 20-6); 2) Portions of the Strait of Georgia including Areas 14 through 18, that portion of Area 19 north of Cadboro Point, Areas 28 and 29; and 3) Johnstone Strait including Areas 11 to 13 and 111. Creel survey monitoring of these fisheries includes using an access point (landing site) survey for collecting catch, CPUE, and biological information combined with an aerial survey for effort counts. In addition, logbook programs directed at estimating the sport catch by fishing guides during guided trips, were conducted in the Campbell River and intermittently throughout other areas in the South

Coast. The Avid Angler program and the Area 13 remote lodges around Stuart Island typically provide the majority of logbook program data. Electronic survey estimates from the iREC program will also be used to produce catch estimates for those areas where creel surveys did not take place.

The creel survey in Juan de Fuca Strait ran between March and October 2022.

The Strait of Georgia creel survey for Areas 13 and 14 was conducted from April to October, for Area 15 from mid-April to September for Area 16 from April to September, for Areas 17 and 18 from April to September and for Areas 19 and the Strait of Georgia portion of Area 20 from March to October.

The Johnstone Strait creel survey for Areas 11 and 12 was conducted from June through August.

Effort, catch and release information from marine fisheries are summarized in Figure 43.

Region 1 Vancouver Island Tributaries

River conditions in most tributaries on Vancouver Island were more extreme in 2022 compared to previous years due to low temperatures in late June and high flow conditions over the summer followed by high temperatures and well below average precipitation during the early fall. In the summer of 2022, all systems in Region 1 that are typically open remained open in 2022, with the exception of Regions 1-1 to 1-6 that are managed using seasonal closures between July 15 to August 31. However, as of October 8, 2022, until November 11, 2022, the majority of Vancouver Island systems closed to all salmon fishing due to extreme low flows and unseasonably high water temperatures. Many Chinook systems on the east and west coasts of Vancouver Island saw strong Chinook returns in 2022; particularly those from enhanced systems. These returns provided early and productive opportunities for recreational freshwater fisheries. The Qualicum River, Little Qualicum River, Puntledge River, Nitinat River, Somass River, and Conuma River all provided some recreational opportunities to harvest Chinook stocks during this time period.

Fraser River and Tributaries

Fraser River Chinook stocks required additional management measures in 2022 due to continued concerns around poor stock status.

Fraser River Mouth (Subareas 29-6, 29-7, 29-9 and 29-10):

January 1 to December 31, fishing for salmon was closed in this area with the exception of a (4-day) period from September 15 to September 18, when retention of Sockeye was permitted, and from October 31 to December 31, when fishing for Chum was permitted. Chinook could not be retained in either opening.

Tidal Fraser River:

In the tidal waters of the Fraser River the following regulations were in place for 2022:

January 1 to October 30, fishing for salmon was not permitted, with exception of Sockeye Salmon opportunities from September 9 to September 18. Fishing for Chum and hatchery-marked Coho was permitted in the Fraser River from October 31 to November 30 downstream of Port Mann Bridge and November 2 to November 30 from Port Mann Bridge to the Mission Bridge. Chinook could not be retained in any of these openings.

Non-Tidal Fraser River:

Region 2: Bridge at Mission, to the Highway 1 Bridge at Hope, January 1 to November 2, fishing for salmon was not permitted, with the exception of Sockeye Salmon opportunities from September 9 to September 21. During this fishery, Chinook could be retained in the waters between Carey Point and Hope, BC, from September 17 to September 21 only.

The recreational fishery was assessed from September 9 to September 21 from Mission Bridge to Hope Bridge. Catch estimates can be found in Appendix 5.

From Mission to Hope, November 3 to November 30, fishing for Chum and hatchery-marked Coho was permitted and Chinook could not be retained.

Region 3: January 1 to December 31, fishing for salmon was not permitted on the Fraser River.

Region 5: January 1 to December 31, fishing for salmon was not permitted on the Fraser River.

Region 7: January 1 to December 31, fishing for salmon was not permitted on the Fraser River.

Fraser River Tributaries:

Fraser River Tributaries - Region 2

There were several tributaries of the Fraser River where Chinook retention was permitted, as follows:

Alouette River: daily limit of one Chinook from October 1 to November 30;

Chehalis River: daily limit of one Chinook from June 1 until August 31 and a daily limit of four Chinook with only one over 62 cm from September 1 until December 31;

Chilliwack/Vedder River: daily limit of one from July 1 until August 31, daily limit of four with two over 62 cm from September 1 to December 31;

Coquitlam River: fishing for salmon was permitted but Chinook Salmon could not be retained from September 1 to December 31;

- Harrison River downstream of the Highway No. 7 Bridge, fishing for salmon was permitted but Chinook Salmon could not be retained from September 1 to December 31.

The Chilliwack/Vedder River recreational fishery was assessed from September to late November in 2022. Catch estimates can be found in Appendix 5.

Fraser River Tributaries - Region 3

Thompson River: That portion of the Thompson River from the white triangular fishing boundary (WTFB) signs just downstream of Gold Pan Provincial Park to the easterly border of the Skihist Ecological reserve along the Thompson River located at 50°15'N, 121°31'W; this is approximately 5 km northeast of Lytton at Skihist Park.

- August 28 to September 22, daily limit of four Chinook, zero over 50 cm.

Thompson River - from Kamloops Lake outlet downstream to the fishing boundary signs just downstream of Gold Pan Provincial Park, except at Deadman, Juniper, and Ashcroft. Three closures are key First Nations fishing sites.

- September 10 to September 30, daily limit of four Chinook, one over 50 cm.

Kamloops Lake: In the waters of Kamloops Lake upstream of the fishing boundary signs at the outlet of Kamloops Lake.

- August 28 to September 30, daily limit of four Chinook, only one over 50 cm.

South Thompson River: That portion of the South Thompson River from the green can buoy near outlet of Little River, including Little Shuswap Lake, to the fishing boundary sign approximately 100 m downstream of Campbell Creek.

- August 16 to September 22, daily limit of four Chinook, only two greater than 50 cm. There is a monthly limit of six Chinook over 50cm from the South Thompson River.

Fraser River Tributaries - Region 5

January 1 to December 31, fishing for salmon was not permitted in any portion of the Fraser watershed in Region 5, except for a Sockeye-directed fishery on Horsefly Bay (Quesnel Lake) that took place from August 29 to September 15.

Fraser River Tributaries - Region 7

January 1 to December 31, fishing for salmon was not permitted in any portion of the Fraser watershed in Region 7, except for a Sockeye directed fishery on that portion of the Nechako River downstream from the Foothills Bridge at Prince George, BC from August 29 to September 15.

Fraser River Tributaries - Region 8

Note: there is a monthly limit of four Chinook in Region 8.

Mabel Lake: That portion of Mabel Lake that is both northerly of a line drawn from a white triangular fishing boundary sign situated at the northern edge of Mabel Lake Provincial Park to the prominent point of land on the western shore; and southerly of a line drawn between two white triangular fishing boundary signs located on opposite shores approximately 1 km from Wap Creek.

- August 16 to September 12, daily limit of four Chinook, only two over 50 cm.

Middle Shuswap River: No fishing for salmon.

Lower Shuswap River: That portion of the Lower Shuswap River upstream from white triangular fishing boundary signs upstream of the Mara Bridge to Mable Lake, except no fishing in those waters 50 metres upstream and downstream of the Trinity Valley Road Bridge.

- August 16 to September 12, daily limit of four Chinook, only two over 50 cm.

EXCESS SALMON TO SPAWNING REQUIREMENTS (ESSR) FISHERIES

The Tseshaht and Hupacasath First Nations were issued a joint Excess Salmon to Spawning Requirements (ESSR) Licence for Chinook and Coho at the Robertson Creek Hatchery facility.

The Ditidaht First Nation was issued an ESSR Licence for Chinook, Coho and Chum at Nitinat Lake and Nitinat hatchery.

Chinook Salmon ESSR fisheries for the Qualicum First Nation took place at the Big Qualicum Hatchery and at Little Qualicum Hatchery in 2022.

There were ESSR fisheries at the Capilano, Chilliwack, and Chehalis hatcheries in 2022 that harvested Chinook salmon.

No Johnstone Strait ESSR opportunities on Chinook occurred in 2022.

There were no Interior BC ESSR opportunities on Chinook in 2022.

An ESSR opportunity was provided to one of the Maa-nulth Treaty Nations, Huu-ay-aht First Nation, for marked Chinook on the Sarita River in 2022.

All ESSR harvest information can be found in Appendix 7.

FRASER RIVER SOCKEYE AND PINK SALMON

SOCKEYE SALMON

OBJECTIVES AND OVERVIEW

In 2022, the Fraser River Panel (FRP) adopted the p50 probability run size forecast for all run timing groups (9,775,000 Fraser Sockeye) for pre-season planning purposes. There was TAC available for international sharing for Early Summer, Summer, and Late run sizes at the p25 forecast level or higher; however, the less-abundant Early Summer and Late run management groups would likely pose a substantial constraint on attempts to harvest the more abundant Summer run. The Early Stuart run did not have International TAC throughout the range of the forecast distribution. Pre-season fishery planning focused on staying within constraints to minimize impacts on less abundant stock groups and species of concern. Actual in-season harvest opportunities were dependent on in-season stock assessments.

Fishing plans incorporate provisions to meet escapement and conservation objectives for stocks of concern while considering other international and domestic objectives. Fishing plans include the following assumptions and guiding principles in no particular order:

The Fraser River Panel (FRP) operated in accordance with Chapter 4, Annex IV of the PST.

The U.S. share of the annual Fraser River Sockeye Salmon TAC, harvested in the waters of Washington State, was set at 16.5% of the aggregate. To the extent practicable, the FRP shall manage the U.S. 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 International TAC for one or more of the less abundant management groups by a small but acceptable amount despite concentrating the harvest in this manner.

For computing International 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% (maximum 80,000) of the Fraser River AFE, and the remaining balance of the latter exemption shall be based on the average proportional distribution of First Nations Food, Social and Ceremonial catch 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 to by the Fraser River Panel.

It was anticipated that 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 Cultus ER is assumed to be the same as the ER from the similarly-timed Late run stocks (excluding the Birkenhead and Birkenhead-type miscellaneous stocks), caught seaward of the confluence of the Fraser and the Harrison rivers.

The four run timing aggregates identified under the PST Annex generally contain stocks with similar timing in the marine area.

Canada’s escapement plan specified escapement requirements that varied with run size for each of the run timing aggregates.

The total allowable mortality (TAM) cap describes the upper range of the total mortality (including management adjustments and ER). Similar to 2021, the TAM cap remained at 50% for all run timing/management groups, except for a reduction to 20% for the Early Stuart run in 2022 to address recent poor productivity, the low forecast, and Big Bar passage concerns.

At low abundances, low abundance exploitation rates (LAERs) are implemented to protect 80-90% of the run timing aggregate (10-20% LAER) while allowing for fisheries on more abundant co-migrating run timing groups and/or other species. In 2022, Canada's escapement plan permitted up to a 10% LAER for the Early Stuart run, and 20% for all other stock groups.

The allowable harvest in a LAER situation is not a target; the objective is to allow as many fish as possible to pass to the spawning grounds. In most circumstances, harvests under a LAER scenario would be considered incidental harvest or bycatch only; however, in some circumstances, limited directed harvest in terminal areas may be considered. All fishery impacts are to be accounted for under the LAER.

In 2022, the Early Stuart Sockeye window closure and other fishing restrictions were planned for commercial, recreational, and First Nations fisheries to protect a significant proportion (90%) of the Early Stuart return. These measures included a 3-week rolling window closure based on the run timing of the Early Stuart Sockeye migration through the various fishing areas. The 2022 closure was extended by one week (4 weeks total) to protect the earliest of the Early Summer run Sockeye stocks that have persistent conservation concerns (Bowron, Taseko) which also afforded additional protection to Early Stuart Sockeye.

Conservation concerns for other salmon species and Sockeye stocks continued to impact the planning of Fraser River Sockeye fisheries. The stocks and species of concern in 2022 included:

- Cultus Lake Sockeye, Nimpkish River Sockeye, Sakinaw Lake Sockeye, Interior Fraser River Coho, Southern B.C. Chinook including Fraser River Chinook, and Interior Fraser River Steelhead.

STOCK STATUS

Please Note: Table 32 and Figure 44 are adapted from or courtesy of the PSC.

PRE-SEASON ASSESSMENT

Pre-season expectations (Table 31) were for a median run size (p50 level) of 9,775,000 Fraser River Sockeye Salmon with a one-in-two chance that the run size would be between 4,662,000 (p25 level) and 20,395,000 (p75 level).

Table 31. 2022 pre-season run size abundance forecast range by management group for Fraser Sockeye.

Run timing group	Probability that returns will be at/or below specified run size				
	10%	25%	50%	75%	90%
Early Stuart	39,000	63,000	105,000	172,000	268,000
Early Summer	384,000	764,000	1,579,000	3,159,000	5,686,000
Summer	1,239,000	2,231,000	4,403,000	8,904,000	17,468,000
Late	711,000	1,604,000	3,688,000	8,160,000	18,285,000
Total	2,374,000	4,662,000	9,775,000	20,395,00	41,707,000

The pre-season diversion rate forecast for Fraser River Sockeye through Johnstone Strait was 48%. Predicted Area 20 50% migration timing dates were July 4 for Early Stuart, August 6 for Early Summer, August 10 for Summer, and August 18 for Late-run Sockeye.
Pre-season spawning escapement goals were based upon a modified 2018 (brood year) escapement plan that allowed for harvest while still protecting the component runs at low abundance levels. At the p50 run size, escapement goals were as follows; 105,000 Early Stuart, 789,600 Early Summer, 2,201,300 Summer, and 1,844,000 Late-run Sockeye for a total of 4,939,900 (Table 32).

Table 32. Fraser Sockeye 2022 Pre-season (top) and Final In-season (bottom) Values for Total Allowable Catch (TAC) and Other Management Parameters.

Date		Management Group	Total Abundance	Spawning Escapement Target	TAM	pMA	Manage-ment Adjust.	Test Fishing	Aboriginal Fishery Exemption	Total Deductions	Total Allowable Catch	Available Harvest (includes for AFE)	50% Migration Date Area 20	JS Diversion Rate
June 23	Pre-season	Early Stuart	105,000	105,000	0.00	1.00	105,000	1,000	0	105,000	0	0	4-Jul	
		Early Summer	1,579,000	789,600	0.50	0.59	465,900	13,100	82,059	1,350,659	228,341	310,400	6-Aug	
		Summer	4,402,600	2,201,300	0.50	0.04	88,100	34,200	169,691	2,493,291	1,909,309	2,079,000	10-Aug	
		Late	3,688,000	1,844,000	0.50	0.22	405,700	26,700	148,250	2,424,650	1,263,350	1,411,600	18-Aug	
		Sockeye	**9,774,600**	**4,939,900**			**1,064,700**	**75,000**	**400,000**	**6,479,600**	**3,401,000**	3,695,000		**48%**
September 28	Post-season	Early Stuart	244,000	195,200	0.10	13.29	2,594,200	1,079	1,697	244,000	0	0	6-Jul	
		Early Summer	607,000	375,500	0.02	0.59	221,500	6,600	70,000	607,000	0	3,400	30-Jul	
		Summer	3,805,000	1,902,500	0.41	0.19	361,500	22,900	175,221	2,462,121	1,342,879	1,518,100	15-Aug	
		Late	2,150,000	1,104,800	0.37	0.22	243,100	12,000	153,082	1,512,982	637,018	790,100	17-Aug	
		Sockeye	**6,806,000**	**3,578,000**			**3,420,300**	**42,579**	**400,000**	**6,806,000**	**1,979,897**	2,311,600		**34%**

The goals for each Sockeye management group were established by applying Canada's Spawning Escapement Plan to the forecasted pre-season run size. For pre-season planning purposes, the harvest rule for Early Stuart was constrained by a LAER limit of up to 10% at the p50 run size and 20% for Early Summer, Summer, and Late run Sockeye. Harvest rules were further constrained by a 20% TAM cap for Early Stuart and a 50% TAM cap for the other three management groups (Table 33).

Table 33. Fraser River Sockeye Salmon 2022 Escapement Plan and Application of the Plan to each Management Group across a Range of Forecast Abundances

	Harvest Rule Parameters				
Management Unit	**Low Abundance ER (LAER)**	**TAM Cap**	**Lower Fishery Reference Point**	**Upper Fishery Reference Point**	**Pre-season pMA @p50**
Early Stuart	10%	20%	108,000	135,000	1.00
Early Summer (w/o misc)	20%	50%	180,000	360,000	0.59
Summer (w/o misc)	20%	50%	1,250,000	2,500,000	0.06
Late (w/o misc)	20%	50%	1,100,000	2,200,000	0.22

Management Unit		**Pre-season Forecast Return**				
		p10	p25	**p50**	p75	p90
	lower ref. pt. (w misc)	108,000	108,000	**108,000**	108,000	108,000
	upper ref. pt. (w misc)	135,000	135,000	**135,000**	135,000	135,000
Early Stuart	forecast	39,000	63,000	**105,000**	172,000	268,000
	TAM Rule (%)	0%	0%	**0%**	20%	20%
	Escapement Target	39,000	63,000	**105,000**	137,600	214,400
	MA	39,000	63,000	**105,000**	137,600	214,400
	Esc. Target + MA	78,000	126,000	**210,000**	275,200	428,800
	LAER	10%	10%	**10%**	10%	10%
	Available ER at Return	0%	0%	**0%**	0%	0%
	Max. Allowable ER	10%	10%	**10%**	10%	10%
	Max. Allowable Harvest	3,900	6,300	**10,500**	17,200	26,800
	2022 Performance					
	Projected S (after MA)	17,600	28,400	**47,300**	77,400	120,600
	BY Spawners	48,489	48,489	**48,489**	48,489	48,489
	Proj. S as % BY S	36%	59%	**98%**	160%	249%
	cycle avg S	35,041	35,041	**35,041**	35,041	35,041
	Proj. S as % cycle S	50%	81%	**135%**	221%	344%

Management Unit		**Pre-season Forecast Return**				
		p10	p25	**p50**	p75	p90
Early Summer (w/o RNT)	*lower ref. pt. (w misc)*	375,500	375,500	**375,500**	375,500	375,500
	upper ref. pt. (w misc)	751,000	751,000	**751,000**	751,000	751,000
	forecast (incl. misc)	383,840	764,100	**1,579,200**	3,159,400	5,685,600
	TAM Rule (%)	2%	50%	**50%**	50%	50%
	Escapement Target	375,500	382,050	**789,600**	1,579,700	2,842,800
	MA	221,500	225,400	**465,900**	932,000	1,677,300
	Esc. Target + MA	597,000	607,450	**1,255,500**	2,511,700	4,520,100
	LAER	20%	20%	**20%**	20%	20%
	Available ER at Return	0%	21%	**20%**	21%	20%
	Max. Allowable ER	20%	21%	**20%**	21%	20%
	Max. Allowable Harvest	76,800	156,700	**323,700**	647,700	1,165,500
	2022 Performance					
	Projected S (after MA)	194,200	383,900	**793,100**	1,586,100	2,853,700
	BY Spawners	718,390	718,390	**718,390**	718,390	718,390
	Proj. S as % BY S	27%	53%	**110%**	221%	397%
	cycle avg S	350,379	350,379	**350,379**	350,379	350,379
	Proj. S as % cycle S	55%	110%	**226%**	453%	814%

Management Unit		Pre-season Forecast Return				
		p10	p25	**p50**	p75	p90
Summer	*lower ref. pt. (w misc)*	1,258,200	1,258,200	**1,258,200**	1,258,200	1,258,200
(w. RNT & Har)	*upper ref. pt. (w misc)*	2,516,300	2,516,300	**2,516,300**	2,516,300	2,516,300
	forecast	1,239,370	2,231,200	**4,402,600**	8,904,000	17,468,000
	TAM Rule (%)	0%	44%	**50%**	50%	50%
	Escapement Target	1,239,370	1,258,200	**2,201,300**	4,452,000	8,734,000
	MA	74,400	75,500	**132,100**	267,100	524,000
	Esc. Target + MA	1,313,770	1,333,700	**2,333,400**	4,719,100	9,258,000
	LAER	20%	20%	**20%**	20%	20%
	Available ER at Return	0%	40%	**47%**	47%	47%
	Max. Allowable ER	20%	40%	**47%**	47%	47%
	Max. Allowable Harvest	247,874	897,500	**2,069,200**	4,184,900	8,210,000
	2022 Performance					
	Projected S (after MA)	932,000	1,253,700	**2,193,400**	4,436,000	8,702,500
	BY Spawners	1,750,333	1,750,333	**1,750,333**	1,750,333	1,750,333
	Proj. S as % BY S	53%	72%	**125%**	253%	497%
	cycle avg S	922,714	922,714	**922,714**	922,714	922,714
	Proj. S as % cycle S	101%	136%	**238%**	481%	943%

Management Unit		Pre-season Forecast Return				
		p10	p25	**p50**	p75	p90
Late	*lower ref. pt. (w misc)*	1,104,800	1,104,800	**1,104,800**	1,104,800	1,104,800
(w/o Har)	*upper ref. pt. (w misc)*	2,209,600	2,209,600	**2,209,600**	2,209,600	2,209,600
	forecast	711,400	1,603,600	**3,688,000**	8,160,000	18,285,000
	TAM Rule (%)	0%	31%	**50%**	50%	50%
	Escapement Target	711,400	1,104,800	**1,844,000**	4,080,000	9,142,500
	MA	156,500	243,100	**405,700**	897,600	2,011,400
	Esc. Target + MA	867,900	1,347,900	**2,249,700**	4,977,600	11,153,900
	LAER	20%	20%	**20%**	20%	20%
	Available ER at Return	0%	16%	**39%**	39%	39%
	Max. Allowable ER	20%	20%	**39%**	39%	39%
	Max. Allowable Harvest	142,280	320,720	**1,438,300**	3,182,400	7,131,100
	2022 Performance					
	Projected S (after MA)	466,700	1,052,000	**1,844,800**	4,081,600	9,146,200
	BY Spawners	1,584,836	1,584,836	**1,584,836**	1,584,836	1,584,836
	Proj. S as % BY S	29%	66%	**116%**	258%	577%
	cycle avg S	2,634,372	2,634,372	**2,634,372**	2,634,372	2,634,372
	Proj. S as % cycle S	18%	40%	**70%**	155%	347%

Pre-season Management Adjustments (MAs) of 105,000 Early Stuart, 465,900 Early Summer, 132,100 Summer, and 405,700 Late run Sockeye were added to the spawning escapement targets to increase the likelihood of achieving the escapement targets. The application of a LAER for any management group indicates that spawning escapement targets are unlikely to be reached. In 2022, this was the case pre-season for Early Stuart Sockeye, as it was apparent that for the entire range of pre-season run size forecasts, LAER management was necessary. Early Summer run and Summer run Sockeye would likely be in a LAER for returns below (but not at) the p25 forecast level, Late run Sockeye would be in a LAER scenario for run sizes below the p50 forecast level.

The pre-season MAs were derived from historical proportional differences between estimates (pDBEs). A substantial retrospective analysis was completed pre-season to assess the most suitable methods for predicting pre-season pDBE for all MUs. Pre-season predictions of pDBE were as follows: Early Stuart -0.50 (all-years [1995-2021] median); Early Summer -0.37 (all-years median); Summer -0.04 (Pre-season 31-day temperature and discharge model); Lates -0.18 (dominant cycle [2022] median).

Pre-season model runs indicated that there would be international TAC if the Summer run Sockeye returned at abundances near the p25 or greater; however, if the Early Summer run and Late run Sockeye returned at abundances below the p50, it would be very difficult to prosecute fisheries without incurring excessive overages on these two stock groups. In Canada, at the p50 forecast, Sockeye TAC was predicted to be available for directed FSC, commercial, and recreational fisheries. Expected timing indicated access to one stock group without incidentally impacting another would be difficult given the overlap in timing (Figure 44).

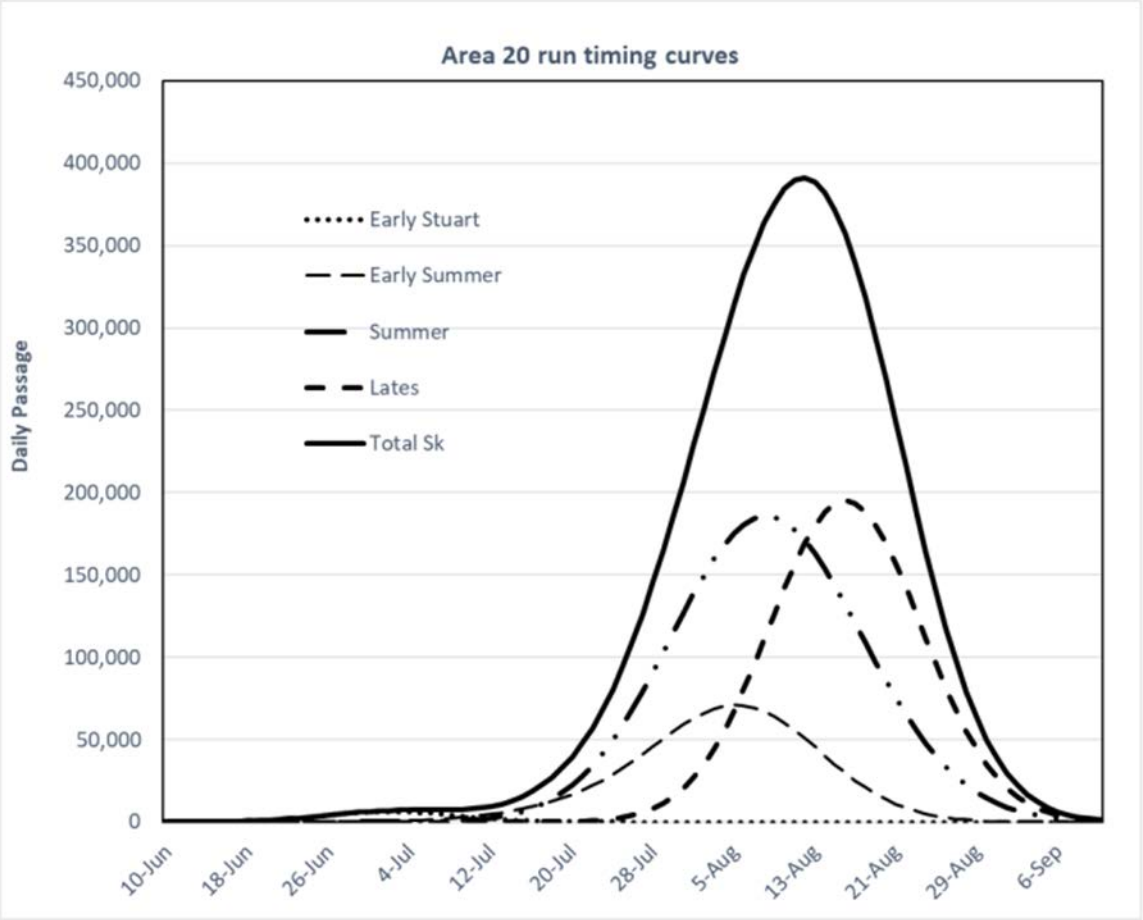


Figure 44. Pre-Season Projections of Daily Fraser River Sockeye Salmon Abundance by Management Group

IN-SEASON ASSESSMENT

Overall, the marine migration timing was later than pre-season expectations for the Early Stuart and Summer runs but was earlier for the Early Summer and Late runs. Compared to pre-season timing forecasts, the Early Stuart run returned two days later than forecasted (July 6), the Early Summer run were seven days earlier than forecast (July 30 in-season vs. August 6 pre-season), the Summer run were five days later than forecast (August 15 in-season vs. August 10 pre-season), and one day earlier for Late-run Sockeye (August 17 in-season vs. August 18 pre-season).

The Johnstone Strait post-season diversion rate was 34% compared to a pre-season predicted value of 48%.

Returns for all management groups were below median pre-season forecast levels except for Early Stuarts:

- The return of Early Stuarts was notably higher than the expected value: 244,000 or 132% higher than the pre-season p50 forecast (105,000). This was only 9% lower than the p90 forecast of 268,000.
- The return of Early Summers was low; the run size of 607,000 fish was 62% lower than the expected value of 1,579,000 (p50 forecast).
- The return of Summers was near expectation; 3,805,000 or 14% lower than the pre-season p50 forecast of 4,403,000.
- The return of Lates was low relative to pre-season expectations: 2,150,000 or 42% lower than the pre-season p50 forecast of 3,688,000 but 23% higher than the p25 forecast of 1,604,000.

Fraser River discharge was well above the mean discharge (1981-2020) throughout the watershed for the first part of the 2022 season, and subsequently dropped to levels that did not impede migration after mid-July, although it remained above average for most of the 2022 season. For the first half of the season, the Fraser River daily water temperatures were well below the historical mean; however, this pattern reversed in early August, and temperatures above the historical mean were recorded for the remainder of the season.

Updated mitigation measures and monitoring programs for the 2022 season were in place for the landslide in the Big Bar area on the Fraser River upstream of Lillooet. Over the winters in 2019-2021, substantial work was undertaken by a Unified Command Team consisting of representatives from First Nations, Fisheries and Oceans Canada, and the Province of British Columbia. Mitigation measures included the construction of a nature-like fishway along the west bank of the river, which significantly improved fish passage at Big Bar, the installation and operation of a Whooshh Passage PortalTM (2020 only), construction of a road for truck transport of captured fish upstream of the slide site, and the implementation of emergency conservation enhancement programs for salmon populations most heavily affected by migration barriers (e.g., Early Stuart and early-timed Early Summer run Sockeye and several Spring and Summer 5-2 Chinook stocks).

Salmon passage by the Big Bar landslide was a less critical issue for the 2022 season due to mitigation efforts in the previous winter/spring of 2021, which aided natural salmon passage through the slide area. Estimates of survival past the slide site in 2021 and 2022 indicated considerable improvement from survival in 2019 and 2020. However, throughout June and mid-July 2022, exceptionally high discharge throughout the Fraser watershed created substantial migration challenges for all salmon at several locations, particularly downstream of Big Bar in the Fraser River Canyon area. Once discharge began to decline in 2022, SONAR counts above and below the landslide indicated no significant delays at the slide site. Estimated passage success after mid-July 2022 was 100% whereas in 2019 and 2020 passage success was much lower early in the season (e.g., less than 1% in early 2019), and then gradually improved as river discharge decreased (e.g., up to 100% survival in late summer 2020). Despite the passage success in 2021 and 2022, a migration passage problem continues to exist at Big Bar (particularly during periods of high river discharge), and monitoring in future years has been recommended in order to detect any possible changes to the species-specific discharge thresholds for successful passage that were observed in 2021 and 2022. Downward changes to these discharge thresholds would identify the potential need for further management actions to mitigate the impacts of the slide on migrating salmon. Risk remains especially high for early-timed Sockeye stocks in years of high or moderate flow conditions. The Big Bar Joint Executive Steering Committee is utilizing a structured decision-making (SDM) process to explore a sustainable, viable

solution. The SDM process will draw on existing and new analyses and incorporate expert advice from First Nations and stakeholders. Planning for the 2023 salmon migration includes continued monitoring (hydroacoustic sites upstream and downstream of Big Bar landslide and radio telemetry) and conservation enhancement.

POST-SEASON ASSESSMENT

The post-season return of adult Fraser Sockeye of 6,806,000 is estimated to be ~30% below the pre-season median forecast (9.8M) (Table 32). The total Fraser Sockeye run size was ~37% below the brood year run size (10.91M) and ~33% below the historical 2022 cycle line average (9.9M).

Due to the lower than anticipated run sizes and substantial overlap between less-abundant Early Summer and Late MUs and the more-abundant (Summer) MUs, a slow start to fisheries in Canadian Panel waters was planned to reduce impacts on MUs that did not have a large amount of TAC available. Some fisheries in Canada did not commence until weeks later than planned during pre-season modeling due to a substantial reduction in available TAC, and higher than expected impacts from U.S. fisheries.

Overall, fisheries impacts on Sockeye were limited to levels below the LAER limit identified in the escapement plan (10% and 20% respectively) for the Early Stuart and Early Summer stocks. The Summer run and Late run MUs stayed well below their modeled maximum ER based upon in-season run sizes and pMAs. Additionally, at the post-season meeting on September 28, the Fraser Panel adopted final in-season run sizes and timing estimates where applicable. In some cases, additional TAC was generated well after fisheries could be considered. The total Canadian Fraser Sockeye catch can be found in Appendix 5, as well as Appendix 1. The post-season ER is estimated to be 21.2%. See Table 34 for projected post-season ERs relative to allowable ERs.

Table 34. 2022 Post-Season Exploitation Rate Estimates for All Fraser Sockeye Catch by Management Group

Management Group	Early Stuart	Early Summer	Summer	Late	Total
Final Exploitation Rate	2.0%	13.9%	21.1%	25.5%	21.2%
Allowable Exploitation Rate*	10%	20%	41.0%	37.0%	35.0%
LAER?*	Yes	Yes	No	No	

* The low abundance exploitation rate (LAER) is not a target. All efforts were made to minimize fisheries impacts to Fraser Sockeye.

Ongoing post-season work continues on the following topics that were highlighted during the 2022 season:

1. **Impacts of the Big Bar landslide**: Work to mitigate the effects of the Big Bar slide is ongoing, and potential implications for future passage are still uncertain and will require ongoing evaluation.
2. **Low and uncertain returns**: In recent years, there has been declining productivity, increased variability due to climate change, as well as low Sockeye abundances (the three lowest returns on record occurred in 2016, 2019, and 2020). As part of adaptive management, DFO will be reviewing potential adjustments/improvements to current harvest control rules, alternative strategies that take into account changing conditions and key uncertainties, and what implications there may be for

future advice. Work from 2019-2022 through the Fraser River Sockeye Spawning Initiative (FRSSI) evaluated the robustness of harvest control rules to a wide range of potential future productivities. Forecast model methods may also be reviewed.

3. **Estimation of species composition and passage at Mission hydroacoustic site**: There are a variety of methods used to determine the number of Sockeye, Pink (in odd years), and Chinook salmon that pass by the Mission hydroacoustics site. The Mission estimates are critical to in-season estimates of run size and migration timing for Sockeye and Pink salmon. For example, Sockeye escapement estimates are typically based on total salmon passage estimates at Mission minus Pink and Chinook. Later in the season when Pink proportions increase (in odd numbered years), alternate methods are used (i.e., Sockeye CPUE at Whonnock multiplied by the expansion line). Species proportions are also derived from hydroacoustic-based length data and the previous year's species-specific average lengths. These methods and others have been reviewed by the Fraser River Panel Technical Committee but remain a considerable source of uncertainty. If numbers of one species are inaccurately or imprecisely estimated, it will affect in-season estimates and expectations of catch of the other species in all fisheries.
4. **Species and stocks of concern**: In 2017, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) determined that of the 24 Fraser Sockeye designatable units (DUs), eight were Endangered, two were Threatened, and five were Special Concern. In 2020, part one of the Recovery Potential Assessment (RPA) for nine DUs was completed, along with a separate RPA for Cultus Lake Sockeye. In early 2022, the second part was released for the nine DUs. Work is ongoing to assess potential management scenarios for these at-risk stocks.
5. **Estimation of Late Run run size**: In-season estimates of run size and migration timing are critical to meet spawning and harvest objectives. Late run given delay and variable migration speed add considerable uncertainty to estimating the run size and timing of the annual return.

The three completed Recovery Potential Assessments can be found here:

1. Cultus Lake Sockeye https://cat.fsl-bsf.scitech.gc.ca/record=b4087614~S1
2. Nine Designatable Units –Part 1 https://cat.fsl-bsf.scitech.gc.ca/record=b4087615~S1
3. Nine Designatable Units- Part 2 https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41033371.pdf

FIRST NATIONS FSC AND TREATY DOMESTIC FISHERIES

Directed Fraser Sockeye FSC harvest opportunities for Treaty and non-Treaty First Nations occurred in 2022.

Marine Areas

On August 1, retention of Sockeye was permitted in FSC fisheries in most southern B.C. marine waters (Areas 11 to 21, 23 to 28, 111, 123 to 127, and Subareas 29-1 to 29-5) using gill net, troll, and hook and line gear. At that time, the Department was not encouraging the use of purse seine gear in marine FSC fisheries. However, after reviewing more updated in-season information, the Department decided to include the use of purse seine gear in marine FSC fisheries on August 3. In order to protect Late run stocks following significant run size reductions in mid-August, marine FSC fisheries were closed to Sockeye retention on August 27. On September 7, Sockeye retention in marine FSC fisheries reopened using gill net, seine net, troll, and hook and line gear until further notice as the run size for Late run Sockeye was increased significantly.

Fraser River

There were First Nations FSC fisheries that commenced in the Fraser River in the first week of August (Aug. 3) with small-scale dry rack fisheries. Although there was a large amount of TAC available on the Summer-run at that time, the less abundant Early Summer-run created significant constraints to fisheries due to the run timing overlap with Summer-run Sockeye. Sockeye-directed fisheries began slowly, with short-duration full communal openings that predominantly occurred on the weekends. As the Early Summer MU transited through lower reaches of the Fraser and the proportion of Summer-run Sockeye increased, FSC fishery frequency and duration increased. FSC fisheries continued up until rolling window closures to protect Interior Fraser Coho began; as this closure came on, limited selective fisheries (i.e., fish wheel, beach seine) continued until the onset of the Interior Fraser Steelhead window closure.

There were a small number of First Nations who opted to fish for Sockeye without arriving at a consensus decision with Canada. These fisheries typically took place in advance of in-season information suggesting sufficient run-sizes to support fisheries and were not sanctioned by Canada. Post-season total mortality estimates also include unauthorized retained catch where estimates are available. For catch estimates, see Appendix 5.

FIRST NATIONS COMMERCIAL HARVEST

Five Nations Communal Sale Fishery

In 2022, the Department provided communal sale fishery opportunities for the Five Nations (five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht) that included Fraser Sockeye. These opportunities were categorized as Offshore Integrated Hook and Line communal sale fisheries.

The initial Five Nations Fraser Sockeye allocation of 6,570 was revised in season to 8,012. The fishery was carried out in portions of Areas 124, 125, and 126 on the west coast of Vancouver Island. A 100% independent dockside monitoring program was in place for the entire season and sale of Chum, Pink, and hatchery-marked Coho caught as bycatch on Sockeye-directed trips was also permitted. The retention of Sockeye for sale was no longer permitted as of August 25 given the decrease in adopted run sizes for Early Summer, Summer, and Late run Sockeye, and consequently, a decrease in Canadian commercial TAC. However, as run sizes increased in mid-September, Sockeye caught as bycatch was permitted to be retained for sale once again as of September 16. By this point in the season, Fraser Sockeye were no longer in WCVI fishing area. There was no catch reported for this period. Total salmon catch from the Five Nations Salmon fisheries including Fraser Sockeye, can be found in Appendix 5.

COMMERCIAL FISHERIES

There were directed commercial fisheries on Fraser River Sockeye in Canada and the United States in 2022. In Canada, commercial fisheries targeting Fraser River Sockeye were delayed until September 7 in Area 13 for gill net, September 8 in Area 29 for seine and troll, and September 9 in Area 18 for troll. On September 8, WCVI Areas 123, 124 and 125 opened to permit Sockeye retention for the remainder of the Area G troll fishery targeting AABM Chinook. The commercial harvest of Fraser Sockeye occurred in Area D Gill Net, Area B Seine, Area G Troll, and Area H Troll fisheries as well as First Nations economic opportunity, Treaty, and demonstration and Five Nations fisheries. For catch estimates, see Appendices 1 and 4.

Note that some commercial fisheries were heavily constrained by US catches of late run Sockeye and the Interior Fraser Coho window closure in the lower reaches of the Fraser River and parts of the Strait of

Georgia. The Interior Fraser Steelhead rolling window closure restricted the back end of commercial fisheries in Marine waters. Additionally, it was not possible to harvest the full TAC available to commercial fisheries, as the TAC for Late-run Sockeye was far lower than the TAC for Summer-run Sockeye and these MUs overlap greatly in terms of their run timing.

RECREATIONAL FISHERIES

TIDAL RECREATIONAL FISHERIES

Recreational fisheries directed on Fraser River Sockeye occurred in 2022. Small-scale recreational fisheries were opened in terminal areas of the Fraser River and tributaries targeting abundant Summer-run stocks in late August. An increase to the available TAC due to the increase in run size for Late-run Sockeye on September 6 permitted for recreational openings in the lower Fraser River and Strait of Georgia; these openings were extended further into the South Coast marine waters from September 15 until December 31 with a daily limit of four. In the tidal portion of the Fraser River downstream of the Mission Bridge retention of Sockeye in recreational fisheries was permitted from September 9 to September 18 with a daily limit of four.

NON-TIDAL RECREATIONAL FISHERIES

In 2022, some limited-duration Sockeye-directed fisheries took place in the following non-tidal areas:

- Fraser River from Mission Bridge to Sawmill Creek from September 9 to September 21 (extended to September 25 for Hope to Sawmill Creek). Daily limit of two.
- Fraser River near Lillooet from August 27 to September 22. Daily limit of two.
- Horsefly Bay on Quesnel Lake from August 29 to September 15. Daily limit of two.
- Nechako River downstream of the Foothills Bridge from August 29 to September 15. Daily limit of two.
- Kamloops Lake and Thompson River downstream of Kamloops Lake from September 10 to September 30. Daily limit of two.
- South Thompson River – September 10 to September 22. Daily limit of two.

EXCESS SALMON-TO-SPAWNING REQUIREMENTS (ESSR) FISHERIES

There were no ESSR opportunities directed on Fraser River Sockeye in 2022.

PINK SALMON

OBJECTIVES AND OVERVIEW

Pink Salmon return to the Fraser River in significant numbers in odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2022.

STOCK STATUS

Pink Salmon return to the Fraser River in significant numbers in odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2022.

FIRST NATIONS COMMERCIAL HARVEST

Pink Salmon return to the Fraser River in significant numbers in odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2022, therefore there were no directed fisheries.

COMMERCIAL FISHERIES

Pink Salmon return to the Fraser River in significant numbers on odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2022, therefore there were no directed fisheries.

RECREATIONAL FISHERIES

TIDAL RECREATIONAL FISHERIES

Pink Salmon return to the Fraser River in significant numbers on odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2022, therefore there were no directed fisheries.

NON-TIDAL RECREATIONAL FISHERIES

Pink Salmon return to the Fraser River in significant numbers on odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2022, therefore there were no directed fisheries.

EXCESS SALMON-TO-SPAWNING REQUIREMENTS (ESSR) FISHERIES

Pink Salmon return to the Fraser River in significant numbers on odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2022, therefore there were no directed fisheries.

In South Coast, the Quinsam River Hatchery had a Pink ESSR in 2022.

Pink Salmon ESSR fisheries for the Qualicum First Nation took place at the Big Qualicum Hatchery and at Little Qualicum Hatchery in 2022.

SOUTHERN BC COHO

OBJECTIVES AND OVERVIEW

Management of Southern BC Coho stocks is subject to Abundance Based Management provisions outlined in Chapter 5 of the Pacific Salmon Treaty, which defines allowable exploitation rates (ERs) for Canada and the US based on the status of Coho Management Units (MUs). There are three Canadian Coho MUs identified within the Southern Coho Management Plan section of Chapter 5. These are: Interior Fraser River Coho, Lower Fraser River Coho, and Strait of Georgia Coho.

Given the limited stock assessment data available for Strait of Georgia and Lower Fraser River Coho MUs, Canada's management approach is currently driven by the status of the Interior Fraser River (IFR) Coho MU. IFR Coho status determination is based on an integration of marine survival rates and spawner abundance. Under this approach, bilateral ER caps are set at 20%, 30%, and 45% for Low, Moderate, and Abundant status. The Canadian ER caps are 10%, 18%, and 30% for those same status levels. Canada is required to confirm the status of the Interior Fraser River Coho MU to the US in March of each year.

IFR Coho have been in a low productivity regime since the mid 1990s and were assessed to be within the Low status level in 2022, which limited the Canadian ER on IFR Coho to 10%. However, given the ongoing low productivity of this MU, Canada has opted to manage domestic fisheries to achieve an exploitation rate cap of 3% to 5% for this MU in recent years.

While Chapter 5 includes three Canadian MUs under the provisions of the PST, domestically, Southern BC Coho management includes two additional MUs: Johnstone Strait and West Coast Vancouver Island (WCVI). For completeness in reporting and understanding of Canadian Coho fisheries management and stock status, details for these additional MUs are contained within this report.

STOCK STATUS

STOCK STATUS - INTERIOR FRASER RIVER

The preliminary 2022 escapement estimate for IFR Coho is 68,200. The pre-fishery abundance forecast for IFR Coho was 83,613 with an 80% forecast range of 25,542–173,248. The preliminary 3-year geometric mean spawner abundance for 2019-2021 exceeded the long-term conservation objective of 40,000 IFR Coho. In relation to the Pacific Salmon Treaty reference points for IFR Coho, a change from low to moderate status for the MU requires a combination of three consecutive years of 3% survival or greater (combined with three consecutive years achieving the escapement goal) are required. The escapement goal was met in each of 2018-2021. The preliminary 2022 estimate of IFR Coho smolt-to-adult survival is 1.9%. Survival was estimated as 3.2% in 2021, but 2020 and prior year survival estimates have been calculated at less than 3.0%, resulting in the MU remaining in a Low status designation for 2022.

STOCK STATUS – LOWER FRASER RIVER

Currently, there is no whole system escapement estimate available for Lower Fraser River Coho. A pilot mark-recapture program was initiated in 2020 to provide an escapement estimate for this system, funded in part by the PST. A hatchery Coho indicator stock at Inch Creek hatchery, along with catch monitoring and escapement work, provides estimated rates of survival and exploitation on marked LFR Coho. If successful, this program will provide annual escapement estimates for LFR Coho in the near future, although published estimates are not expected in the pilot years. Further details of the LFR Coho escapement program can be obtained through the PST Coho Technical Committee.

STOCK STATUS - STRAIT OF GEORGIA

Coho Salmon production within the Strait of Georgia has declined dramatically since the early 1990s. Marine survivals have been fluctuating in the 1 to 4% range. 2022 escapement estimates were average to above average while forecasts based on recent returns and ocean conditions throughout the Strait of Georgia were conservative in some systems.

Hatchery stocks

Coho returns to most hatcheries north of Nanaimo were variable in 2022. Escapement to the Puntledge River was above the 4-year average of 8,010 at 15,755. The Big Qualicum River was below average with 8,113 fish compared to the 12-year average of 12,650. Swim surveys of the Little Qualicum River indicated abundance for this system was above the 4-year average of 4,450 at 6,027. Nanaimo River returns were above average with a snorkel-based estimate of 11,900 fish compared to the 4-year average of 7,340.

Wild stocks

Counts on the Englishman River were 7,327 in 2022, which is above the 12-year average of 5,650. Returns in the Colquitz River (near Victoria) were 490, which is lower than the 12-year average of 530 fish. Returns to Shawnigan Creek were above the 12-year average of 2,260 at 4,317.

New Coho escapement and survival indicators are currently under development in several systems with PST funding. A camera and PIT tag system has been in operation at the Sakinaw Lake fence since 2019

with 2022 returns of 77 jacks and 243 adults to the lake. A total of 5 PIT tagged adults and 2 tagged jacks were detected at the fence for return rate estimates of 0.82% and 1.1%, respectively. Adult returns were based on 3,154 tags deployed in spring 2021 and jacks from 937 tags in spring 2022. A camera has been operated in the Skutz Falls fishway at Cowichan River since 2019 in conjunction with a PIT tag antenna system. The PIT tag program is used to expand fishway counts for a Peterson mark-recapture population estimate relative to the detection array at the Chinook counting fence. The estimate for 2022 was 15,924 adults and 239 jacks. The adult return rate for 5,184 smolts tagged in the lower river in spring 2021 is estimated at 5.5% compared to 6.3% and 4.6% for the 2020/2019 cohorts, respectively. Similar methodology produced an escapement estimate of 31,716 adults in 2021 suggesting improved returns which is consistent with the higher survival estimate and returns to the neighboring Shawnigan Creek watershed. Over 5,000 smolts were PIT tagged in the lower river in spring 2022 which should contribute to similar tag returns in fall 2023.

Black Creek is the primary wild stock indicator in the Strait of Georgia. The 2022 enumeration program at the fence counted 2,352 adults and 1,137 jacks compared to the 2021 escapement of 3,104 adults/3,141 jacks. The parental brood year (2019) estimate was 976 adults, and 2,909 jacks. The smolt production contributing to 2022 return (2021 Smolt Year) was 86,119. This is similar to the 2020 smolt year, nearly double the smolt output in 2019, and well above the long-term average of 52,392 smolts.

STOCK STATUS - WEST COAST VANCOUVER ISLAND

Coho survival has decreased from historic highs in many WCVI systems, as inferred through observations of decreased spawning abundance of these stocks despite commensurate reductions in harvest. There were some modest improvements in returns in 2020 and above forecast survivals in 2021. A shift to improved marine survival of Robertson Creek Hatchery (RCH) (7.5%) and Carnation Creek wild Coho (1.5%) indicators led to a moderate 2022 pre-season expectation for WCVI Coho stocks. With a moderate categorical return, marine survival forecasted in the third quartile (50-75%) of survival data from brood years 1996-2018 for RCH.

Under the expected ‘Moderate’ categorical return inshore recreational Coho fisheries were managed to a daily limit of 2 wild (unmarked) per day. Outside the surfline on the WCVI, the recreational fishery for Coho was hatchery mark only during the migration period of Interior Fraser Coho.

Overall, Coho escapements to key indicator streams along the WCVI were near average in 2022. The Artlish, Kaouk, and Tahsish rivers (PFMA 26) received strong returns, while most systems further south along the WCVI were near or below average.

STOCK STATUS - JOHNSTONE STRAIT AND MAINLAND INLETS

The Keogh River plays an important role as the wild Coho indicator stock for the upper Johnstone Strait area. Historically, the Keogh River adult Coho Salmon return has averaged 2,700 (range: 230 to 9,465), while the juvenile abundance has averaged 62,213 (range 26,940 to 129,200). Following a peak in adult abundance in 2014 (9,465), annual escapement decreased to reach its lowest level in 2016 (230). Returns have since increased, and the final estimate of adult Keogh River Coho Salmon in 2022 was 2,675 fish. The number of migrant Coho smolts in 2022 (75,745) is not yet final, as the fence was overtopped during the peak migration period, but even as an incomplete count, it remains above the long-term average, suggesting continuation of high freshwater productivity that first began in 2011. Coho tend to be extremely productive at low abundance, and individual productivity has increased dramatically in recent years, peaking with the 2016 brood year at 270 smolts per spawner (average 38 smolts per spawner, brood years 1998 to 2015).

Quinsam River Coho are the marine survival indicator for Area 13. The estimate for this system is typically generated from fence counts at the Quinsam hatchery, but the extended drought resulted in very few Coho moving through the fence during the season. The total estimate returning to the Quinsam River is 9,068 adults, including 317 jacks. A total of 1,269 adults were removed for broodstock. The creel program covered the extent of the recreational Coho fishery openings on the Campbell and Quinsam rivers and we estimated that 331 Coho were retained on both systems in October.

In 2022, Village Bay Creek on Quadra Island continued the video monitoring program for returning Coho.

In 2022, a total of 154 adults and 109 jacks were counted through the fence, which is much less than the 4-year average of 608 fish. Relative abundances were estimated prior to 2017, so longer term averages are not applicable.

Heydon Bay Creek in Loughborough Inlet is in the process of being developed into a mainland inlet Coho indicator system. In 2022, a total of 324 Coho (317 adults and 7 jacks) were counted through the fence, which is similar to the 2021 total count but differs in the proportion of adults (2021: 270 Coho with 131 adults and 139 jacks). Both counts are still well below the historical average of 839 (adults and jacks combined) from 1998-2003, and 2009-2012 when the fence was previously operational. In 2022, Coho migration through the fence was delayed by multiple weeks due to low water. Extensive escapement reports for Coho in many systems are indicating large variation in escapements for 2022. As anticipated, Coho marine survivals continue to be low with some improvement evident in the consistently monitored populations. Similar conditions are expected through 2023; consequently, a continued trend of low escapement is anticipated next year.

FIRST NATIONS DOMESTIC AND FSC FISHERIES

WCVI FSC and Treaty Fisheries

Catch (to date) from Maa-nulth Treaty harvest and WCVI Nuu-chah-nulth FSC harvest can be found in Appendix 4.

Lower Fraser FSC Fisheries

There were no Coho-directed fisheries in the Lower Fraser in 2022. Hatchery-marked Coho were authorized to be retained as bycatch in Chinook, Sockeye, and Chum-directed FSC fisheries. The total hatchery-marked and wild Coho harvested and released during Sockeye, Chinook, and Chum FSC fisheries can be found in Appendix 5.

Interior Fraser FSC Fisheries

Most FSC fisheries in the area target Sockeye, Chinook, or Pink salmon. In 2022, First Nations harvesters were requested to release unharmed any incidentally caught Coho.

Directed opportunities on Coho are permitted in terminal areas subject to abundance. In 2022, small fisheries occurred at Dunn Creek, Bonaparte River, Deadman River, Louis Creek, Salmon River, Lemieux Creek and McKinley Creek. Hatchery-marked Coho were removed from the Coldwater River by request of DFO to fulfill the Coded Wire Tag sampling requirements of the Pacific Salmon Commission indicator stock program, and where desired provided for FSC purposes. The total Coho catch (either directed or bycatch) in First Nations fisheries can be found in Appendix 5.

Strait of Georgia FSC Fisheries and Treaty Domestic Fisheries

Coho Salmon FSC fisheries of very limited effort occurred in the Strait of Georgia from late July to early October using primarily hook and line in 2022. Coho salmon were harvested terminally in the Puntledge and Qualicum Rivers using hatchery brailing and hand-picking/sorting methods. Estimates based on catch reports from Tla'amin Treaty harvest and non-treaty First Nations harvest can be found in Appendix 4.

Johnstone Strait FSC Fisheries

Very low numbers of Coho Salmon were harvested in Johnstone Strait by hook and line and net gear in 2022. Terminal harvests also took place in the Campbell River. Estimates for the Johnstone Strait are found in Appendix 4.

FIRST NATIONS COMMERCIAL HARVEST

WCVI Economic Opportunity Fisheries

In 2022, Economic Opportunity (EO) agreements were in place with Hupacasath and Tseshaht First Nations; however, Coho abundance did not permit an EO opportunity.

Five Nations Communal Sale Fishery

In 2022, communal sale fishery opportunities for the Five Nations (five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht and Tla-o-qui-aht) included southern B.C. Coho. These opportunities are categorized as: offshore integrated hook-and-line communal sale fisheries; nearshore integrated hook-and-line communal sale fisheries; and terminal communal sale fisheries. Hatchery-marked Coho were permitted for sale as bycatch in Chinook and groundfish directed fisheries. After September 15, a Coho directed fishery was authorized with a TAC of 2,000 hatchery-marked and unmarked Coho to be retained for sale in offshore waters. Additionally, hatchery-marked and unmarked Coho were permitted for sale in the Nearshore hook and line fishery targeting Conuma Chinook and the terminal fishery targeting Burman and Gold River Chinook. The nearshore Coho allocation in Area 25 was 2,000 including both hatchery-marked and unmarked Coho. Total Coho catch in these fisheries can be found in Appendix 4.

Lower Fraser First Nations Commercial Fisheries

There were no directed Coho fisheries in the Lower Fraser in 2022.

Interior Fraser First Nations Commercial Fisheries

There were no EO or demonstration fisheries in the BC Interior (Fraser River above Sawmill Creek) targeting Coho in 2022.

COMMERCIAL FISHERIES

Southern BC commercial fisheries are regulated so that impacts on Coho, in particular Interior Fraser River Coho stocks, are minimized. Retention of Coho bycatch was not permitted in most of these fisheries, including the Fraser River. Some limited opportunities for Coho retention occurred in terminal fisheries targeting Chinook and Sockeye in areas where IFR Coho were not present.

WCVI Offshore Area Commercial Coho Fisheries

Coho retention was not permitted in the 2022 Area G WCVI AABM Chinook troll fishery.

WCVI Terminal Area Commercial Coho Fisheries

In 2022, Chinook-targeted commercial gill net and seine fisheries occurred in Area 23 (Alberni Inlet). Retention of Coho was not permitted. The total WCVI Coho bycatch in commercial terminal fisheries can be found in Appendix 4.

RECREATIONAL FISHERIES

TIDAL RECREATIONAL FISHERIES

Tidal recreational fisheries can be categorized as occurring in either mixed-stock areas, where multiple stocks are found concurrently, or in terminal areas where local stocks dominate the catch. Areas where mixed stocks occur typically have more restrictive management measures in place that are designed to protect Interior Fraser River Coho stocks. In terminal areas, opportunities may be permitted based on expectations of wild abundance and production from local Coho enhancement programs. The table below outlines the mixed-stock fishing areas in Southern BC and the general Coho regulations pertaining to them.

Table 44. General Southern BC Coho Fishery Regulations for mixed-stock areas in 2022

Mixed stock fishing area*	Daily limit (marked or unmarked)	Minimum size limit (cm)	Coho Season
Johnstone Strait	2, 1 may be unmarked	30	June 1 – July 31
Johnstone Strait	2 marked	30	Aug 1 – Dec 31
Strait of Georgia - north	2 marked	30	June 1 – Dec 31
Strait of Georgia - south	2 marked	30	June 1 – Dec 31
Strait of Georgia (19)	2, 1 may be unmarked	30	Oct 1 – Dec 31
Juan de Fuca Strait	2 marked	30	June 1 – Dec 31
Juan de Fuca Strait	4, 1 may be unmarked	30	Oct 1 – Dec 31
WCVI – Inshore	2 marked or unmarked**	30	June 1 – Dec 31
WCVI- Offshore	2 marked	30	June 1 – Dec 31

*for in-season management measures in specific areas refer to the information provided in the Fishery Notices

**some terminal portions of Areas 23 and 25 had higher daily limits of Coho (4 per day, 2 of which can be unmarked) from August 1 – Dec 31 (portions of Area 23) and from July 15 – Dec 31 (portions of Area 25).

In 2022, the Department continued an assessment fishery (started in 2021) that allowed retention of some unmarked Coho in Area 13, 14 and 15 (excluding Subarea 15-1) from September 1 to September 30 in order to gather samples to better understand the status information of Georgia Basin Coho.

Catch and release information for Coho from these fishing areas can be found in Appendix 4.

WCVI – Inshore Recreational Fisheries

In 2022, Coho retention was limited to 2 per day marked or unmarked in Areas 23 to 27. Some terminal areas in portions of Area 23 (23-1 to 23-3) and 25 (25-4 to 25-5) had daily limits of 4 per day, with unmarked retention remaining at 2 to target hatchery stocks.

Fraser River – Tidal Water Recreational Fisheries

In the tidal waters of the Fraser River downstream of the Port Mann Bridge (29-11 to 29-14, and 29-17), from October 31 to November 30, the retention of two hatchery-marked Coho per day was permitted.

In the waters from Mission Bridge downstream to the Port Mann Bridge (29-15 and 29-16), from November 2 to November 30, the retention two hatchery-marked Coho per day was permitted. The recreational fishery in this area was assessed from October 31 to November 30, from Alex Fraser Bridge to Mission Bridge.

Catch estimates can be found in Appendix 5.

NON-TIDAL RECREATIONAL FISHERIES

Vancouver Island Tributary Recreational Fisheries

In 2022, due to drought-like conditions on Vancouver Island in the late summer and fall all streams, with some exceptions were closed to all salmon fishing. The closure came into effect on October 8 and was lifted on November 11. As a result, some of the planned fisheries listed below were impacted.

Northern Vancouver Island Tributary Recreational Fisheries

Typical non-tidal openings for Coho were available on:

- Campbell/Quinsam River from October 1 to December 31 for four hatchery-marked only per day, only two of which could be over 40 cm;
- Cayeghle River (including the Colonial River) from April 1 to March 31 for one per day;
- Cluxewe River from April 1 to March 31 for two per day, hatchery-marked only;
- Kokisilah River from April 1 to March 31 for one per day, maximum size limit of 35 cm;
- Nahwitti River from April 1 to March 31 for one per day; and
- Quatse River from June 15 to March 31 for two per day, hatchery-marked only.

Anglers were restricted to the use of barbless hooks. Catch is estimated on the Quinsam and Campbell River through a creel survey program.

Strait of Georgia Tributary Recreational Fisheries

In 2022 Coho openings were provided on:

- Courtenay River from October 1 to November 30 for one hatchery-marked only Coho per day;
- Little Qualicum River from October 1 to November 30 for one hatchery-marked only Coho per day;
- Nanaimo River from November 1 to December 31 for 2 hatchery-marked only Coho per day, minimum size limit of 25 cm;
- Puntledge River from October 1 to November 24 for one hatchery-marked only Coho per day, minimum size limit of 25 cm; November 25 to December 31 four per day marked or unmarked.
- Chemainus River from October 15 to March 31 for one per day, maximum size limit of 35 cm.
- Qualicum River from September 15 to December 31 for four hatchery-marked only per day, only two of which could be over 40 cm.
- Cowichan River from November 18 to December 31 one Coho per day.

Catch is estimated on the Puntledge River through a creel survey program.

WCVI Tributary Recreational Fisheries

Typical non-tidal openings for Coho were available on:

- Somass/Stamp River from August 25 to December 31 the daily limit was two, hatchery-marked or unmarked. A single, barbless hook restriction is in effect all year and there was a bait restriction in the Upper Somass and Stamp rivers from May 1 to October 31.
- Nitinat River from August 25 to December 31 the daily limit for Coho was two, hatchery-marked or unmarked. A two-week closure occurred between October 1 and October 14 to protect Chinook Salmon during their peak spawning period. The area above Parker Creek is closed to fishing. A single barbless hook restriction and bait restriction is in effect all year.
- Conuma River from August 25 to December 31 with a daily limit of two Coho, hatchery-marked.
- Washlawlis River and Waukwass River and other west coast rivers are open year-round with a daily limit of one Coho, hatchery-marked or unmarked. Barbless hooks are required. No creel survey information is collected. Other rivers receiving some directed catch and release effort for Coho stocks are the Wakeman, Artlish, Zeballos, Tahsis, Burman, Ash, Taylor, Pacheena, Toquart and Leiner. The quota for all west coast streams, unless identified above, is zero (0).

Catch is not estimated in these freshwater fisheries.

Fraser River and Tributaries – Non-tidal Recreational Fisheries

Region 2: The retention of two hatchery-marked Coho per day was permitted following the Interior Fraser Coho and Interior Fraser Steelhead window closure dates in the following area:

From the CPR Bridge at Mission, BC upstream to the Highway #1 Bridge at Hope - November 3 to 30.

There are no directed Coho openings in the Fraser River or tributaries upstream of the Highway #1 Bridge at Hope, BC. This includes all of Regions 3, 5, 7, and 8.

The following tributaries to the Fraser River in Region 2 were open during the dates stated below:

- Alouette River and tributaries from October 1 to December 31 for one hatchery-marked Coho per day.
- Coquitlam River from September 1 to December 31 for one hatchery-marked Coho per day.
- Kanaka Creek from November 1 to November 30 for one hatchery-marked Coho per day.
- Chilliwack River/Vedder from September 1 to December 31 for four hatchery-marked Coho per day.
- Chehalis River from September 1 to December 31 for four hatchery-marked Coho per day.
- Harrison River from September 1 to December 31 for four hatchery-marked Coho per day.
- Nicomen Slough, Norrish Creek and the Stave River from September 1 to December 31, for four hatchery-marked Coho per day, with only two over 35 cm.

In 2022, the Chilliwack/Vedder recreational fishery was assessed from the beginning of September to late November and the Nicomen/Norrish fishery was assessed from October 1 to December 15. Catch estimates

can be found in Appendix 4. No assessments were conducted on the recreational fisheries occurring on the remaining rivers listed above.

During 2022, there were limited non-tidal openings for hatchery-marked Coho on the following systems which enter Boundary Bay:

- Little Campbell River, Nicomekl River and the Serpentine River for one hatchery-marked Coho per day from September 1 to December 31.

These recreational fisheries were not assessed in 2022.

EXCESS SALMON-TO-SPAWNING REQUIREMENTS (ESSR) FISHERIES

WCVI ESSR Fisheries

The Somass First Nations were issued an ESSR licence at the Robertson Creek Hatchery in 2022 that included Coho Salmon.

The Ditidaht First Nation was issued an ESSR Licence for Nitinat hatchery Coho.

All ESSR harvest information can be found in Appendix 7.

Lower Fraser ESSR Fisheries

In 2022, there were ESSR fisheries at the Chilliwack, Inch Creek, and Chehalis hatcheries; harvest of hatchery-marked Coho Salmon was permitted. All ESSR harvest information can be found in Appendix 7.

Strait of Georgia ESSR Fisheries

A Coho Salmon ESSR fishery for Qualicum First Nation took place at Big Qualicum Hatchery in 2022.

A Coho ESSR took place in the Puntledge in 2022.

All ESSR harvest information can be found in Appendix 7.

Johnstone Strait ESSR Fisheries

For 2022, there were no ESSR opportunities on Coho in Johnstone Strait.

SOUTHERN BC CHUM

JOHNSTONE STRAIT CHUM

OBJECTIVES AND OVERVIEW

The Johnstone Strait Chum Salmon fishery targets Southern BC Chum that spawn primarily in the Fraser River and in tributaries of Johnstone Strait and the Strait of Georgia. This fishery also intercepts a small proportion of Puget Sound Chum. Since 2002, the Johnstone Strait Chum fishery has been managed using a 20% fixed ER strategy. This approach has provided predictable harvest opportunities for the commercial sector and has increased the probability of meeting escapement goals across the many populations contributing to this fishery. Of the 20% ER, 15% is allocated to commercial fisheries and the remaining 5% is set aside for test fisheries, First Nations FSC, sport harvesters and to also provide a buffer to commercial exploitation. Since the implementation of this management strategy, annual fisheries have been planned well in advance of the Chum return.

On July 11, 2019, the Government of Canada and the Province of British Columbia announced a joint Steelhead Action Plan identifying new conservation measures for Thompson and Chilcotin Steelhead Trout (two population components of the Interior Fraser River (IFR) Steelhead aggregate). Based on our current understanding, there is considerable overlap in the timing and location of the return migration of IFR Steelhead and several South Coast salmon fisheries. The timing of this stock of concern is particularly overlapped with that of Fraser River Chum. Given the potential for salmon fisheries to incidentally harvest co-migrating IFR Steelhead, the Department of Fisheries and Oceans implemented a series of window closures for fisheries occurring in times and areas that overlap with the IFR Steelhead migration, in both marine and freshwater fishing areas.

In addition to the IFR Steelhead window closures announced in 2019, further commercial salmon fishery closures were implemented in 2021 to protect stocks of conservation concern. As a result of these closures, the Area D gill net Johnstone Strait Chum fishery was closed for the 2021 season. This closure was subsequently extended into 2022 and identified as a Longer Term Closure as listed in Appendix 8 of the 2022/2023 Southern BC Integrated Fisheries Management Plan.

The implementation of these closures precipitated significant changes to the 20% fixed ER strategy for the Johnstone Strait Chum fishery. In 2022, the pre-season commercial fishing plan was modified to maintain opportunity in Johnstone Strait, while ensuring that fishing did not occur within the outlined IFR Steelhead closure times and areas. With the window closures reducing access to the earlier timed components of the Inside Southern Chum (ISC) run, fisheries were planned at a reduced ER (below the typical 20% ER).

As outlined in Chapter 6 of the PST, commercial Chum fisheries in Johnstone Strait are suspended when an abundance estimate of less than 1 million Chum Salmon migrating through Johnstone Strait is expected. As numbers exceeded 1 million Chum in 2022, fisheries were expected to proceed as normal. However, due to unprecedented drought conditions into the early fall, a precautionary approach was adopted in-season by further reducing the overall exploitation rate in the mixed stock area.

STOCK STATUS

Johnstone Strait In-season Assessment

In 2022, the main components of the Inside Southern Chum (ISC) return assessed by the Johnstone Strait test fishery were expected to be both Fraser and non-Fraser stocks. These stocks are typically dominated by four-year-old fish, and the abundance of the 2018 brood that out-migrated in 2019 was below average. Expectations for 2022 were below average for Inner South Coast Chum. These expectations were based on a below average 2018 return, recent Chum declines seen in 2017-2021 and indications of poor marine conditions during the 2018-2020 outmigration (2017-2019 brood years). It was also expected that Age 41 Chum would dominate the 2022 return.

The Johnstone Strait test fishery, which ran from September 21 through October 29, provided timing and abundance information for the 2022 return, which is important in assessing the performance of the fixed ER strategy. It also provided an index of abundance, used to determine the likelihood of the number of returning Chum being over the 1.0 million critical threshold (requirement for commercial openings). Initially Chum CPUE was tracking below the brood year and similar to the 2019 return. As testing continued into October, CPUEs climbed and maintained levels that were much improved over the 2018 brood year. On October 7, it was determined that the ISC index of abundance was likely above the 1.0 million critical level (Figure 45) and planned Johnstone Strait Commercial fisheries were initiated. The Chum CPUE from the test fishery continued to show improvement over the 2018 brood year for the

duration of the program. The age composition derived from the test fishery samples exhibited a much higher than average contribution of 4-year-olds along with strong female composition throughout the season.

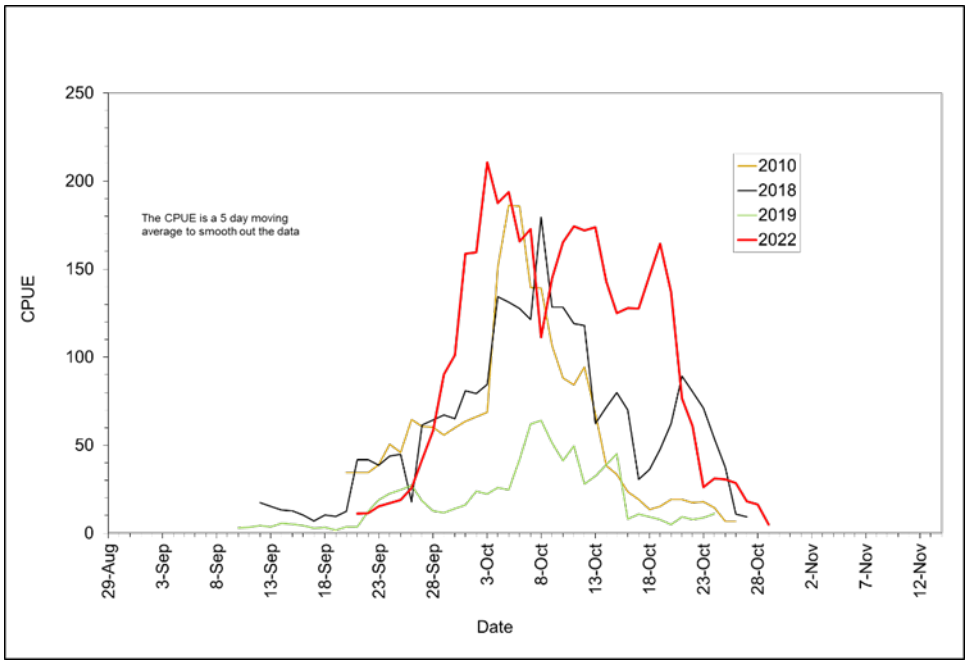


Figure 45. 2022 Johnstone Strait Chum Test Fishery CPUE compared to 2018 (dominant brood year), 2010 and 2019(two of the lowest returns in recent years).

FIRST NATIONS DOMESTIC AND FSC FISHERIES

Johnstone Strait First Nations fisheries for Chum Salmon were not subject to IFR Steelhead restrictions in 2022. Chum Salmon harvests took place using gill nets in Johnstone Strait in 2022. The total Chum Salmon catch in the Johnstone Strait FSC fishery can be found in Appendix 4.

FIRST NATIONS COMMERCIAL HARVEST

There was no First Nations commercial harvest of Johnstone Strait Chum in 2022.

COMMERCIAL FISHERIES

Johnstone Strait commercial Chum fisheries in 2022 were planned as per Chapter 6 of the PST; however, a modified approach was taken to maintain opportunity in the Johnstone Strait mixed stock area while aligning with the intent of the Interior Fraser Steelhead rolling window closure. Fisheries are usually scheduled to achieve a 20% fixed ER on ISC stocks passing through Johnstone Strait with 15% ER for commercial and 5% ER for test, FSC, recreational, and a commercial buffer. Shares of the 15% commercial ER are usually shared among the Area B seine (11.56%), Area D gill net (2.54%) and Area H troll fleets (0.90%). In 2022, Area D participation in the Johnstone Strait commercial fishery was closed under the IFMP as Longer Term Closures. With the Steelhead window closure reducing access to a portion of the ISC and the Longer Term Closure of the Area D fishery, the 2022 fisheries were planned pre-season to a reduced commercial ER of 6.08%, shared between the Area B seine (6.02%), Area D gill net (0.00%) and Area H troll (1.06%) fleets.

In 2022, the 1 million critical abundance threshold for triggering the Johnstone Strait mixed commercial Chum fisheries was achieved. However, a precautionary approach was taken to opening the fishery given the unprecedented drought that persisted through September and October. Commercial fishery plans were delayed while DFO assessed the ability for chum to access their spawning locations given the low flow conditions. Eventually, an in-season decision was made to reduce the overall exploitation rate in the mixed stock fishery from about 7% to 5% to allow additional spawners to escape given the challenging migration conditions they were encountering.

See Appendix 4 for commercial catch numbers

Area B Seine Fisheries

In 2022, the pre-season plan for seines was to have one 10-hour opening, followed by one 3 hour opening for Chum Salmon in portions of Areas 12 and 13. The openings were scheduled to occur October 21 and 22.

Due to the unprecedented drought conditions, and the precautionary approached being taken to reduce the exploitation rate of commercial fisheries in the mixed stock area, the Area B Seine fishery was adjusted to have only one 10-hour opening on October 21.

Area D Gill Net Fisheries

In the 2022/2023 IFMP, a Longer Term Closure was implemented for the Area D gill net fishery in Johnstone Strait and this fishery did not proceed in 2022.

Area H Troll Fisheries

In 2022, the pre-season plan for Area H troll Individual Transferrable Effort (ITE) demonstration fishery was to open one fishing period from October 12 to October 31. The fishery would be closed on the day of the Area B Seine fishery on October 21. Each licence was allocated five boat days during the fishing period, which could be transferred between licences and fished at any time within the fishing period. The fishery was initially modelled based on 225 boat days. Due to the unprecedented drought conditions, and the precautionary approach being taken to reduce the exploitation rate of commercial fisheries in the mixed stock area, the total number of available boat days was reduced to 180. Area H opted to maintain five boat days per licence and close prior to October 31 if the maximum number of boat days were fished. The total effort in the Area H troll fishery was 68 boat days and the maximum 180 boat days was not reached.

RECREATIONAL FISHERIES

TIDAL RECREATIONAL FISHERIES

The marine recreational daily limits for Chum are four (4) with a possession limit of eight (8) salmon. Chum opportunities are typically open to full limits in the Johnstone Strait area but may be reduced if Chum returns are low. The critical abundance of 1 million was achieved in 2022, as a result recreational Chum fisheries were not subject to limit reductions or closures. Peak participation in the recreational Chum fishery typically occurs over the Thanksgiving weekend in mid-October and during the Browns Bay Chum derby during mid-October. Participation in the fishery is usually driven by Chum abundance. The Strait of Georgia creel survey for Areas 13 and 14 was conducted from April to October. Recreational catches were reported as low. The majority of the recreational Chum Salmon fishing effort occurs in Area 13, which is included in the Strait of Georgia catch estimate.

NON-TIDAL RECREATIONAL FISHERIES

There are no Chum-retention fisheries in non-tidal waters in the Johnstone Strait area. Some catch-and-release fisheries do take place and are considered to be very minimal.

EXCESS SALMON-TO-SPAWNING REQUIREMENTS (ESSR) FISHERIES

There were no ESSR opportunities for Johnstone Strait Chum in 2022.

FRASER RIVER CHUM

OBJECTIVES AND OVERVIEW

Chum Salmon return to the Fraser River from September through December, with the typical peak of migration through the lower River occurring in mid to late October. Spawning locations are predominately located in the Fraser Valley downstream of Hope, B.C., with the major populations spawning within the Harrison River (including Weaver Creek and Chehalis River), the Stave River, and the Chilliwack River. No spawning locations have been identified upstream of Hell's Gate.

The escapement objective for Fraser River Chum is 800,000. Since 2001, this objective has been achieved in all but seven years; escapement to spawning grounds in 2009, 2010, and 2017 through 2021 did not meet the escapement goal.

Fraser River Chum are typically harvested in Johnstone Strait, the Strait of Georgia, U.S. waters of Area 7 and 7A, and in the Fraser River.

Within the Fraser River, Chum-directed fisheries include First Nations FSC, recreational, and commercial fisheries. In recent years, significant conservation measures have been implemented in-river during the Fraser River Chum migration period to protect co-migrating stocks of concern (including IFR Coho and IFR Steelhead). Depending on the fishery, these measures have included both time and area closures and gear restrictions. These conservation measures have restricted Fraser River Chum fishing opportunities in recent years.

In 2022, the Department continued with management measures to reduce the incidental impacts of Chum fisheries on co-migrating IFR Steelhead (Thompson and Chilcotin River populations). Measures introduced in 2019 continued to be implemented in 2022, including additional restrictions for set gill net fisheries in the Fraser River introduced in 2020. A moving window closure, 42 days in duration, was put in place for commercial gill net and seine salmon fisheries located along the migratory route of IFR Steelhead, including Southern BC marine waters and the Fraser River downstream of Thompson and Chilcotin River Steelhead spawning areas. This 42-day rolling window closure also applied to recreational salmon fisheries within the Fraser River (including areas immediately off the Fraser River mouth). Commercial troll fisheries in the marine area and First Nations' FSC salmon fisheries occurring within the Fraser River downstream of Thompson and Chilcotin River Steelhead spawning areas were subjected to a 27-day moving window closure. As of 2020, following the closure window, set gill net gear was further restricted to operate during daylight hours only, while attended by a harvester.

STOCK STATUS

The number of adult Chum Salmon arriving at the mouth of the Fraser River each fall (terminal return) is estimated in-season with a Bayesian model based on Albion test fishery catch.

In 2022, the Fraser River Chum test fishery at Albion operated every other day from September 1 until October 19, alternating days with the Albion Chinook test fishery. From October 21 until November 9, the Chum net fished every day and then every other day from November 11 until November 23. Total Chum catch for the Albion test fishery can be found in Appendix 6.

DFO provided an in-season terminal return estimate on October 14 of 862,000 Fraser Chum Salmon. The estimated 50% migration date of the run was October 19. A subsequent estimate of the Fraser River Chum terminal return was provided on October 21. The estimated terminal return on that date was 879,000 (80% probability that the run is between 547,000 to 1,424,000), with a 50% migration date through the lower River of October 20. It was estimated that there was a 40% chance the run would not exceed the escapement goal of 800,000.

Fraser River Chum Salmon return to numerous spawning locations in the Lower Fraser River and its tributaries. Spawning escapement for Fraser River Chum Salmon is currently assessed for five of the largest Chum-producing systems, as well as for several smaller tributaries. The largest observed escapement of Fraser River Chum (greater than 3 million fish) was seen in 1998. From 1999 to 2010, Fraser Chum Salmon escapement (for the annually assessed systems) trended downward. The escapement decline was then halted and reversed with an estimated 1.1 million spawners reported in 2011. Spawning escapement had remained stable through 2016 and achieved the escapement goal in each year (2011-2016 estimated escapement averaged 1.3 million spawners). However, estimates of spawning escapement in 2017 (660,000), 2018 (680,000), 2019 (300,000), 2020 (600,000), and 2021 (530,000) were below the escapement goal of 800,000 Chum spawners. The 2022 Fraser Chum Salmon escapement was approximately 1,140,000.

FIRST NATIONS DOMESTIC AND FSC FISHERIES

First Nations Food, Social and Ceremonial (FSC) Chum-directed gill net fisheries commenced October 23 (below Port Mann Bridge) October 26 above Portmann Bridge until Sawmill Creek, following closures to protect co-migrating IFR Coho and IFR Steelhead.

The total Fraser River Chum catch (either directed or bycatch) in First Nations FSC fisheries can be found in Appendix 5.

FIRST NATIONS COMMERCIAL HARVEST

In 2022, there were no Chum-directed EO or demonstration fisheries in the Lower Fraser due to the low estimated run size. The total Fraser River Chum catch (either directed or bycatch) in First Nations Commercial fisheries can be found in Appendix 5.

COMMERCIAL FISHERIES

Area B Seine Fisheries

In 2022, there was an Area B seine fishery directed on Fraser Sockeye in Area 29; bycatch of Chum Salmon in this fishery can be found in Appendix 4.

Area E Gill Net Fisheries

Commercial Area E salmon gill net fisheries in the Lower Fraser River (below Mission) remained closed in 2022 as part of the pre-season decision to implement longer term closures in areas where stocks of conservation concern may be intercepted in the target or by-catch.

Area H Troll Fisheries

In 2022, there was an Area H troll fishery directed on Fraser Sockeye in Area 29; bycatch of Chum Salmon in this fishery can be found in Appendix 4.

There were no Area H fisheries in Area 29 for Chum salmon in 2022 and, therefore, no catch of Chum Salmon to report.

RECREATIONAL FISHERIES

TIDAL RECREATIONAL FISHERIES

In most southern BC tidal waters, the daily limit for Chum Salmon was four (4) in 2022.

Fraser River – Tidal Recreational Fisheries

Fraser River Mouth (Subareas 29-6, 29-7, 29-9 and 29-10): January 1 to December 31, fishing for salmon was closed in this area with the exception of September 15 to September 18, 2022, retention of Sockeye was permitted. October 31 to December 31, fishing for Chum was permitted. Chinook could not be retained in either opening.

In the Fraser River downstream of the Port Mann Bridge to the Mouth, from October 31 to November 30, 2022, open to the retention of hatchery-marked Coho and Chum salmon.

In the Fraser River downstream of the Mission Bridge to the Port Mann Bridge from November 2 to November 30, 2022, open to retention of hatchery-marked Coho and Chum salmon.

An assessment of the in-river tidal Fraser River recreational fishery occurred from October 31 to November 30, 2022, from the Alex Fraser Bridge to the Mission Bridge. Catch estimates can be found in Appendix 5.

NON-TIDAL RECREATIONAL FISHERIES

Non-tidal recreational fisheries are usually authorized in the Fraser River in Region 2 between Mission and Hope, BC. The impact of these mainstem fisheries on Chum Salmon is small compared to the impact of recreational fisheries occurring in the Fraser River tributaries in Region 2. Chum Salmon are not known to migrate into Regions 3, 5, 7, or 8.

Fraser River – Non-Tidal Recreational Fisheries

January 1 to November 2, 2022, Region 2 area was closed to fishing for salmon (with exception of a short-duration Sockeye Salmon opening in September).

November 3 to November 30, the Region 2 non-tidal Fraser River from the CPR Bridge at Mission, BC to the Highway #1 Bridge at Hope, BC was open to retention of Chum and hatchery-marked Coho, with non-retention of all other species.

An assessment of the non-tidal Fraser River recreational fishery occurred from September 9 to 21 from the Mission Bridge to the Hope Bridge. Catch estimates can be found in Appendix 5.

Fraser River Tributaries Recreational Fisheries

The following Fraser River tributaries were open to Chum Salmon retention during the dates noted in 2022.

- Alouette River – October 22 to December 31, daily limit of one (1) Chum Salmon.
- Chehalis River – November 1 to November 30, daily limit of two (2) Chum Salmon.

- Chilliwack and Vedder Rivers – October 22 to December 31, daily limit of one (1) Chum Salmon.
- Harrison River – October 22 to December 31, daily limit of two (2) Chum Salmon.
- Nicomen Slough – October 22 to December 31, daily limit of two (2) Chum Salmon.
- Stave River – October 22 to December 31, daily limit of two (2) Chum Salmon.

In 2022, the Chilliwack/Vedder recreational fishery was assessed from the beginning of September to late November and the Nicomen/Norrish fishery was assessed from October 1 to December 15. Catch estimates can be found in Appendix 5. No assessments were conducted on the recreational fisheries occurring on the remaining rivers listed above.

EXCESS-TO-SPAWNING REQUIREMENT (ESSR) FISHERIES

There were ESSR fisheries in 2022 that harvested Chum Salmon at Chilliwack, Inch Creek, and Chehalis River hatcheries.

All ESSR harvest information can be found in Appendix 7.

STRAIT OF GEORGIA CHUM

OBJECTIVES AND OVERVIEW

Strait of Georgia Chum fisheries consist of terminal opportunities for Chum returning to their natal spawning streams. Many of the terminal fishing areas have enhancement facilities and/or spawning channels associated with adjacent river systems. 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 including swim surveys, stream walks, channel entry counts, fence counts, sonar (DIDSON/ARIS) counts and over flights. In some areas where stocks receive considerable enhancement or where stocks have above average productivity, limited fishing may occur prior to escapement objectives being reached.

STOCK STATUS

In 2022, escapement was forecast to be above target in Nanaimo, Cowichan, and Goldstream, and below target in Puntledge, Big Qualicum, and Little Qualicum (Table 45). However, the adjusted “Like Last Year” forecast model estimated returns to be below both the normal forecast and target escapement given poor survival in recent years. In 2022, counts indicate that most systems on the SEVI or Mainland Inlets did not reach target escapement. Nanaimo River was above the escapement target of 40,000 at 49,144 Chum. This was well below the low-range forecast of 85,100, but above the 2021 escapement of 27,875. Counts at the Cowichan River DIDSON were below the escapement target of 160,000 at 102,727 Chum. This is an improvement from the 2021 escapement of 23,531 but below the low-range forecast of 150,400. Goldstream River reached the escapement target of 15,000 with 40,816 Chum. This was below the low-range forecast of 45,400, but above the 2021 escapement of 9,364.

Mid-Vancouver Island rivers, which include Puntledge, Big Qualicum, and Little Qualicum with a combined escapement target of 230,000 had a low-range forecast of 53,800 for 2022. Aggregate returns to these mid-Vancouver Island systems are well below the escapement target and forecast at 25,426 Chum. Puntledge River escapement was 12,095, Big Qualicum 3,181 and Little Qualicum had 10,150.

The combined escapement estimate for Jervis/Narrows Inlet rivers is 4,831 compared to the escapement target of 85,000. By system, estimates were 113 Chum in Vancouver River, 292 in Brittain River, 2,342 in Skwakwa River, 1,481 in Deserted River and 603 Tzoonie River. The escapement total was below the low-range forecast of 9,600, but above the like last year model (400).

Escapement to Sliammon Creek was below last year's count of 8,665 Chum at 6,702, and below the target of 11,000. In Theodosia River, the estimate of 5,145 Chum in 2022 was higher than 3,940 in 2021, but lower than the escapement target of 21,000. Okeover Creek abundance was estimated at 341 fish which is below the 4 year average (810), the escapement target (6,000), but above the low-range forecast of 200.

Table 45. 2022 escapements of Chum in Strait of Georgia Rivers along with the low and high forecast values for 2022, the like last year model forecast for 2022, the 2021 escapement and the 2022 escapement targets.

Forecast Area	2022 Forecast		2022 Like Last Year Forecast	2021 Escapement	2022 Escapement Target	2022 Escapement
	Low	High				
Mid-Vancouver Island	53,800	80,600	23,100	44,962	230,000	25,426
Puntledge	32,600	49,000	14,100	18,741	60,000	12,095
Big Qualicum	10,200	15,400	3,600	14,308	85,000	3,181
Little Qualicum	10,900	16,300	5,300	11,913	85,000	10,150
Jervis/Narrows Inlets	9,600	14,400	400	2,930	85,000	4,831
Nanaimo River	85,100	127,700	22,100	27,875	40,000	49,144
Cowichan River	150,400	225,600	18,100	23,531	160,000	102,727
Goldstream River	45,400	68,200	20,600	9,364	15,000	40,816
Sliammon Creek	6,400	9,600	1,800	8,665	11,000	6,702
Theodosia River	3,200	4,800	2,100	3,940	21,000	5,145
Okeover Creek	200	200	100	58	6,000	341
Lang Creek	3,800	5,800	2,000	1,583	2,500	3,123

FIRST NATIONS DOMESTIC AND FSC FISHERIES

Strait of Georgia First Nations FSC fisheries for Chum Salmon were not restricted in 2022. Effort in this fishery was extremely low in 2022. Chum Salmon catch summaries from Tla'amin Treaty and non-Treaty First Nations FSC fisheries in the Strait of Georgia can be found in Appendix 4.

FIRST NATIONS COMMERCIAL HARVEST

Area 14 First Nations Commercial Fisheries

No commercial demonstration fisheries occurred.

Area 17 First Nations Commercial Fisheries

Weekly conference calls were held in-season with the Nanaimo Harvest Roundtable to discuss stock status and potential fishing opportunities in Area 17. In 2022, the Area 17 Demonstration fishery opened on

November 16 after the escapement target for Nanaimo River Chum was met. The catch from this fishery can be found in Appendix 4.

Area 18 First Nations Commercial Fisheries

A weekly conference call was held with the Cowichan Harvest Roundtable to discuss stock status and potential fishing opportunities in Area 18. The Area 18 Demonstration Fishery did not meet timing and escapement benchmarks to trigger harvest opportunities in 2022.

Area 19 First Nations Commercial Fisheries

Pre-season meetings occurred with Saanich Tribes to discuss potential harvest benchmark triggers and fishing plans to harvest surplus Goldstream Chum. In 2022, escapement benchmarks were achieved on November 9; however, due to the late timing of achieving this goal the First Nations groups made a decision to not proceed with the demonstration fishery.

COMMERCIAL FISHERIES

Area 14 Commercial Fisheries

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 size is assessed by escapement counts to the three major river systems and DFO hatcheries contributing to the stock aggregate.

The Area 14 Chum 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. The escapement goals for the three river systems are 60,000 for Puntledge River, 85,000 for Little Qualicum River, and 85,000 for Qualicum River, adding up to an overall interim escapement goal of 230,000 Chum, not including enhancement facility requirements (about 10,000 Chum, bringing the total escapement goal to 240,000).

Area 14 commercial Chum fisheries are managed based on forecasted abundance. In-season, the management strategy for considering fishery openings falls under one of two categories depending on whether the pre-season forecast is greater than or less than 340,000 Chum. When the pre-season forecast is greater than 340,000, early Chum openings can target up to 65% of the anticipated surplus above 340,000. When the pre-season forecast is less than 340,000, an early-timed limited effort gill net assessment fishery may be used to augment in-season escapement information and evaluate the mid-Vancouver Island (MVI) aggregate abundance. Given the poor forecast for Chum returning to systems in Area 14, the gill net assessment fishery did not proceed in 2022. Escapement targets were not met in any of the Area 14 systems and no commercial fisheries occurred in 2022.

Area 16 Commercial Fisheries

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 rivers in Jervis/Narrows Inlet is 85,000. Terminal fisheries may occur in these areas when the individual or combined escapement goals have been assured, but fishing opportunities do not occur on a regular basis. There were no commercial fisheries in Area 16 in 2022.

Area 17 Commercial Fisheries

This fishery is a terminal fishery targeting Nanaimo River stocks. The Nanaimo River Chum stocks are supplemented by the Nanaimo River hatchery. Hatchery supplementation occurs 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 40,000.

Nanaimo River assessments include swims by Nanaimo River Hatchery staff and a sonar counting system (DIDSON). The escapement target for Nanaimo River Chum was met and commercial fisheries for Area E Gill Net and Area B Seine opened on November 17, 2022. Chum Salmon catch from this fishery can be found in Appendix 4.

Area 18 Commercial Fisheries

This fishery is directed at Cowichan River stocks, with some incidental harvest of Goldstream-bound Chum. Fishery openings in early to mid-November are limited to Satellite Channel, to minimize impacts on Goldstream stocks. Chemainus River stocks may also be impacted if fisheries occur earlier in November, but likely to a lesser extent.

Fishery openings are planned in-season based on escapement estimates from a DIDSON counter. Management is also guided by advice from the Cowichan Harvest Roundtable and the Mid-Vancouver Island (MVI) Chum Subcommittee, and an in-season Chum Escapement Forecast Tool based on the DIDSON count and date. The overall escapement goal for the Cowichan River is currently 160,000 Chum passing by the DIDSON counter.

A weekly conference call was held with the Cowichan Harvest Roundtable to discuss stock status and potential fishing opportunities in Area 18. In 2022, there were no commercial fisheries for Cowichan River Chum due to the escapement targets not being met.

Area 19 Commercial Fisheries

This fishery is directed primarily at Goldstream River stocks, although some Cowichan River Chum Salmon are also harvested. Fisheries are planned in-season based on escapement estimates. Area 19 falls under the same management regime as Area 18. The overall escapement goal for the Goldstream River is 15,000 Chum counted in-river. Bi-weekly stream walks are conducted on Goldstream River by Goldstream Hatchery staff to estimate Chum escapement. Enumeration began in the third week of October. On November 9, 2022, the escapement target for Goldstream was exceeded. Commercial fisheries were initiated to target Goldstream Chum in Area 19. Area H Troll was provided opportunities beginning November 13, but due to no participation closed November 17. Area E Gillnet was provided opportunities from November 13 to November 22. Area B Seine was provided opportunities beginning November 16, but due to low effort closed November 18. Chum Salmon catch from this fishery can be found in Appendix 4.

RECREATIONAL FISHERIES

TIDAL RECREATIONAL FISHERIES

Marine recreational Chum fisheries are subject to the normal salmon daily and possession limits (limit of four per day and possession of eight), and are typically open throughout the area. Most of the recreational effort directed at Chum Salmon in the Strait of Georgia occurs in the upper portions of Discovery Passage between Seymour Narrows and Chatham Point, not far from Campbell River. The annual Brown’s Bay

Charity Chum derby did resume in 2022; it is usually the most active Chum recreational fishery in the area. There was a creel survey during the month of October in the Strait of Georgia (Areas 13 and 14).

Marine recreational Chum fisheries also occur in the approach waters of the Puntledge, Qualicum, Little Qualicum, Nanaimo, and Cowichan Rivers on Vancouver Island, as well as in Howe Sound, with effort increasing with Chum abundance. Due to average Chum abundances observed in the marine area north of Nanaimo and average abundances south of Nanaimo, recreational effort in 2022 was minimal. Catch estimates for Chum in the marine recreational fisheries can be found in Appendix 4.

NON-TIDAL RECREATIONAL FISHERIES

Chum retention fisheries in Region 1 (Vancouver Island) on the Qualicum, Nanaimo, and Cowichan Rivers on Vancouver Island did not occur in 2022 due to low returns. Chum retention opportunities did occur in 2022 on the Courtenay and Puntledge Rivers from October 1 until October 21. However, retention opportunities were closed after October 21 due to low returns. Recreational freshwater retention opportunities are typically based on escapement estimates from hatchery operations, and where escapement goals are expected to be met, opportunities are provided.

EXCESS SALMON-TO-SPAWNING REQUIREMENTS (ESSR) FISHERIES

There were no Chum ESSR fisheries in the Qualicum, Puntledge, Cowichan, or Goldstream rivers in 2022.

There were no ESSR fisheries at the Capilano hatchery in 2022 that included Chum Salmon.

Chum catch for ESSR fisheries can be found in Appendix 7.

WEST COAST VANCOUVER ISLAND CHUM

OBJECTIVES AND OVERVIEW

Commercial Chum Salmon fisheries normally occur on the West Coast Vancouver Island (WCVI) from late September to early November in years of Chum abundance. The majority of Chum fishing on WCVI takes place adjacent to Nitinat Lake (Area 21). In some years there have been limited-effort gill net fisheries in Barkley Sound (Area 23), Clayoquot Sound (Area 24), Nootka Sound and Esperanza Inlet (Area 25) and Kyuquot Sound (Area 26).

Commercial fisheries for WCVI Chum employ a two-tiered strategy for managing harvest; either a constant harvest rate strategy or a surplus-to-escapement goal strategy.

Fixed Harvest Rate Strategy (fisheries targeting natural origin stocks, hatchery stocks at low abundance):

For those fisheries where a significant component of the target stock is from naturally spawning populations, a constant harvest rate strategy of 10 to 20% is implemented. The maximum harvest rate is set at a precautionary level relative to stock-recruit derived optimal ER for WCVI Chum; which are in the order of 30 to 40%. This approach allows limited harvest while protecting the biodiversity of Chum stocks and permitting rebuilding when the population is low. In areas of low quality data or only naturally spawning stocks, including Barkley (Area 23), Clayoquot Sound (Area 24), Esperanza Inlet (Area 25) and Kyuquot Sound (Area 26), the maximum allowable harvest rate is 10 to 15%. In Nootka Sound, up to 20% harvest is permitted given the prevalence of hatchery production in the area. The harvest rate is controlled by limiting effort (i.e. number and duration of openings and, in some areas, the number of permitted vessels) and limiting fishing areas to approach areas only (i.e. to those areas where fish are migrating not holding).

Commercial fisheries for Nitinat Chum were closed in 2021 as part of the salmon fishery closures announced through the Pacific Salmon Strategy Initiative.

STOCK STATUS

The recent stock status of wild WCVI Chum has generally been poor relative to historic levels, with spawning abundance for wild indicator stocks frequently below Lower Fishery Reference Points (LRPs) despite the implementation of a precautionary harvest regime (fixed harvest rate). The 2022 forecast for WCVI Chum was a continuation of that low stock status with little indication that survivals would improve. Preliminary returns in 2022 have to date been below forecast. Record low water conditions throughout most of September and October impacted Chum migration into their spawning grounds for most WCVI systems. This resulted in fish staging in approach waters longer than normal along with an increased incidence of intertidal spawning. It is uncertain how those behaviour modifications will affect Chum survival, but the staging behaviour allowed hatchery facilities, Nitinat and Conuma, to secure their egg targets to help buffer that uncertainty. Escapement programs are still on going at the time of this report.

FIRST NATIONS FSC AND TREATY FISHERIES

The 2022 WCVI FSC Chum reported catch (to date) can be found in Appendix 4 which includes fish retained for food, social and ceremonial purposes from Nuu-chah-nulth First Nations and Treaty harvests from Maa-nulth Nations.

FIRST NATIONS COMMERCIAL HARVEST

WCVI Economic Opportunity Fisheries

In 2022, EO agreements were in place with Hupacasath and Tseshaht First Nations during the Chum season; however, abundance did not permit a targeted opportunity.

Five Nations Communal Sale Fishery

In 2022, there was no Chum fishery for the Five Nations (five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht and Tla-o-qui-aht).

COMMERCIAL FISHERIES

Nitinat (Area 21/121) Commercial Fisheries

In 2022, commercial fisheries targeting Nitinat Chum remained closed due to longer term closures implemented as part of the Pacific Salmon Strategy Initiative.

Nootka Sound (Area 25) Commercial Fisheries

Based on the pre-season forecast being below the lower fishery reference point, no fisheries were planned in Nootka Sound.

Esperanza Inlet (Area 25) Commercial Fisheries

Based on the pre-season forecast being below the lower fishery reference point, no fisheries were planned in Esperanza Inlet.

Kyuquot Sound (Area 26) Commercial Fisheries

Based on the pre-season forecast being below the lower fishery reference point, no fisheries were planned in Kyuquot Sound.

RECREATIONAL FISHERIES

TIDAL RECREATIONAL FISHERIES

Daily limits of Chum in the WCVI recreational fishery are dependent on pre-season abundance forecasts relative to biologically based targets. In 2022, areas where the forecast was below target reference points (Area 23, Barkley, Area 24, Clayoquot, Area 25, Nootka, Area 25, Esperanza, and Area 26, Kyuquot), the daily limit was zero (0). At Nitinat (Areas 21, 22), the daily limit was two (2). Anglers are restricted to the use of barbless hooks and there is a minimum size limit of 30 cm.

EXCESS SALMON TO SPAWNING REQUIREMENTS (ESSR) FISHERIES

The Ditidaht First Nation was issued an ESSR Licence for Nitinat hatchery Chum.

The total Chum ESSR catch can be found in Appendix 7.

There were no other Chum ESSR fisheries on the WCVI in 2022.

APPENDICES

APPENDIX 1: CATCHES IN CANADIAN TREATY LIMIT FISHERIES, 2011 TO 2022

Fisheries/Stocks	Species	2022	2021**	2020**	2019	2018	2017	2016	2015	2014	2013	2012	2011
Stikine River (all gears)	Sockeye	12,028	4,705	11,576	16,213	16,915	41,749	86,729	60,046	42,800	36,146	30,352	55,623
	Coho	5,081	4,521	5,103	5,228	3,685	5,502	5,346	5,619	4,992	4,835	5,748	4,703
	Chinook-lg	386	515	389	570	-	593	2,731	4,157	3,308	3,415	4,573	2,307
	Chinook-jk	-	-	-	-	-	788	794	1,537	759	1,594	1,213	1,165
Taku River (commercial gill net)	Sockeye	27,394	18,275	11,556	21,500	17,948	30,209	37,624	19,747	17,872	21,163	30,209	24,012
	Coho	7,534	10,880	6,970	12,252	9,503	7,726	9,513	7,886	14,568	10,374	8,689	6,102
	Chinook-lg	-	-	94	10	-	246	1,021	868	2,472	738	1,909	2,333
	Chinook-jk	-	-	-	-	-	88	205	-	657	N/A	478	514
Alsek River (all gear)	Sockeye	1,722	1,512	218	653	-	644	815	1,084	1,140	508	1,786	2,110
	Coho	-	-	6	10	-	-	-	-	-	29	N/A	29
	Chinook	14	42	22	37	-	74	10	87	39	73	85	214
Areas 3 (1-4) (commercial net)*	Pink	608,006	165,688	12,482	-	101,267	704,450	430,435	80,266	450,671	1,249,570	118,164	160,757
Area 1 (commercial troll)*	Pink	87,784	82,485	136,890	60,003	266	38,763	32,343	41,551	31,775	84,216	57,013	52,221
North Coast (troll + sport)	Chinook	92,489	93,706	38,104	88,001	106,976	143,330	190,180	158,903	221,001	115,914	120,305	122,660
		57,479 + 35,010	64,470 + 29,236	30,096+ 8,008	42,801+ 45,200	70,276 + 36,700	97,730 + 45,600	147,381+ 42,800	106,703 + 52,200	172,001 + 49,000	69,264 + 46650	80,256 + 40050	74,660 + 48000
West Coast Vancouver Island (troll + sport + FN)	Chinook	87,096	68,793	38,971	67,635	76,958	103,260	93,294	113,293	178,558	108,710	130,719	206,569
		40,715 + 33,171 + 13,210	36,837 + 26,213 + 5,743	15,520+ 19,383+ 4,068	23,195+ 35,867+ 8,573	28,840 + 45,233 + 2,885	54,411 + 46,707 + 2,143	55,168 + 37,809 + 317	60,572 + 48,775 + 3,946	127,177 + 48,365 + 3,655	43,043 + 61,712 + 3955	62,573 + 61,822 + 4300	123,930 + 78,350 + 4289
Fraser River Canadian Commercial Catch	Sockeye	230,100	-	-	-	3,682,561	-	-	-	7,945,474	2,124	-	443,000
	Pink	-	33,480	-	-	91,337	-	-	452	-	2,855,441	-	4,751,800
Fraser River U.S. Commercial Catch	Sockeye	341,300	-	-	-	989,459	-	-	44,100	691,000	4,609	105,100	266,000
	Pink	-	192,047	-	232,904	-	105,930	-	334,700	-	3,057,222	-	2,893,400
West Coast Vancouver Island (commercial troll)	Coho	784	1,141	70	-	-	331	774	18,126	32,992	5,499	1,988	-
Johnstone Strait (commercial catch)	Chum	62,552	57,870	164,951	-	52,139	401,957	1,333,478	492,841	318,984	597,003	391,324	751,560

*ALL PINK CATCHES FOR YEARS 1995-2012 IN AREAS 3(1-4) AND AREA 1 HAVE BEEN UPDATED TO REFLECT FINAL ESTIMATES.
**CATCHES FOR YEARS 2020 TO 2021 HAVE BEEN UPDATED TO MAINTAIN CONSISTENCY IN CATCH REPORTING WITH PREVIOUS YEARS. THIS DATA MAY BE SUBJECT TO FINAL REVIEW.
NOTE 1: AREA 5-11 CATCHES INCLUDED PRIOR TO 1995 AND EXCLUDED FROM 1995-1998 INCLUSIVE. NOT PART OF 1999 ANNEX IV PROVISIONS.
NOTE 2: 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.
NOTE 3: 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 4: WCVI CHINOOK CATCHES FROM 1995-1998 ARE REPORTED BY CALENDAR YEAR; CATCHES FROM 2008-1999 ARE REPORTED BY CHINOOK YEAR (OCT-SEPT)
NOTE 5: 1999 CATCHES ARE REPORTED ACCORDING TO FISHERIES/STOCKS UNDER THE 1999 ANNEX IV PROVISIONS.

APPENDIX 2: TRANSBOUNDARY CATCH TABLE

Licence Group	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook Kept	Chinook Released
First Nations FSC and Treaty											
	Stikine	5,723	-	-	-	-	-	-	-	386	-
	Taku	388	-	262	-	-	-	-	-	58	-
	Alsek	1,722	-	-	-	-	-	-	-	14	-
Total First Nations FSC Catch		**7,833**	**-**	**262**	**-**	**-**	**-**	**-**	**-**	**458**	**-**
Commercial											
	Stikine	6,305	-	5,081	-	6	-	198	-	-	-
	Taku	27,394	-	7,534	-	-	-	-	-	-	-
Total Commercial Catch		**33,699**	**-**	**12,615**	**-**	**6**	**-**	**198**	**-**	**-**	**-**
Recreational											
Total Recreational Catch		**7**	**-**	**8**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
TOTALS		**41,539**	**-**	**12,885**	**-**	**6**	**-**	**198**	**-**	**458**	**-**

APPENDIX 3: NORTHERN BC CATCH TABLE

Licence Group	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook Kept	Chinook Released
First Nations FSC and Treaty											
	Skeena	67,320	-	619	1	2,578	1,087	76	43	3,090	-
	Nass	42,791	-	2,175	-	10,719	-	459	-	3,902	-
	Central Coast	1,093	-	328	-	8	-	559	-	1,452	-
Total First Nations FSC Catch		**111,204**	**-**	**3,122**	**1**	**13,305**	**1,087**	**1,094**	**43**	**8,444**	**-**
Commercial											
Area A Seine	Nass	2,347	953	-	515	109,654	-	19,616	10,161	-	258
Area A Seine	Skeena	257,510	-	-	5,798	397,261	-	-	5,629	-	907
Area C Gillnet	Central Coast	-	-	-	-	-	-	424	2	461	-
Area C Gillnet	Skeena	486,603	-	-	2,925	101,091	15,766	-	1,989	-	1,561
Area F Troll	Haida Gwaii AABM	-	2,378	66,773	149	16,994	10,540	-	6,972	57,479	9,773
Area F Troll	Haida Gwaii Pink/Coho	319	29	36,135	33	70,790	1,591	-	489	-	2,991
Total Commercial Catch		**746,779**	**3,360**	**102,908**	**9,420**	**695,790**	**27,897**	**20,040**	**25,242**	**57,940**	**15,490**
Recreational											
	Skeena/Nass	-	-	13,738	-	2,221	-	42	-	3,155	-
	Central Coast	-	-	13,166	-	529	-	63	-	6,181	-
	Haida Gwaii	99	-	33,074	20,703	1,830	-	1,658	-	25,674	16,187
Total Recreational Catch		**99**	**-**	**59,978**	**20,703**	**4,580**	**-**	**1,763**	**-**	**35,010**	**16,187**
TOTALS		**858,082**	**3,360**	**166,008**	**30,124**	**713,675**	**28,984**	**22,897**	**25,285**	**101,394**	**31,677**

APPENDIX 4: SOUTHERN BC CATCH TABLE

Licence Group	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook Kept	Chinook Released
First Nations FSC and Treaty											
	WCVI - Inshore ISBM	-	-	11,539	-	-	-	1,308	-	5,406	15
	WCVI - Offshore AABM	-	-	11,853	-	-	-	3	-	13,210	9
	Strait of Georgia	-	-	301	-	-	-	-	-	585	-
	Johnstone Strait	-	-	187	-	-	-	3,073	-	1,563	-
Total First Nations FSC Catch		**-**	**-**	**23,880**	**-**	**-**	**-**	**4,384**	**-**	**20,764**	**24**
First Nations Commercial											
EO	WCVI - Inshore ISBM	-	-	-	-	-	-	-	-	32,187	-
Total First Nations Commercial Catch		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**32,187**	**-**
Five Nations											
	WCVI - Offshore AABM	136	2	755	1,685	-	10	-	-	16,029	348
	WCVI - Inshore ISBM	-	-	83	3	-	-	1	26	5,806	-
Total Five Nations Catch		**136**	**2**	**838**	**1,688**	**-**	**10**	**1**	**26**	**21,835**	**348**
Commercial											
Area B		243	3	65	426	19	17	58,054	30	11,674	418
Area D		2	1	85	79	6	1	-	4	15,994	-
Area E		-	-	-	-	-	-	6,149	-	1	-
Area G		43	24	29	3,846	-	3	-	-	24,686	2,276
Area H		-	6	-	33	1	17	4,498	-	-	6
Total Commercial Catch		**288**	**34**	**179**	**4,384**	**26**	**38**	**68,701**	**34**	**52,355**	**2,700**
Recreational											
	Johnstone Strait	-	40	4,387	4,387	1,817	1,938	15	-	4,259	7,776
	Strait of Georgia	845	2,492	9,233	20,167	8,568	7,432	998	263	62,487	193,807
	Juan de Fuca	8	502	27,300	81,083	508	165	55	-	15,583	70,671
	WCVI - Inshore ISBM	4,148	146	25,226	15,702	88	166	5	-	47,458	43,785
	WCVI - Inshore AABM	2,837	363	7,923	3,294	43	22	6	4	13,693	35,745
	WCVI - Offshore AABM	15	18	5,511	8,530	26	15	-	1	19,478	17,531
Total Recreational Catch		**7,853**	**3,561**	**79,580**	**133,163**	**11,050**	**9,738**	**1,079**	**268**	**162,958**	**369,315**
TOTALS		**8,277**	**3,597**	**104,477**	**139,235**	**11,076**	**9,786**	**74,165**	**328**	**290,099**	**372,387**

APPENDIX 5: FRASER RIVER CATCH TABLE

Licence Group	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook Kept	Chinook Released
First Nations FSC and Treaty											
	Fraser	539,449	6,108	2,770	1,732	4,994	126	50,065	470	23,384	1,139
Total First Nations FSC Catch		**539,449**	**6,108**	**2,770**	**1,732**	**4,994**	**126**	**50,065**	**470**	**23,384**	**1,139**
First Nations Commercial											
	Fraser	14,098	-	2	44	-	-	-	-	28	18
Total First Nations Commercial Catch		**14,098**	**-**	**2**	**44**	**-**	**-**	**-**	**-**	**28**	**18**
Five Nations											
	Fraser	340	-	-	-	-	-	-	-	-	-
Total Five Nations Catch		**340**	-	-	-	-	-	-	-	-	-
Commercial											
	Fraser	229,604	-	87	693	320	35	147	100	72	1,551
Total Commercial Catch		**229,604**	**-**	**87**	**693**	**320**	**35**	**147**	**100**	**72**	**1,551**
Recreational											
	Fraser	15,575	1,098	33,206	24,698	-	-	8,291	87,140	35,001	33,658
Total Recreational Catch		**15,575**	**1,098**	**33,206**	**24,698**	**-**	**-**	**8,291**	**87,140**	**35,001**	**33,658**
Other Catch											
	Fraser	8,303	325	357	-	-	-	5,589	-	906	-
Total Other Catch*		**8,303**	**325**	**357**	**-**	**-**	**-**	**5,589**	**-**	**906**	**-**
TOTALS		**807,369**	**7,531**	**36,422**	**27,167**	**5,314**	**161**	**64,092**	**87,710**	**59,391**	**36,366**
*May include unauthorized directed retention or unauthorized bycatch retention in fisheries directed at other species											

APPENDIX 6: TEST FISHING CATCH TABLE

Test-Fisheries	Start Date	End Date	Boat Days	Sockeye kept	Sockeye released	Coho kept	Coho released	Pink kept	Pink released	Chum kept	Chum released	Chinook kept	Chinook released	GRAND TOTAL
Albion Chinook Gillnet	24-Apr-22	20-Oct-22	155	808	0	34	0	0	0	676	0	790	0	**2,308**
Area 23 Sockeye Seine	6-Jun-22	26-Jul-22	17	8,899	3,187	0	4	0	0	0	0	0	118	**12,208**
Area 23 Chinook Seine	22-Aug-22	14-Sep-22	8	0	103	0	637	0	1	0	16	949	1306	**3,012**
Skeena Tyee	10-Jun-22	26-Sep-22	108	20,885	144	712	32	4,042	50	164	264	1776	24	**28,093**
Round Island Sockeye Gillnet	12-Jul-22	14-Aug-22	34	541	1	27	88	402	1	4	0	16	32	**1,112**
Study	12-Jul-22	14-Aug-22	34	899	3	73	211	620	2	6	0	17	51	**1,882**
Whonnock Gillnet	22-Jun-22	9-Oct-22	110	4,102	37	369	41	1	0	864	11	857	26	**6,308**
San Juan Sockeye Gillnet	10-Jul-22	16-Aug-22	74	5,509	0	93	157	21	10	23	1	482	505	**6,801**
Cottonwood Gillnet	12-Jul-22	26-Sep-22	76	4,631	29	216	368	2	0	83	0	574	114	**6,017**
Brownsville Bar Gillnet	14-Jul-22	18-Aug-22	36	4,718	9	0	0	1	0	0	0	162	0	**4,890**
San Juan Sockeye Seine	25-Jul-22	4-Sep-22	41	6,588	53,281	0	2,952	0	208	0	12	0	1,821	**64,862**
Gulf Troll Sockeye	23-Aug-22	19-Sep-22	30	2,640	2,277	0	73	0	0	2	1	0	291	**5,284**
Blinkhorn Sockeye Seine	24-Jul-22	4-Sep-22	42	4,168	68,067	0	216	447	49,580	0	624	0	216	**123,318**
Area 13 Sockeye Seine	26-Jul-22	20-Aug-22	26	2,948	24,777	0	72	475	29,348	3	300	0	132	**58,055**
Albion Chum Gillnet	1-Sep-22	23-Nov-22	49	397	0	218	0	0	0	4200	0	447	0	**5,262**
Area 12 Chum Seine	21-Sep-22	29-Oct-22	76	0	133	0	307	0	57	34888	7758	0	5	**43,148**
Juan de Fuca Chum Seine	26-Sep-22	3-Nov-22	24	0	0	0	738	0	0	1,683	533	0	18	**2,972**
Qualark Gillnet	15-Jul-22	6-Oct-22	84	4638	0	4	85	0	0	0	0	593	2	**5,322**
LFFA Lower Fraser CO Assessment	31-Aug-22	8-Nov-22	22	6	221	84	241	0	0	0	625	4	115	**1,296**
** WCVI Juvenile Salmon Seine	24-May-22	26-Aug-22	18	0	6505	0	2296	0	0	0	1355	595	6820	**17,571**
* Mquqwin / Brooks Chinook Troll														**0**
* Naka Creek Sockeye Gillnet														**0**
*GST Troll Coho Sampling														**0**
Grand Total				**72,377**	**158,774**	**1,830**	**8,518**	**6,011**	**79,257**	**42,596**	**11,500**	**7,262**	**11,596**	**399,721**

Notes

All test fish catches include assessment and non-assessment sets

* Did not operate in 2022

** New for 2022

Note: Jacks & Juveniles are included in the above test fishing catches, if encountered

APPENDIX 7: ESSR CATCH TABLE

Hatcheries	Sockeye kept	Sockeye released	Coho kept	Coho released	Pink kept	Pink released	Chum kept	Chum released	Chinook kept	Chinook released	GRAND TOTAL
Babine Jack Sockeye	10,632	-	-	-	-	-	-	-	-	-	**10,632**
Babine Large Sockeye	469,128	-	-	-	-	-	-	-	-	-	**469,128**
Moricetown Canyon	-	-	-	-	496	-	-	-	-	-	**496**
Robertson Creek	-	-	8,323	-	-	-	-	-	23,393	-	**31,716**
Quinsam	-	-	-	-	323,349	-	-	-	-	-	**323,349**
Puntledge	-	-	3,145	-	-	-	-	-	-	-	**3,145**
Big Qualicum	-	-	4,376	-	27,202	-	-	-	5,169	-	**36,747**
Little Qualicum	-	-	-	-	-	-	-	-	2,961	-	**2,961**
Nanaimo	-	-	-	-	-	-	-	-	-	-	**-**
Cowichan	-	-	-	-	-	-	-	-	-	-	**-**
Weaver Spawning Ch.	-	-	-	-	-	-	-	-	-	-	**-**
Chehalis Hatchery	-	-	-	-	-	-	16,756	-	-	-	**16,756**
Inch Hatchery	-	-	5,735	-	-	-	9,121	-	-	-	**14,856**
Chilliwack Hatchery	-	-	34,028	-	-	-	754	-	23,223	-	**58,005**
Capilano Hatchery	-	-	1,450	-	-	-	-	-	50	-	**1,500**
Tenderfoot Hatchery	-	-	-	-	-	-	-	-	-	-	**-**
Gates Creek	-	-	-	-	-	-	-	-	-	-	**-**
Nitinat	-	-	41	-	-	-	3,429	-	2,304	-	**5,774**
Sarita	-	-	-	-	-	-	-	-	781	-	**781**
Grand Total	**479,760**	**-**	**57,098**	**-**	**351,047**	**-**	**30,060**	**-**	**57,881**	**-**	**975,846**

2022 UPDATE REPORTS FOR SALMONID ENHANCEMENT PROGRAMS IN THE UNITED STATES AND CANADA

Article V of the Pacific Salmon Treaty 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 February 2016, the Pacific Salmon Commission agreed that Article V enhancement activity reporting requirements are met through the current electronic exchange of date and through established channels of communication between the Parties, the Commission, and the Panels. It adopted a revised annual work plan template for Panels and Committees at that time to highlight issues in enhancement reporting and data exchange.

Reports of the Joint Technical Committees

Executive summaries of reports submitted to the Commission by the joint technical committees during the period April 1, 2022 to March 31, 2023 are presented in this section. Copies of the complete reports are available online at Technical Committee Reports - Pacific Salmon Commission (psc.org).

JOINT CHINOOK TECHNICAL COMMITTEE

2021 EXPLOITATION RATE ANALYSIS

TCCHINOOK 22-03, JUNE 2022

Chapter 3 of the 2019 Pacific Salmon Treaty (PST) Agreement requires the Chinook Technical Committee (CTC) to report annual catches, harvest rate indices, estimates of incidental mortality (IM) and exploitation rates for all Chinook salmon fisheries and stocks harvested within the Treaty area. The CTC provides annual reports to the Pacific Salmon Commission (PSC) to fulfill this obligation, as agreed by Canada and the United States (U.S.) under Chapter 3 of the Treaty. This report contains five sections: an introduction and description of the Chapter 3 2019 PST Agreement requirements related to the annual exploitation rate analysis (ERA) based on coded-wire tag (CWT) data; a review of the ERA methods; a review of the results from the annual ERA; a performance evaluation of individual stock-based management (ISBM) fisheries; and CWT analyses for mark-selective fisheries (MSF). This report includes the results of the 2021 annual ERA through 2019 CWT data for Southern U.S. stocks and 2020 for Alaskan and Canadian stocks.

Exploitation Rate Analysis

The CTC currently monitors 52 CWT exploitation rate indicator stocks. The ERA relies on cohort analysis, a procedure that reconstructs the cohort size and exploitation history of a given stock and brood year (BY) using CWT release and recovery data (CTC 1988). The ERA provides brood- and stock-specific estimates of total, age- and fishery-specific exploitation rates, maturation rates, smolt to age-2 or age-3 survival rates, annual distributions of fishery mortalities used to compute calendar year exploitation rates (CYERs), and fishery indices for aggregate abundance- based (AABM) fisheries.

Estimates of age- and fishery-specific exploitation and maturation rates, and adult equivalent estimates, from the ERA are combined with data on catches, escapements, incidental mortalities, and to complete the annual calibration of the PSC Chinook Model.

Section 3.11 of this report provides exploitation rate analysis statistics generated in 2021, based on CWT data through 2020 for Alaska and Canada, and through 2019 for the southern U.S. Statistics include:

1) brood year exploitation rates (BYERs) based on total mortality (catch plus incidental mortality) of complete broods (Appendix D),

2) cohort survival rates, calculated to age 2 for stocks that are released usually in the spring following spawning (subyearlings, or ocean type), and to age 3 for stocks that are released in the spring in the year after spawning (yearlings or stream type) (Appendix E), and

3) calendar year (CY) percent distribution of the total mortality that accrued to escapement, based on CWT data (this is not a measure of performance for the escapement indicator stock(s) represented by the CWT indicator) (Appendix C).

The most recent calendar year for percent distribution of total mortality in escapement is 2020 in Alaska and Canada and 2019 for Southern US stocks. However, because BYERs and survival rates use data for a fully returned cohort of fish, the most recent brood year of data reported for those statistics varies according to regional data availability and life history (yearling vs. subyearling).

Performance Under the 2019 PST Agreement

Implementation of the newly revised PST Agreement began with fishing year 2019. Attachment I of Chapter 3 identifies CYER limits applicable to ISBM obligations for 31 stocks; of these, 16 have management objectives[2]. The CTC has conducted its evaluation of status towards achieving PSC-agreed management objectives for the 16 stocks in Attachment I with identified management objectives for which CYER limits are applicable (CTC 2020). In 2019, 3 of the 16 stocks were below their escapement goals; of these 2 stocks (Harrison, Siuslaw) were more than 85% below and 1 stock (Atnarko) was within 85% of its escapement goal. Thus, for stocks with management objectives, annual CYER limits only apply to the Atnarko, Harrison, and Siuslaw for 2019 per paragraph 5(a).

Relative to Canadian ISBM fisheries performance for 2019, annual ISBM obligations were met for 8 of the 15 stocks that could be evaluated; 4 that met their management objectives and thus had no applicable CYER limits, and 4 that had CYERs that were below the applicable limits. Annual CYER obligations were not met for 7 stocks—Atnarko, NWVI Natural Aggregate, SWVI Natural Aggregate, East Coast Vancouver Island North, Harrison, Stillaguamish, and Snohomish.

Relative to U.S. ISBM fisheries performance for 2019, annual ISBM obligations were met for 16 of the 22 stocks listed in Attachment I; 12 that met their management objectives and thus had no applicable CYER limits, and 4 that had CYERs that were below the applicable limits. Annual CYER obligations were not met for 6 stocks— Nooksack Spring, Stillaguamish, Hoko, Siuslaw, South Umpqua, and Coquille.

[2] Attachment I of the 2019 PST Agreement has a total of 38 stocks of which 31 are subject to ISBM obligations. There are currently 22 with management objectives and 16 of those are subject to ISBM obligations.

Review of performance in the Pacific Salmon Treaty Individual Stock-Based Management fisheries, 2019. NA indicates the obligation does not exist for that stock and country combination.

Attachment I Escapement Indicator Stock	Canadian Obligation Met?	U.S. Obligation Met?
Skeena	Yes	NA
Atnarko	No	NA
NWVI Natural Aggregate	No	NA
SWVI Natural Aggregate	No	NA
East Vancouver Island North	No	NA
Phillips	Yes	NA
Cowichan	Yes	Yes
Nicola	Yes	Yes
Chilcotin	NA	NA
Chilko	NA	NA
Lower Shuswap	Yes	NA
Harrison	No	Yes
Nooksack Spring	Yes	No
Skagit Spring	Yes	Yes
Skagit Summer/Fall	Yes	Yes
Stillaguamish	No	No
Snohomish	No	Yes
Hoko	NA	No
Grays Harbor Fall	NA	Yes
Queets Fall	NA	Yes
Quillayute Fall	NA	Yes
Hoh Fall	NA	Yes
Upriver Brights	NA	Yes
Lewis River Fall	NA	Yes
Coweeman	NA	Yes
Mid-Columbia Summers	NA	Yes
Nehalem	NA	Yes
Siletz	NA	Yes
Siuslaw	NA	No
South Umpqua	NA	No
Coquille	NA	No

Mark-Selective Fisheries

Section 5 of this report contains harvest information by region from mark-selective fisheries (MSFs). Mark-selective fisheries occurred along the Oregon Coast, Washington Coast, and in the Columbia River, Puget Sound, and Canadian Strait of Juan de Fuca in 2019. The magnitude of impact of a MSF relative to the total exploitation of a stock can be measured using the percentage of the total landed catch in net, sport, and troll fisheries of tagged and marked PSC indicator stocks that occurs in MSFs. Traditionally, the CTC has used PSC

indicator stocks that have been double index tagged (DIT) to evaluate the impact of MSFs on the unmarked stocks represented by the unmarked tag group in a DIT pair[3], however many CWT indicator stocks do not have a DIT pair. Additionally, coastwide application of electronic tag detection (ETD) is inconsistent so recoveries of unmarked DIT releases are. Accordingly, an approach was applied to estimate mortality distributions for natural stocks that have single index tag (SIT) indicator stocks under conditions where the MSF impacts mainly occur on mature SIT fish proximal to their terminal area. Under MSFs, marked CWT release groups experience different patterns of fishing mortality than unmarked fish. In the future, if MSFs for Chinook become more widely employed, estimation procedures and reporting for marked and unmarked fish for purposes of the ERA, including estimates of BYERs, CYERs, and FIs, models and analytical methods will need to be changed substantially.

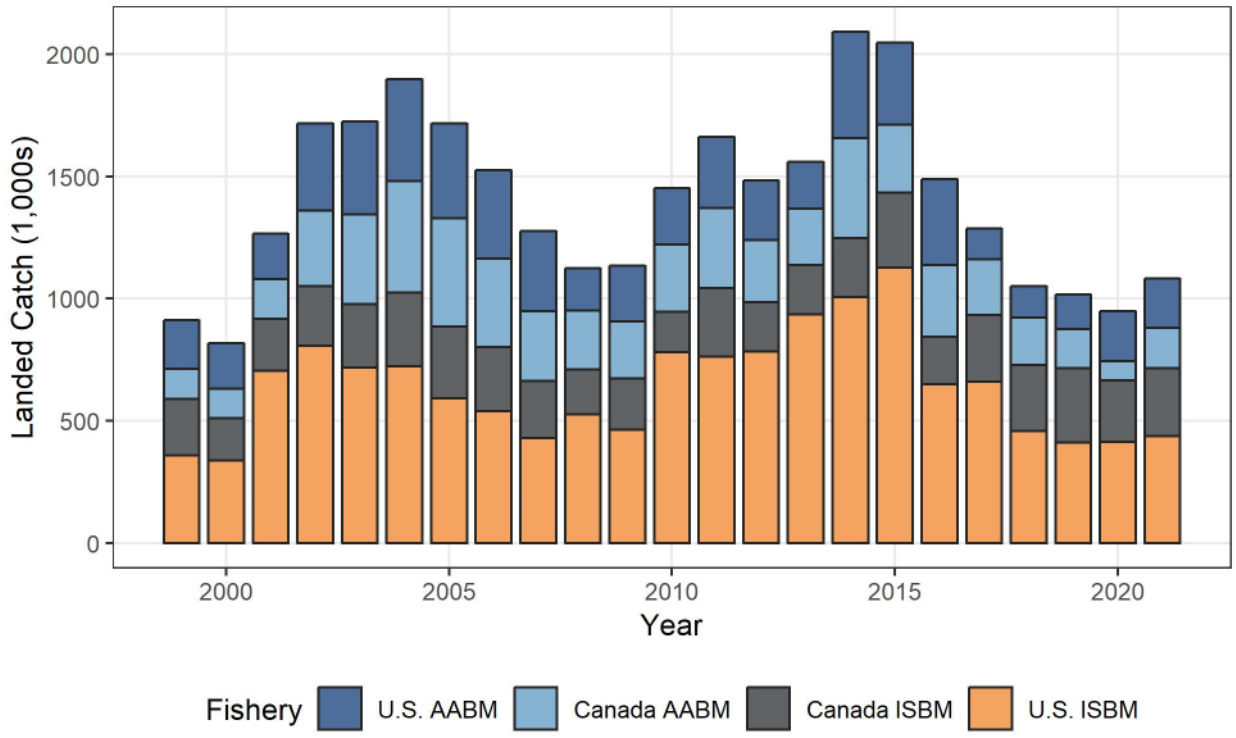
ANNUAL REPORT OF CATCH AND ESCAPEMENT FOR 2021

TCCHINOOK 22-04, JUNE 2022

The Pacific Salmon Treaty (PST) requires the Chinook Technical Committee (CTC) to provide the Pacific Salmon Commission (PSC) annual catch and escapement data for Chinook salmon stocks that are managed under the Treaty. This report contains three sections that indicate stock performance in the context of management objectives for 2021: Chinook salmon catches, escapements, and stock status.

Section 1 summarizes, for 2021, fishery catches by region and available estimates of incidental mortality (IM) by fishery, with accompanying commentary on the fisheries, management, and derivation of IM. Canada and the U.S. compile annual catch data and estimates of IM for their respective jurisdictions within the PST area according to fishery regimes, regional locations, and gear type. Landed catch (LC) is fully reported in the appendices for each geographic area covered under the PST. A summary for all PSC Aggregate Abundance Based Management (AABM) and Individual Stock Based Management (ISBM) fisheries, from 1999 to 2021, is provided in the figure below. Time series of available IM estimates are provided in Appendix A for individual fisheries. Appendix A also includes a coastwide summary of the historical time series of LC, IM, and their sum, total mortality (TM), across all AABM and ISBM fisheries.

[3] A DIT group consists of at least two paired CWT release groups, one with the mass mark (or adipose fin clip) and one without the mark. These 2 tag groups are supposed to be identical except for the mark, and differences in recoveries at escapement are assumed to be due to the MSFs—assuming there is no mark induced mortality occurring prior to recruitment to the fisheries.

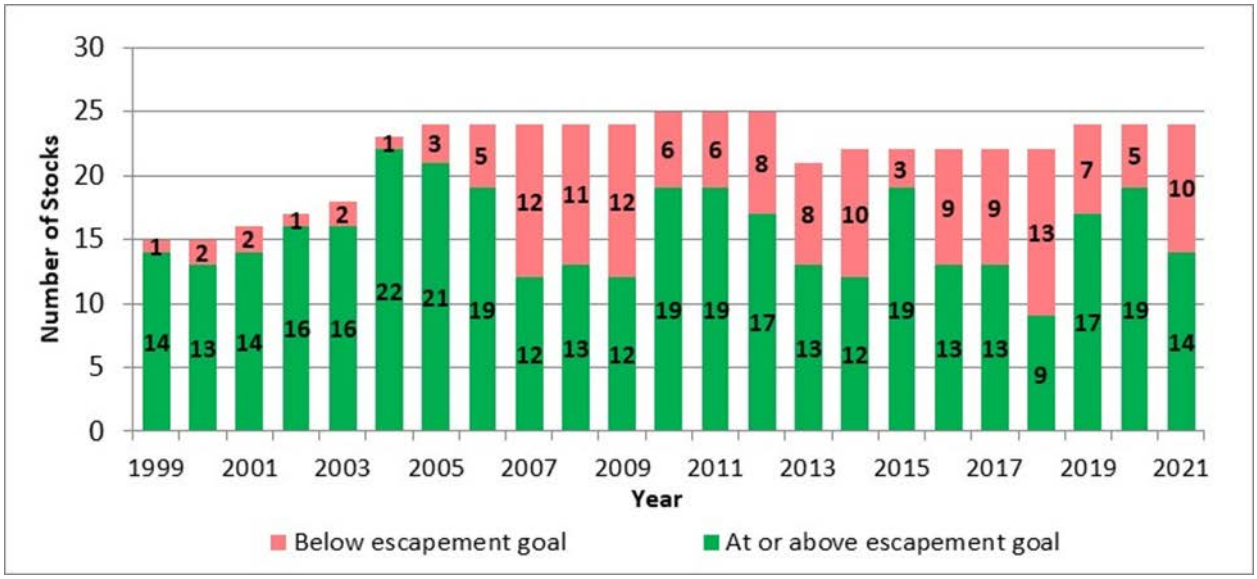


Estimates of landed catch for U.S. and Canada AABM and ISBM fisheries, 1999–2021.

The preliminary estimate of Treaty LC of Chinook salmon for all PST fisheries in 2021 is 1,083,558, of which 637,675 were taken in U.S. fisheries and 445,883 were taken in Canadian fisheries (Table 1.9). Total estimated IM associated with this harvest is 238,905 (18% of the TM) in nominal fish. The TM for all PST fisheries in nominal fish was 1,322,463 Chinook salmon, which is 217,637 greater than recorded for 2020 (Table A25). Of the total PSC TM estimated for 2021, 755,761 occurred in U.S. fisheries and 566,702 occurred in Canadian fisheries. For U.S. fisheries, 68% of the LC and 53% of IM occurred in ISBM fisheries; in Canada, 63% of the LC and 81% of IM occurred in ISBM fisheries. For some component sport fisheries, 2021 LC and IM estimates are not yet available. Data for calculating summary information for 2021 and previous years can be found in Table A23, Table A24, and Table A25.

Section 2 includes an assessment of escapement for 52 PST escapement indicator stocks. Some of the indicator stocks are stock aggregates. There are 24 stocks that currently have PSC-agreed biologically-based goals, six of which have escapement goals defined as a range and 18 having escapement goals that are the point estimate of SMSY (escapement producing maximum sustained yield). Annual escapements that are more than 15% below the lower end of the range or the SMSY point estimate are noted. The CTC will continue to review escapement goals for stocks as they are provided by respective agencies.

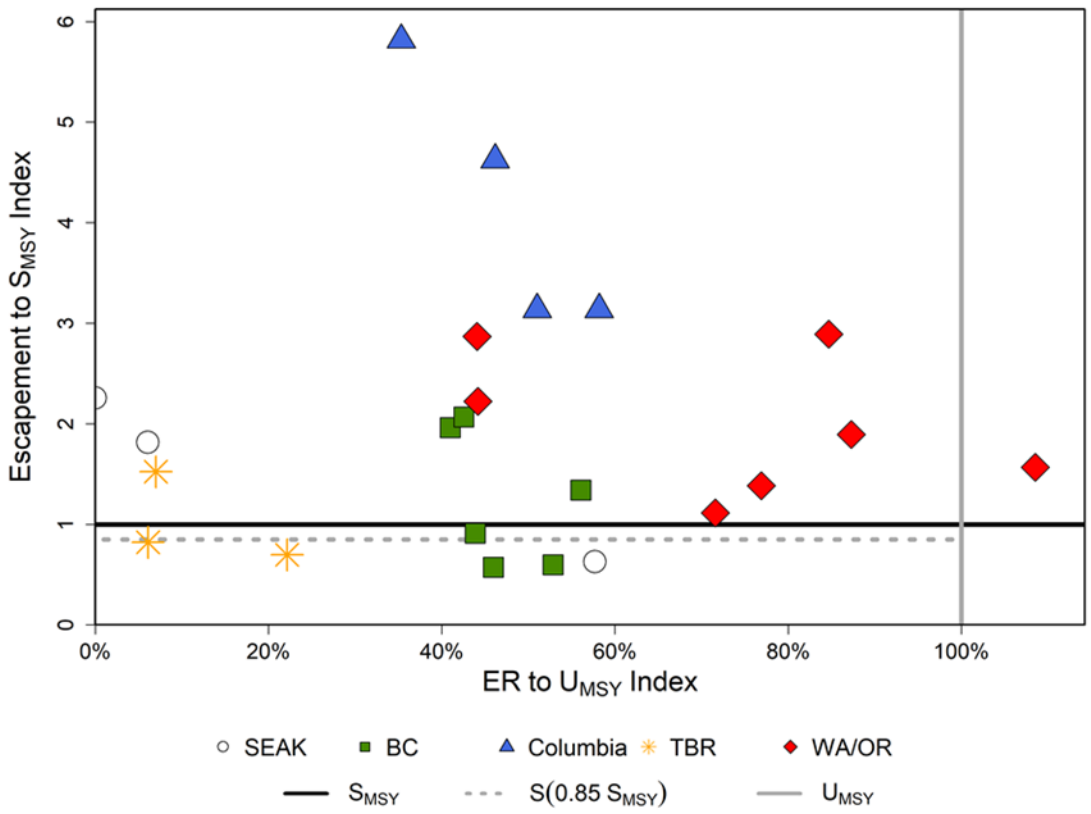
From 1999 to 2021, the percentage of stocks that met or exceeded escapement goals or goal ranges has varied from 41% to 96% (see figure below). In 2021, the percentage of stocks that met or exceeded goal was 58%. Of the 10 stocks below goal, five were within 85% of their escapement objective (Atnarko, Skagit summer/fall, Hoh spring/summer, Grays Harbor fall, and Nehalem) and five stocks were more than 15% below their escapement objective (Taku, Stikine, Harrison, Queets spring/summer, and Siuslaw).



Number and status of stocks with PSC-agreed escapement goals, 1999–2021.

Note: The Keta, Blossom, and King Salmon rivers and Andrews Creek stocks were dropped as escapement indicator stocks in 2013 and Grays Harbor fall was added in 2014. In 2019, the Deschutes and Chickamin rivers stocks were dropped and the Atnarko, Lower Shuswap. Skagit spring, and Skagit summer/fall stocks were added bringing the total number of current indicator stocks with PSC-agreed escapement goals to 24 (the 22 stocks with management objectives identified in Attachment I to Chapter 3 of the 2019 PST agreement, in addition to Hoh spring/summer and Queets spring/summer).

Section 3 presents a synoptic evaluation of stock status that summarizes the performance relative to established goals over time for many of the escapement indicator stocks. This evaluation draws upon catch information (Section 1), escapement information (Section 2), and exploitation rates to evaluate the status of stocks. Synoptic plots present both the current status of stocks and the history of the stocks relative to PST management objectives; this information summarizes the performance of fisheries management relative to stocks achieving established or potential goals. The synoptic summary figure below shows that, of the 22 stocks with 2020 data and biological reference points, 16 of the stocks were in the safe zone (exploitation below U_{MSY} and escapement above S_{MSY}). No stocks were in the high-risk zone. One stock, Kitsumkalum, was in the buffer zone. Five stocks were in the low escapement and low exploitation zone: Taku, Stikine, Unuk, Nicola, and Harrison. One stock, Grays Harbor Fall experienced exploitation above U_{MSY} with escapements exceeding S_{MSY}.



Synoptic summary by region of stock status for stocks with escapement and exploitation rate data in 2020 (escapement and exploitation rate data for each stock was standardized to the stock-specific escapement goal and UMSY reference points).

Note: SEAK = Southeast Alaska, BC = British Columbia, TBR = Transboundary Rivers, WA/OR = Washington/Oregon, ER = exploitation rate, UMSY = exploitation rate at maximum sustainable yield, SMSY = escapement producing maximum sustainable yield.

Note: Note one stock, Columbia River Upriver Brights, appears twice in the figure because there are two exploitation rate indicator stocks (URB and HAN) listed in Attachment I.

2022 PSC CHINOOK MODEL CALIBRATION

TCCHINOOK 22-05, OCTOBER 2022

The 2019 Pacific Salmon Treaty (PST) Agreement requires the Chinook Technical Committee (CTC) to annually report catch and escapement data and modeling results used to manage Chinook salmon fisheries and stocks harvested within the Treaty area (PST 2020). This report provides an overview of the annual Pacific Salmon Commission (PSC) Chinook Model calibration process and results, including post-season abundance indices (AIs) through 2021 and pre-season AIs through 2022 used for the management of aggregate abundance-based management (AABM) fisheries. Also included is an initial evaluation of AABM fishery performance as it relates to the terms of the 2019 PST Agreement, in addition to evaluations of model performance such as model error, stock composition of AIs, fishery indices, and stock forecasts of escapement or terminal run used as inputs to the PSC Chinook Model. The 2019 PST Agreement applies to all analyses and model calibration results for 2019 through 2028.

Aggregate Abundance-Based Management Abundance Indices and Associated Catches

Paragraphs 6(a) and (b) of the 2019 PST Agreement define abundance-based annual catch limits (ACLs) for the three AABM fisheries: Southeast Alaska (SEAK), Northern British Columbia (NBC), and West Coast Vancouver Island (WCVI). Each year, the annual PSC Chinook Model calibration provides the post-season AIs for the previous year and the pre-season AIs for the current year. Pre-season AIs are used to determine the ACLs in the upcoming fishing season for the NBC and WCVI AABM fisheries corresponding to Table 1 of Chapter 3 of the PST. The pre-season ACL for the SEAK AABM fishery is determined by the SEAK early winter District 113 troll fishery catch per unit effort (CPUE) metric. Per paragraph 6(a), "*annual catch limits are specified in Table 1 (catch limits specified at levels of the Chinook abundance index)*" based on annual calibrations of the PSC Chinook Model and "*Table 2 (catch limits for the SEAK AABM fishery and the catch per unit effort (CPUE)-based tiers), unless otherwise specified by the Commission*".

Catch overages and underages in AABM fisheries are tracked relative to pre-season AIs (or CPUE metrics) and post-season AIs and their associated ACLs. Any overages relative to the pre-season ACLs must be paid back in the subsequent fishing year, per 2019 PST Agreement subparagraph 6(h)(i). If overages are observed in two successive years relative to post-season ACLs, then the PSC will request that the management entity responsible for the affected AABM fishery take steps to reduce the variance between the pre-season and post-season ACLs per subparagraph 7(b)(i) and the CTC must recommend a plan to the PSC to "*improve the performance of pre-season, in-season, and other management tools so that the deviations between the catches and post-season fishery limits to AABM fisheries are narrowed to a maximum level of 10%"* per subparagraph 7(b)(ii).

Abundance Indices for 2020–2022 for the Southeast Alaska (SEAK), Northern British Columbia (NBC), and West Coast Vancouver Island (WCVI) aggregate abundance-based management (AABM) fisheries. Post-season Indices for each year are from the first post-season calibration following the fishing year. Per paragraph 6(b) of the 2019 Pacific Salmon Treaty (PST)

Agreement, SEAK annual catch limits are set based on a catch per unit effort (CPUE) statistic, which is provided in parentheses following the abundance index (AI).

	SEAK		NBC		WCVI	
Year	**Pre-season**	**Post-season**	**Pre-season**	**Post-season**	**Pre-season**	**Post-season**
2020[1]	1.13 (4.83)	1.11	1.08	1.16	0.75	0.67
2021	1.28 (3.85)	1.23	1.27	1.21	0.76	0.73
2022	1.16 (7.02)		1.17		0.88	

[1] Pre-season AIs are from CLB 2002 (Phase II model configuration). During the 2021 Calibration process, an error was identified in some of the maturation rates used as inputs to CLB 2002. These errors were corrected in CLB 2003, which yielded 2020 pre-season AIs of 1.02, 1.00, and 0.69 for SEAK, NBC, and WCVI, respectively.

The pre-season and post-season Treaty catch limits by fishery for each year and actual Treaty catches (total catch minus any hatchery add-on and exclusion catch) are shown for AABM fisheries for 2020–2022 in the table below.

Pre-season annual catch limits (ACLs) (2020–2022), and post-season ACLs and actual catches (2020–2021) for aggregate abundance-based management (AABM) fisheries. Post-season values for each year are based on abundance indices (AIs) from the first post-season calibration following the fishing year.

Year	SEAK (Troll, Net, Sport)			NBC (Troll, Sport)			WCVI (Troll, Sport)		
	Pre-season ACL[1]	Post-season ACL	Actual Catch	Pre-season ACL	Post-season ACL	Actual Catch	Pre-season ACL	Post-season ACL	Actual Catch
2020	205,165	140,323	204,624	133,000	141,700	36,183	87,000	78,500	43,581
2021	205,165	140,323	202,082	153,800	147,200	90,987	88,000	84,800	75,776
2022	266,585			142,800			100,700		

[1] Per paragraph 6(b) of the 2019 PST Agreement, this number represents the ACL based on a CPUE statistic.

Overages and underages in AABM fishery catches, relative to pre-season and post-season ACLs for a fishing year, can occur due to the operation of the in-season management system referred to herein as management error, errors in the pre-season calibration process (e.g., forecast error) or CPUE statistic referred to as model error, or a combination of the two referred to as composite error. The relative influence of each was evaluated by inspecting differences in actual landed catch and the pre- and post-season ACLs, as shown in the table below. In 2021, actual landed catch was less than the pre-season ACL by 3,083 fish (2%) in SEAK, 62,813 fish (41%) in NBC, and 12,224 fish (14%) in WCVI due to in-season management; thus, no payback was necessary for the 2022 fishing season per the terms of subparagraph 6(h)(i) of the 2019 PST Agreement. The lower catches in British Columbia are partly due to reduced effort due to the COVID-19 pandemic[4], where travel restrictions and lodge closures resulted in significantly reduced catch estimates for NBC AABM recreational fisheries, and partly due to domestic constraints in both WCVI and NBC troll fisheries to protect stocks of concern such as Fraser Chinook.

In terms of the post-season ACLs for evaluation of the provisions of paragraph 7(b), 2021 actual catches were more than the post-season ACLs by 61,759 fish in SEAK (44%), and less than post-season ACLs by 56,213 (38%) in NBC and 9,024 (11%) in WCVI.

For the SEAK AABM fishery in 2020, both the pre-season ACL and the observed catch exceeded the post-season ACL. Similarly, in 2021, both the pre-season ACL and the observed catch exceeded the post-season ACL. As a result, in the SEAK AABM fishery there have now been two consecutive years where the pre-season ACL and the observed catch exceeded the post-season ACL. Per the provisions of the 2019 PST Agreement this requires further action, as identified in subparagraphs 7(b)(i) and 7(b)(ii).

For the NBC AABM fishery, the observed catch was 25% and 62% of the post-season ACL in 2020 and 2021, respectively. Since neither of these is greater than 110%, this does not require any further action regarding the NBC AABM fishery per subparagraphs 7(b)(i) and 7(b)(ii).

For the WCVI AABM fishery, the observed catch was 56% and 89% of the post-season ACL in 2020 and 2021, respectively. Since neither of these is greater than 110%, this does not require any further action regarding the WCVI AABM fishery per subparagraphs 7(b)(i) and 7(b).

[4] Chinook Technical Committee. (January 6, 2022). *COVID-19 Impacts on Chapter 3 of the Pacific Salmon Treaty in 2020 and 2021* [Memorandum]. Pacific Salmon Commission.

Summary of aggregate abundance-based management (AABM) fishery performance and deviations between pre- and post-season annual catch limits (ACLs) and actual catches for Southeast Alaska (SEAK), Northern British Columbia (NBC), and West Coast Vancouver Island (WCVI), 2020–2021.

Positive values indicate an overage and negative values indicate an underage. Colored cells indicate AABM fishery performance relative to Treaty obligations; cells shaded green indicate where a fishery met Treaty obligations and red cells indicate where a fishery exceeded Treaty obligations.

	Management Error Actual – Pre ACL		Model Error Pre ACL – Post ACL		Composite Error Actual – Post ACL	
Year	#	%	#	%	#	%
SEAK (Troll, Net, Sport)						
2020	-541	0%	64,842	46%	64,301	46%
2021	-3,083	-2%	64,842	46%	61,759	44%
NBC (Troll, Sport)						
2020	-96,817	-73%	-8,700	-6%	-105,597	-75%
2021	-62,813	-41%	6,600	4%	-56,213	-38%
WCVI (Troll, Sport)						
2020	-43,419	-50%	8,500	11%	-34,919	-44%
2021	-12,224	-14%	3,200	4%	-9,024	-11%

2022 EXPLOITATION RATE ANALYSIS

TCCHINOOK 23-01, JANUARY 2023

Chapter 3 of the 2019 Pacific Salmon Treaty (PST) Agreement (PST 2020) requires the Chinook Technical Committee (CTC) to report annual catches, harvest rate indices, estimates of incidental mortality (IM) and exploitation rates for all Chinook salmon fisheries and stocks harvested within the Treaty area. The CTC provides annual reports to the Pacific Salmon Commission (PSC) to fulfill this obligation, as agreed by Canada and the United States (U.S.) under Chapter 3 of the Treaty. This report contains five sections: an introduction and description of the Chapter 3 2019 PST Agreement requirements related to the annual exploitation rate analysis (ERA) based on coded-wire tag (CWT) data; a review of the ERA methods; a review of the results from the annual ERA; a performance evaluation of individual stock-based management (ISBM) fisheries; and CWT analyses for mark-selective fisheries (MSFs). This report includes the results of the 2022 annual ERA using CWT data through 2020 for Southern U.S. stocks and 2021 for Alaskan and Canadian stocks.

Exploitation Rate Analysis

The CTC currently monitors 45 CWT ERA stocks, of which 31 are listed in Attachment I as calendar year exploitation rate (CYER) indicators of ISBM fishery performance. The ERA relies on cohort analysis of CWT recoveries, a procedure that reconstructs the cohort size and exploitation history of a given stock and brood year (BY) using representative CWT data as a proxy (CTC 1988). The ERA provides brood- and stock-specific estimates of total, age- and fishery-specific exploitation rates, maturation rates, smolt to age-2 or age-3 survival rates, annual distributions of fishery mortalities used to compute CYERs, and fishery indices for aggregate abundance-based (AABM) fisheries.

Estimates of age- and fishery-specific exploitation and maturation rates and adult equivalent estimates from the ERA are combined with data on catches, escapements, and incidental mortalities to complete the annual calibration of the PSC Chinook Model.

Section 3 of this report provides:

1) calendar year (CY) percent distribution of the total mortality that accrued to escapement, based on CWT data (this is not a measure of performance for the escapement indicator stock(s) represented by the CWT indicator) (Appendix C).
2) brood year exploitation rates (BYERs) based on total mortality (catch plus incidental mortality) of complete broods (Appendix D), and
3) cohort survival rates, calculated to age 2 for stocks that are released usually in the spring following spawning (subyearlings, or ocean type), and to age 3 for stocks that are released in the spring in the year after spawning (yearlings or stream type) (Appendix E).

The most recent calendar year for percent distribution of total mortality in escapement is 2020 for Southern U.S. stocks and 2021 for Alaskan and Canadian stocks. However, because BYERs and survival rates use data for a fully returned cohort of fish, the most recent brood year of data reported for those statistics varies according to regional data availability and life history (yearling vs. subyearling).

Coastwide, BYERs generally showed decreases compared to the long-term means. In Alaska, including transboundary rivers, all stocks showed a decrease in BYERs except for Northern Southeast Alaska Spring. In Canada, all stocks showed a decrease, with the exception of Nicola River Spring. In the Southern U.S., a majority of stocks showed a decrease in BYERs. Some exceptions included Lewis River Wild, Queets Fall Fingerling, and Hoko Fall Fingerling.

With regards to survival rates, changes compared to the long-term means were highly variable. In Alaska, including transboundary rivers, all stocks showed decreases in survival compared to the long-term means. The largest decreases in survival rates were for Southern Southeast Alaska Spring and Northern Southeast Alaska Spring. Just over half of the Canadian stocks showed increases in survival. The highest percent changes in survival rates compared to the long-term mean were for Phillips River Fall, Chilliwack River Fall and Lower Shuswap River Summer. In the Southern U.S., just over half of the stocks showed decreases in survival compared to the long-term means. There were both large percent increases and decreases in survival in this region. The largest increases were for George Adams Fall Fingerling, Tsoo-Yess Fall Fingerling, and Elwha River, while the largest decrease was for Salmon River.

Coastwide, CYERs generally showed increases compared to the long-term means. In Alaska, including transboundary rivers, Northern Southeast Alaska Spring was the only stock that showed a decrease in CYER compared to the long-term mean. In Canada, the exceptions included Robertson Creek Fall, Big Qualicum River Fall and Quinsam River Fall which showed decreases compared to the long-term means. In the Southern U.S., the following stocks showed decreases in CYERs compared to the long-term means: Hoko Fall Fingerling, Queets Fall Fingerling, George Adams Fall Fingerling, and Skagit Spring Fingerling.

Summary of statistics generated by the 2022 exploitation rate analysis. Statistics include brood year exploitation rates (BYERs), cohort survival rates (age 2 or 3), and calendar year (CY) percent distribution of total mortality in escapement for 2021 (in Alaska [Panel A] and Canada [Panel B]) and 2020 (in Southern U.S. stocks [Panel C]). For each statistic, the values are heat mapped, with low to high BYERs ranging from green to red, respectively, and low to high survival rates and % to escapement ranging from red to green, respectively.

Relative changes between the longer-term averages and last full broods (or all years available since 2019 in the case of % to escapement) are shown by tertile class symbols, where red diamonds indicate the largest relative increases for BYERs, and largest relative decreases for survival rates and % to escapement, yellow triangles indicate intermediate changes, and green circles indicate the largest relative decreases for BYERs, and largest relative increases for survival rates and % escapement.

A) Southeast Alaska and Transboundary Stocks

Region	Indicator Stock ID/Name		BYER (total mortality)			Age 2 or 3 Survival Rate			Calendar Year % Escapement		
			Mean	Last Full Brood[1]	Points Change	Mean	Last Full Brood[1]	% Change	Mean % 2009-18	Mean % Points 2019-Last	Change
SEAK /TBR	SSA	Southern SEAK Spring[3]	39%	27%	-12	8.1%	2.1%	-74%	51%	67%	16
	NSA	Northern SEAK Spring[3]	36%	63%	27	5.5%	1.6%	-71%	54%	43%	-11
	CHK	Chilkat River	16%	4%	-12	8.4%	7.3%	-13%	85%	98%	13
	STI	Stikine River	34%	6%	-28	4.2%	2.6%	-37%	73%	89%	16
	TAK	Taku River	16%	3%	-13	7.9%	3.6%	-55%	82%	95%	13
	TST	Taku and Stikine Rivers	20%	4%		7.3%	3.2%		76%	93%	
	UNU	Unuk River	29%	16%		7.0%	2.8%		65%	80%	

B) Canadian Stocks

Region	Indicator Stock ID/Name		BYER (total mortality)			Age 2 or 3 Survival Rate			Calendar Year % Escapement		
			Mean	Last Full Brood[1]	Points Change	Mean	Last Full Brood[1]	% Change	Mean % 2009-18	Mean % Points 2019-Last	Change
Northern BC	KLM	Kitsumkalum	45%	28%	-17	0.8%	0.9%	18%	61%	71%	10
	ATN	Atnarko	39%	28%	-11	2.2%	1.4%	-36%	59%	69%	10
WCVI	RBT	Robertson Creek Fall[2,3]	42%	25%	-17	4.6%	5.2%	14%	45%	27%	-18
Strait of Georgia	BQR	Big Qualicum River Fall	57%	46%	-17	2.1%	1.2%	-45%	58%	53%	-5
	COW	Cowichan River Fall	66%	53%	-11	1.8%	1.1%	-36%	37%	62%	25
	PPS	Puntledge River Summer	50%	41%	-13	1.2%	0.8%	-34%	62%	71%	9
	QUI	Quinsam River Fall	54%	43%	-9	2.0%	0.9%	-53%	58%	53%	-5
	PHI	Phillips River Fall	28%	22%	-11	4.5%	7.3%	62%	69%	76%	7
Fraser	CHI	Chilliwack River Fall	40%	23%	-6	11.6%	15.7%	35%	69%	72%	3
	HAR	Harrison River	45%	22%	-17	3.4%	4.1%		74%	76%	
	NIC	Nicola River Spring	26%	34%		2.8%	3.1%		78%	87%	
	SHU	Lower Shuswap R Summer	51%	23%		2.9%	4.0%		56%	77%	

C) Southern U.S. Stocks

Region	Indicator Stock ID/Name		BYER (total mortality)			Age 2 or 3 Survival Rate			Calendar Year % Escapement		
			Mean	Last Full Brood[1]	Points Change	Mean	Last Full Brood[1]	% Change	Mean % 2009-18	Mean % 2019-Last	Points Change
WA Coast	HOK	Hoko Fall Fingerling	34%	44%	10	1.4%	2.0%	46%	69%	45%	-24
	QUE	Queets Fall Fingerling	59%	72%		2.6%	2.0%		38%	28%	
	SOO	Tsoo-Yess Fall Fingerling	37%	32%	13	0.6%	1.2%	-20%	72%	77%	-10
	ELW	Elwha River[3]	56%	25%	-5	0.7%	1.4%	97%	64%	76%	5
Puget Sound	NSF	Nooksack Spring Fingerling[3]	40%	26%	-31	1.5%	1.9%	96%	56%	59%	12
	SAM	Samish Fall Fingerling[3]	43%	40%		2.5%	1.4%		29%	30%	
	SKF	Skagit Spring Fingerling[3]	28%	25%	-14	1.6%	1.5%	28%	58%	56%	3
	SSF	Skagit Summer Fingerling[3]	35%	31%	-3	1.2%	2.0%	-43%	47%	74%	1
	STL	Stillaguamish Fall Fingerling[3]	47%	29%	-3	1.7%	1.4%	-3%	52%	63%	-2
	SKY	Skykomish Fall Fingerling[3]	33%	19%	-4	1.1%	1.1%	60%	66%	75%	27
	SPS	South Puget Sound Fall Fingerling[3]	47%	34%		2.3%	2.7%		59%	60%	
	NIS	Nisqually Fall Fingerling[3]	42%	33%	-18	1.8%	2.5%	-20%	47%	48%	11
	GAD	George Adams Fall Fingerling[3]	46%	26%	-14	1.8%	4.8%	0%	46%	31%	9
Columbia River	CWF	Cowlitz Fall Tule[3]	36%	17%	-13	0.7%	0.1%	14%	67%	82%	1
	HAN	Hanford Wild Brights	50%	41%		1.4%	0.2%		44%	67%	
	LRH	Lower River Hatchery Tule	59%	62%	-9	1.1%	0.8%	45%	36%	49%	1
	LRW	Lewis River Wild	44%	58%	-20	2.0%	1.7%	171%	48%	56%	-15
	LYF	Lyons Ferry Fingerling	35%	41%		2.2%	0.6%		64%	73%	
	LYY	Lyons Ferry Yearling	47%	54%	-19	4.4%	3.8%	-83%	48%	49%	15
	SMK	Similkameen Summer Yearling	34%	25%	-9	4.9%	5.7%	-83%	55%	79%	23
	SPR	Spring Creek Tule	72%	66%		2.0%	1.1%		29%	41%	
	SUM	Columbia River Summers	50%	14%	3	1.8%	1.9%	-25%	49%	77%	13
	URB	Columbia Upriver Bright	51%	37%	14	2.2%	0.8%	-13%	53%	67%	8
	WSH	Willamette Spring[3]	12%	7%	6	2.8%	1.9%	-72%	56%	76%	9
Oregon Coast	ELK	Elk River[3]	22%	29%	7	7.7%	3.2%	-14%	52%	56%	1
	SRH	Salmon River[3]	37%	39%		6.4%	0.5%		44%	52%	

[1] For 2022, the most recent brood is 2016 for subyearling stocks in Canada, and 2015 for yearling stocks in Alaska and Canada (KLM, NIC) and all stocks in the southern US, except LYY and WSH yearlings (2014).

[2] BYER is ocean exploitation rate only to better represent natural spawner BYER in the presence of terminal fisheries targeting hatchery fish.

[3] Terminal adjustments to CYER applied because fishing mortality on hatchery fish does not represent fishing mortality on wild fish.

Performance Under the 2019 PST Agreement

Implementation of the newly revised PST Agreement began with fishing year 2019. Attachment I of Chapter 3 identifies CYER limits applicable to ISBM obligations for 31 stocks; of these, CYER limits apply to 17 stocks for Canadian ISBM fisheries and to 22 stocks for U.S. ISBM fisheries.

Sixteen of the Attachment I indicator stocks have management objectives[5]. The CTC has evaluated status towards achieving PSC-agreed management objectives for the 16 stocks in Attachment I with identified management objectives for which CYER limits are applicable (CTC 2020). In 2020, only Harrison was at less than 85% of its escapement goal. Thus, for stocks with management objectives, annual CYER limits only applied to Harrison for 2020 as per paragraph 5(a).

Relative to Canadian ISBM fisheries performance for 2020, annual ISBM obligations were met for 11 of the 15 stocks that could be evaluated; 5 that met their management objectives and thus had no applicable CYER limits,

[5] Attachment I of the 2019 PST Agreement has a total of 38 stocks of which 31 are subject to ISBM obligations. There are currently 22 stocks with management objectives and 16 of those are subject to ISBM obligations.

and 6 with CYERs that were below the applicable limits. Annual CYER obligations were not met for 4 stocks—Nicola, Harrison, Nooksack Spring[6], and Snohomish.

Relative to U.S. ISBM fisheries performance for 2020, annual ISBM obligations were met for 20 of the 22 stocks listed in Attachment I; 13 that met their management objectives and thus had no applicable CYER limits, and 7 that had CYERs that were below the applicable limits. Annual CYER obligations were not met for Nooksack Spring3 and South Umpqua.

For each escapement indicator stock identified in Attachment I, the CTC will begin reporting the running 3-year average CYER when data from catch years 2019–2021 are available from both Parties' ISBM fisheries (Footnote 17, 2019 PST Agreement). For Attachment I indicator stocks with a management objective, three years of CYERs that meet the criteria for inclusion specified in paragraph 7(c) will be used to calculate the running 3-year average CYER for the upcoming 2023 exploitation rate analysis report as agreed to by the PSC. The Chinook Interface Group (CIG) will return to the discussion of options and how to deal with years with missing data for future years and make a recommendation to the PSC.

[6] The Southern U.S. co-managers are investigating spawning ground escapement tag recoveries which may have been missing from 2017-2020 (2022 ERA) and the potential effects of regulatory changes since 2013 (mark-selective fishing).

Review of performance in the Pacific Salmon Treaty Individual Stock-Based Management (ISBM) fisheries, 2020. NA indicates the obligation does not exist for that stock and country combination.

Attachment I Escapement Indicator Stock	Canadian Obligation Met?	U.S. Obligation Met?
Skeena	Yes	NA
Atnarko	Yes	NA
NWVI Natural Aggregate	Yes	NA
SWVI Natural Aggregate	Yes	NA
East Vancouver Island North	Yes	NA
Phillips	Yes	NA
Cowichan	Yes	Yes
Nicola	No	Yes
Chilcotin	NA	NA
Chilko	NA	NA
Lower Shuswap	Yes	NA
Harrison	No	Yes
Nooksack Spring	No	No
Skagit Spring	Yes	Yes
Skagit Summer/Fall	Yes	Yes
Stillaguamish	Yes	Yes
Snohomish	No	Yes
Hoko	NA	Yes
Grays Harbor Fall	NA	Yes
Queets Fall	NA	Yes
Quillayute Fall	NA	Yes
Hoh Fall	NA	Yes
Upriver Brights	NA	Yes
Lewis River Fall	NA	Yes
Coweeman	NA	Yes
Mid-Columbia Summers	NA	Yes
Nehalem	NA	Yes
Siletz	NA	Yes
Siuslaw	NA	Yes
South Umpqua	NA	No
Coquille	NA	Yes

Mark-Selective Fisheries

Section 5 of this report contains harvest information by region from MSFs. MSFs occurred along the Oregon Coast, Washington Coast, and in the Columbia River, Puget Sound, and Canadian Strait of Juan de Fuca in 2020. The magnitude of impact of a MSF relative to the total exploitation of a stock can be measured using the percentage of the total landed catch in net, sport, and troll fisheries of tagged and marked PSC indicator stocks that occurs in MSFs.

Traditionally, the CTC has used PSC indicator stocks that have been double index tagged (DIT) to evaluate the impact of MSFs on the unmarked stocks represented by the unmarked tag group in a DIT pair[7]; however, many CWT indicator stocks do not have a DIT pair. Additionally, coastwide application of electronic tag detection (ETD) and the associated recovery of DIT releases is inconsistent. Accordingly, an approach was applied to estimate mortality distributions for natural stocks that have single index tag (SIT) indicator stocks under conditions where the MSF impacts mainly occur on mature SIT fish proximal to their terminal area. Under MSFs, marked CWT release groups experience different patterns of fishing mortality than unmarked fish. In the future, if MSFs for Chinook become more widely employed, estimation procedures and reporting for marked and unmarked fish for purposes of the ERA—including estimates of BYERs, CYERs, and fishery indices, models and analytical methods—will need to be changed substantially.

JOINT CHUM TECHNICAL COMMITTEE

No reports were finalized for publication during this reporting period.

JOINT COHO TECHNICAL COMMITTEE

No reports were finalized for publication during this reporting period.

[7] A DIT group consists of at least two paired CWT release groups, one with the mass mark (or adipose fin clip) and one without the mark. These 2 tag groups are supposed to be identical except for the mark, and differences in recoveries at escapement are assumed to be due to the MSFs—assuming there is no mark induced mortality occurring prior to recruitment to the fisheries.

JOINT NORTHERN BOUNDARY TECHNICAL COMMITTEE

U.S./CANADA NORTHERN BOUNDARY AREA 2019 SALMON FISHERIES MANAGEMENT REPORT AND 2020 PRELIMINARY EXPECTATIONS

TCNB 22-01, APRIL 2022

This report reviews:

1) catch, effort, and management actions in the 2019 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 Pacific Salmon Treaty requirements for sockeye and pink salmon;
3) preliminary expectations and fishing plans for 2020.

2019 FISHERIES

Pink salmon returns were below average throughout Southeast Alaska and the southern Southeast Alaska pink salmon harvest was 18 million (Districts 101-108, all harvest codes, all gear), which was 90% of the recent ten-year average. For all Southeast Alaska, excluding the Yakutat area, the pink salmon harvest was 21.2 million fish, which was very close to the preseason forecast point estimate of 18 million, and within the 15-26 million 80% confidence interval range of the forecast.

The total 2019 Southeast Alaska pink salmon escapement index of 8.81 million index fish ranked 33rd since 1960. Biological escapement goals were met in the Southern Southeast and Northern Southeast Outside subregions, but escapement to the Northern Southeast Inside Subregion was below goal in 2019 (Table 5). On a finer scale, escapements were within or above management targets for 9 of 15 districts in the region and for 27 of the 46 pink salmon stock groups in Southeast Alaska. The Southern Southeast Subregion includes all the area from Sumner Strait south to Dixon Entrance (Districts 101–108). The escapement index value of 5.63 million was within the escapement goal range of 3.0 to 8.0 million index fish.

Sockeye salmon harvests in the Alaska boundary area were well below the 1985–2018 average in the District 101–104 traditional purse seine fisheries, and in the District 101 drift gillnet fishery. The Hugh Smith Lake adult sockeye salmon escapement was 2,241, which was well below the optimal escapement goal range of 8,000 to 18,000 adult sockeye salmon. Based on the expanded peak foot survey count, the escapement of sockeye salmon into McDonald Lake was only 24,200 fish, which was below the sustainable escapement goal range of 55,000 to 120,000.

Summer chum salmon harvests in the Alaska boundary area were below the 1985–2018 average in the District 101, 102, and 104 traditional purse seine fisheries and the District 101 drift gillnet fishery. Harvests were slightly above average in the District 103 purse seine fishery. The Southern Southeast chum salmon stock group is composed of an aggregate of 15 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 62,000 index spawners (based on the aggregate peak survey to all 15 streams). Summer chum salmon escapements were near or above average at most index streams in southern Southeast Alaska, and the index of 105,000 in 2019 was above goal.

Coho salmon harvests in the Alaska boundary area were below average in the District 101–104 traditional purse seine fisheries and the District 101 drift gillnet fishery. Coho salmon escapement counts and estimates in

southern Southeast Alaska were within goal ranges. The combined peak count of 7,915 coho salmon in the 14 surveyed streams in the Ketchikan survey index was within the escapement goal of 4,250–8,500 fish. The total escapement of 1,235 coho salmon to Hugh Smith Lake was within the biological escapement goal range of 500–1,600 fish.

In Canadian Area 1, there are no longer commercial net interception fisheries on passing salmon stocks. Area 1 pinks are primarily an even year stock, with little to no return expected in odd years. As expected, there were no harvestable surpluses of pink salmon identified in 2019. In addition, no chum salmon surpluses were identified in-season. As such, no terminal chum-directed gillnet or seine fisheries occurred in 2019. In 2019, the provision to shut down the coho fishery on both sides of the border for 10 days in response to poor CPUE as outlined in Chapter 7 of the PST was implemented. CPUE in the Area 1/101 troll fishery were slightly above the previous decadal average for coho salmon at the beginning of the fishing season but fell well below the average upon reopening after the 10-day closure in August. Total catch of coho was comparable to that in the previous year.

The Area 3 commercial net fishery anticipated a harvestable surplus of 177,000 Nass sockeye salmon, along with seine opportunities to harvest surpluses associated with a dominant year pink salmon return. With the decreasing trend in Area 3/Nass coho salmon abundance, coho retention was not permitted throughout the fishing season. Specific measures continue to be in place to rebuild local wild chum and Chinook salmon populations, including time and area closures and retention restrictions.

Sockeye salmon catches were poor from the beginning of the season in Area 3, with CPUEs well below average. Catches of sockeye at the Nass Fishwheels indicated that the Nass sockeye return was weaker than the pre-season prediction. Gillnets last fished Area 3 on July 16, while seines continued fishing for pink salmon with a non-possession/non-retention restriction in place. The gillnet fleet harvested 19,785 sockeye in 2019, while seines delivered only 321 sockeye. Pink salmon catches were well above average in Area 3 for seines, with a total harvest of 36,654 pinks, compared to the previous odd-year decadal average of 820,000. Due to the closure of gillnets after the Kwinageese closure period, the harvest of pinks by gillnets was minimal at 19,522 fish.

The Area 4 net fishery was planned in anticipation of a commercial sockeye salmon surplus of 700,000. Sockeye escapement past the Skeena Tyee test fishery did not meet commercial triggers; subsequently, there were no commercial gillnet or seine openings targeting Skeena Chinook salmon in 2019.

Area 5 did not open to commercial net fishing in 2019 due to lack of identified harvestable Skeena sockeye salmon.

The post-season sockeye salmon net escapement estimate of 245,476 to the Nass exceeded the escapement target of 200,000 and is slightly below the 2000–2018 average of 246,000. The preliminary Skeena sockeye salmon net escapement estimate of 570,999 was much lower than the average, and well below the target escapement of 900,000. Pink salmon returns throughout the North Coast were much lower than historical averages, based on brood year strength, and it is likely that escapement goals were not met in many cases. Chum salmon escapements in Area 4 have been improving with the added protection provided by management actions, though remain below escapement targets. Escapements to Area 3 continue to improve with management measures in place to reduce impacts to wild chum continued in 2016 as part of the north coast chum rebuilding program.

MANAGEMENT PERFORMANCE

Pacific Salmon Treaty based harvest sharing agreements were renewed in 2019 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. Harvests over or under the AAH are summed over the period of the agreement to allow for annual variation.

In Alaska's District 104 purse seine fishery, the Nass and Skeena sockeye salmon run size determines the AAH of these stocks prior to Statistical Week 31. In Alaska's District 101 gillnet fishery, the AAH is based solely on the run size of Nass River sockeye salmon. 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. The agreement specifies a harvest in the District 104 purse seine fishery, from the beginning of the season through Statistical Week 30, of 2.45% of the combined AAH of both the Nass and Skeena River sockeye salmon runs. The District 104 purse seine fishery opens by regulation on the first Sunday in July. In 2019, the first potential opening was July 7 (week 28). The pre-week 31 fishing plan for District 104 was based on the preseason Canadian Department of Fisheries and Oceans (DFO) forecast returns of approximately 2.33 million Nass and Skeena sockeye salmon.

In the 2019 Treaty period (Alaska statistical weeks 28-30), 9,399 sockeye salmon were harvested during a 12-hour opening in Week 28 and a 12-hour and a 10-hour opening in week 29 (Table 4). The fishery was closed in week 30 due to Skeena River sockeye salmon concerns. A total of 36 purse seine vessels fished at some time during the Treaty period. In past years, 60% to 80% of Treaty-period sockeye salmon have been of Nass and Skeena origin, therefore we would anticipate between 5,600 and 7,500 Nass and Skeena sockeye may have been harvested in the District 104 purse seine fishery during the 2019 Treaty period. The final number of Nass and Skeena sockeye salmon harvested during the Treaty period was 4,450 fish.

In the District 101 (Tree Point) drift gillnet fishery, 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. The agreement specifies a harvest of 13.8 percent of the AAH of the Nass River sockeye salmon run. The return of Nass sockeye salmon was forecast at 456,000 in 2019 which, minus an escapement goal of 200,000, would result in an AAH of about 256,000 fish. Using this forecast, the 2019 allowable harvest in the District 101 drift gillnet fishery was approximately 35,328 Nass River sockeye salmon. A total of 15,987 sockeye salmon were harvested, which was only 14% of the 1985-2018 average of 111,870 fish and was the lowest harvest since the inception of the Pacific Salmon Treaty. In past years approximately 65% of the District 101 gillnet sockeye salmon harvest has been of Nass River origin, therefore we would anticipate that approximately 10,400 Nass River sockeye salmon may have been harvested in the District 101 gillnet fishery in 2019. The final number of Nass River sockeye salmon harvested at Tree Point was 11,269 sockeye salmon.

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June, which was June 16 (week 25) in 2019. 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 2019, Canada was to manage the Area 3-1 to 3-4 net fisheries to achieve an annual catch share of 2.49% of the AAH of Alaskan Districts 101, 102 and 103 pink salmon. With a total return of approximately 26.98 million pinks, the Alaskan Districts 101, 102 and 103 AAH was approximately 16.23 million pinks. The resulting Area 3-1 to 3-4 Canadian commercial net total allowable catch of this AAH was approximately 404,019 pinks of Alaskan Districts 101, 102 and 103 origin.

In the Canadian northern boundary area, pink salmon returns were anticipated to be average to below average for Area 3 and Area 4, based on brood year return strength. Actual returns to Area 3 were below average and well below average for Area 4. The 2019 preliminary Canadian pink salmon catch in Sub-areas 3-1 to 3-4 was 24,251, and the Alaska stock component of this catch is estimated to be 22,964, or 0.14 % of the AAH. This result is below the annex agreement of 2.49%.

Also in 2019, Canada was to manage the Area 1 troll fishery to achieve an annual catch share of 2.57% of the AAH of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of 26.98 million pinks, the resulting Area 1 Canadian commercial troll total allowable catch of this AAH was approximately 417,000 pinks of Alaskan Districts 101, 102 and 103 origin.

The Canadian commercial troll fishery targeting pink salmon was open in the northern portion of Area 1 (Dixon Entrance AB Line) from July 1 to July 26. In response to low CPUE identified by ADFG staff and discussed between Canada and the United States, the fishery was closed for 10 days from July 27 to August 7 in accordance with Attachment B: Management of Northern Boundary Coho of Chapter 7: General Obligations in the Canada US Pacific Salmon Treaty. The fishery continued from July 27 to September 30. Pink retention was also permitted during the Chinook-directed fishery in parts of Area 1, which was open from June 18 to July 31 and from August 25 to September 30. Effort directed at pink salmon in Area 1 was minimal in 2019, with pinks being harvested as by-catch in fisheries directed at coho and Chinook. The fishery harvested a total of 56,182 pink salmon, with an estimated 53,950 being of Alaskan origin. This equates to 0.33% of the Alaskan Districts 101, 102 and 103 pink AAH, well below the annex agreement of 2.57%.

2020 FORECASTS

The Southeast Alaska pink salmon harvest in 2020 is predicted to be in the weak range, with a point estimate of 12 million fish (80% prediction interval: 7–19 million fish). An actual harvest of 12 million pink salmon would be approximately a third of the recent 10-year average harvest of 35 million pink salmon. The harvest forecast was primarily based on juvenile pink salmon abundance indices collected by the NOAA/ADF&G Southeast Coastal Monitoring Project in northern Southeast Alaska inside waters during June and July. A multiple regression model was developed, using monthly peak juvenile CPUE (standardized catch based on 20-minute trawl sets) for the June and July surveys and an Icy Strait Temperature Index.

A below average Nass River sockeye salmon total return of 386,000 (with a 10% probability of the return exceeding 596,000 and a 90% probability the return will exceed 181,000) is expected. The sibling model forecast predicts a 50% probability of approximately 875,000 sockeye salmon returning to the Skeena River in 2020 with a 10% probability of a return exceeding 2.6 million and a 90% probability the return would exceed 668,000. Below average pink salmon returns are anticipated to Areas 3, 4 and 5, based on brood year escapements, while Area 1 pinks will experience a dominant year.

U.S./CANADA NORTHERN BOUNDARY AREA 2020 SALMON FISHERIES MANAGEMENT REPORT AND 2021 PRELIMINARY EXPECTATIONS

TCNB 22-02, SEPTEMBER 2022

This report reviews:

1) catch, effort, and management actions in the 2020 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 Pacific Salmon Treaty requirements for sockeye and pink salmon;
3) preliminary expectations and fishing plans for 2021.

2020 FISHERIES

Pink salmon returns were below average throughout Southeast Alaska and the southern Southeast Alaska pink salmon harvest was 6.3 million (Districts 101-108, all harvest codes, all gear), which was 33% of the recent ten-year average. For all Southeast Alaska, excluding the Yakutat area, the pink salmon harvest was 8.1 million fish, which was below the preseason forecast point estimate of 12 million, but within the 7-19 million 80% confidence interval range of the forecast.

The total 2020 Southeast Alaska pink salmon escapement index of 9.73 million index fish ranked 32nd since 1960. Biological escapement goals were met in the Southern Southeast and Northern Southeast Outside subregions, but escapement to the Northern Southeast Inside Subregion was below goal in 2020 (Table 5). On a finer scale, escapements were within or above management targets for 10 of 15 districts in the region and for 30 of the 46 pink salmon stock groups in Southeast Alaska. The Southern Southeast Subregion includes all the area from Sumner Strait south to Dixon Entrance (Districts 101–108). The escapement index value of 5.66 million was within the escapement goal range of 3.0 to 8.0 million index fish.

Sockeye salmon harvests in the Alaska boundary area were well below the 1985–2019 average in the District 101–104 traditional purse seine fisheries, and in the District 101 drift gillnet fishery. The Hugh Smith Lake adult sockeye salmon escapement was 3,860 salmon, which was well below the optimal escapement goal range of 8,000 to 18,000 adult sockeye salmon. Based on the expanded peak foot survey count, the escapement of sockeye salmon into McDonald Lake was only 8,200 fish, which was well below the sustainable escapement goal range of 55,000 to 120,000.

Summer chum salmon harvests in the Alaska boundary area were below the 1985–2019 average in the District 101–104 traditional purse seine fisheries and the District 101 drift gillnet fishery. The Southern Southeast chum salmon stock group is composed of an aggregate of 15 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 62,000 index spawners (based on the aggregate peak survey to all 15 streams). Summer chum salmon escapements were below average at most index streams in southern Southeast Alaska, but the index of 70,000 in 2020 was above goal due to a large escapement to the Tombstone River in Portland Canal.

Coho salmon harvests in the Alaska boundary area were below average in the District 101–104 traditional purse seine fisheries and the District 101 drift gillnet fishery. Coho salmon escapement counts and estimates in southern Southeast Alaska were within or above goal ranges. The combined peak count of 8,610 coho salmon in the 14 surveyed streams in the Ketchikan survey index was just above the escapement goal of 4,250–8,500 fish.

The total escapement of 634 coho salmon to Hugh Smith Lake was within the biological escapement goal range of 500–1,600 fish.

The 2020 season was challenging due to the broad impact of the COVID-19 pandemic on all aspects of society, including fisheries and fisheries management. In March, the State of Alaska designated fisheries as critical infrastructure to protect the food supply chain and the economy. The Commissioner of the Alaska Department of Fish and Game (ADF&G) immediately directed staff to develop action plans to safely implement field projects to the extent practicable so that fisheries could be prosecuted with the least amount of disruption. Alaska was able to meet all its PST obligations with respect to data collection inclusive of catch accounting, sampling, escapement monitoring, and hatchery marking and tagging. The State of Alaska does not anticipate any implications for meeting annual Treaty commitments due to the COVID-19 pandemic.

In Canadian Area 1, domestic management objectives restrict commercial net fisheries that intercept passing salmon stocks and focus opportunities in terminal areas targeting specific stocks. Area 1 pink stocks are even-year dominant; however, the returns were expected to be below average in 2020. While there were no gillnet openings in 2020, a pink-directed seine opening occurred on August 24 within Masset Inlet. A total of 183,297 pink salmon were harvested. Chum salmon production to Area 1 has generally been poor for the past two decades with returns consistently at or below management target. No fishing opportunities on chum surpluses were identified in-season in Area 1. Three troll fisheries operated in Area 1 in 2020, the pink-directed AB-Line fishery, the coho-directed fishery, and the Chinook ITQ fishery.

The Area 3 sockeye return was expected to be average to below average in 2020. Seine fishery opportunities were expected as the pink return was anticipated to be an average even year. Due to low returns of sockeye past Area 3 fishwheels, no commercial fisheries targeting sockeye proceeded in 2020. There was one Area 3 commercial seine openings in 2020 targeting pink salmon in Week 28 that operated with non-retention/non-possession restrictions for coho, chinook, sockeye, and steelhead. Due to the concerns over weak Nass Chinook, commercial fisheries were delayed avoiding these fish. With the weaker trend in earlier timed Area 3/Nass coho salmon abundance, coho retention was not permitted in net fisheries. The coho-directed Area 3/103 troll fishery was delayed until August 1.

The pre-season forecast suggested that there would be no harvestable surplus of Skeena River sockeye salmon, and as such, no commercial fisheries were expected for Areas 4 and 5. However, the sockeye commercial trigger of sockeye past the Tyee test fishery was reached on July 25, resulting in 2 gillnet fishery opening in Week 32. There were no Area 4 seine fishery opening in 2020. Portions of Area 104 were open to the troll fishery for coho and pink salmon retention from August 1 to September 30.

Area 5 did not open to commercial net fishing in 2020. Portions of Area 105 were open to the troll fishery for coho and pink salmon retention from August 1 to September 30.

The preliminary post-season sockeye salmon escapement estimate to the upper Nass River of 335,990 exceeded the escapement target of 200,000. The preliminary sockeye salmon net escapement estimate of 230,508 to the Nass exceeded the escapement target of 200,000 and is near the 2010–2019 average of 235,735. The preliminary Skeena sockeye salmon net escapement estimate of 1,448,135 sockeye salmon exceeded the escapement target of 900,000 and is an improvement over the 2010-2019 average escapement of 981,403. Pink salmon returns throughout the North Coast have been extremely variable but almost all Areas showed improvements over the brood year. Area 1, 3 and 4 escapements were stronger than the 2010-2019 average, while Area 5 showed a continued trend of decline compared to historical averages. Chum salmon escapements in Areas 3 have been improving with management actions to reduce impacts to wild chum implemented through the respective chum rebuilding plans.

In response to the COVID-19 pandemic, Public Safety Canada identified workers undertaking fishing and fish processing essential functions to ensuring the health, safety, and well-being of the population. Department of Fisheries and Oceans staff maintained all critical functions to implement fisheries, including licensing, monitoring, and enforcement, however some fisheries were implemented in a reduced or modified capacity due to concerns around COVID-19 transmission. Canada was able to meet all its PST obligations and does not anticipate any implications for meeting annual Treaty commitments due to the COVID-19 pandemic.

MANAGEMENT PERFORMANCE

Pacific Salmon Treaty based harvest sharing agreements were renewed in 2019 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.

In Alaska's District 104 purse seine fishery, the Nass and Skeena sockeye salmon run size determines the AAH of these stocks prior to Statistical Week 31. In Alaska's District 101 gillnet fishery, the AAH is based solely on the run size of Nass River sockeye salmon. 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. The agreement specifies a harvest in the District 104 purse seine fishery, from the beginning of the season through Statistical Week 30, of 2.45% of the combined AAH of both the Nass and Skeena River sockeye salmon runs. The District 104 purse seine fishery opens by regulation on the first Sunday in July. In 2020, the first potential opening was July 5 (week 28). The pre-week 31 fishing plan for District 104 was based on the preseason Canadian Department of Fisheries and Oceans (DFO) forecast returns of approximately 1.27 million Nass and Skeena sockeye salmon.

In the 2020 Treaty period (Alaska statistical weeks 28-30), 6,923 sockeye salmon were harvested during a 6-hour opening in Week 30 (Table 4). The fishery was closed in weeks 28 and 29 due to low Skeena River sockeye salmon abundance. A total of 13 purse seine vessels fished at some time in the district during the Treaty period. In past years 60% to 80% of Treaty-period sockeye salmon have been of Nass and Skeena origin, therefore we would anticipate between 4,200 and 5,500 Nass and Skeena sockeye may have been harvested in the District 104 purse seine fishery during the 2020 Treaty period. The final number of Nass and Skeena sockeye salmon harvested in the District 104 purse seine fishery was 5,300 fish.

In the District 101 (Tree Point) drift gillnet fishery, 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. The agreement specifies a harvest of 13.8 percent of the AAH of the Nass River sockeye salmon run. The return of Nass sockeye salmon was forecast at 386,000 in 2020 which, minus an escapement goal of 200,000, would result in an AAH of about 186,000 fish. Using this forecast, the 2020 allowable harvest in the District 101 drift gillnet fishery was approximately 25,700 Nass River sockeye salmon. A total of 9,348 sockeye salmon were harvested, which was only 9% of the 1985-2019 average of 109,130 fish and was the lowest harvest since the inception of the Pacific Salmon Treaty. The final number of Nass River sockeye salmon harvested at Tree Point during the Treaty period was 7,528 fish.

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June, which was June 21 (week 26) in 2020. 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 2020, Canada was to manage the Area 3-1 to 3-4 net fisheries to achieve an annual catch share of 2.49% of the AAH of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of 17.36 million pink salmon, the total AAH for all fisheries was approximately 6.61 million pink salmon. The resulting Area 3-1 to 3-4 Canadian commercial troll total allowable catch of this AAH was approximately 164,545 pinks of Alaskan Districts 101, 102 and 103 origin. The 2020 preliminary Canadian pink salmon catch in Sub-areas 3-1 to 3-4 was 1,816, and the Alaska stock component of this catch is estimated to be 1,793, or 0.03% of the AAH. This result is below the annex agreement of 2.49%.

In addition, Canada was to manage the Area 1 troll fishery to achieve an annual catch share of 2.57% of the AAH of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of 17.36 million pink salmon, the total AAH for all fisheries was approximately 6.61 million pink salmon. The resulting Area 1 Canadian commercial troll total allowable catch of this AAH was approximately 169,832 pinks of Alaskan Districts 101, 102 and 103 origin. The fishery harvested a total of 133,167 pink salmon, with an estimated 111,616 being of Alaskan origin. This equates to 1.69% of the Alaskan District 101, 102 and 103 pink AAH, well below the annex agreement of 2.57%.

2021 FORECASTS

The Southeast Alaska pink salmon harvest in 2021 is predicted to be in the average range, with a point estimate of 28 million fish (80% prediction interval: 19–42 million fish). The 2021 harvest forecast of 28 million pink salmon is just below the recent 10-year average harvest of 34 million pink salmon. A forecast of 28 million pink salmon is an improvement over the previous odd-year harvest in 2019 (21 million) and is just over half of the average odd-year harvest since 2001. The harvest forecast was primarily based on juvenile pink salmon abundance indices collected by the NOAA/ADF&G Southeast Coastal Monitoring Project in northern Southeast Alaska inside waters during June and July. A multiple regression model was developed, using monthly peak juvenile CPUE (standardized catch based on 20-minute trawl sets) for the June and July surveys and an Icy Strait Temperature Index.

A below average Nass River sockeye salmon total return of 318,000 (with a 25% probability of the return exceeding 469,000 and a 75% probability the return will exceed 217,000) is expected compared to recent trends. The sibling-model forecast predicts a 50% probability of approximately 1.69 million sockeye salmon returning to the Skeena River in 2021 with a 10% probability of a return exceeding 3.61 million and a 90% probability the return would exceed 0.796 million. Below average pink salmon returns are anticipated to Areas 1, 3, 4 and 5, based on brood year escapements.

U.S./CANADA NORTHERN BOUNDARY AREA 2021 SALMON FISHERIES MANAGEMENT REPORT AND 2022 PRELIMINARY EXPECTATIONS

TCNB 22-02, NOVEMBER 2022

This report reviews:

1) catch, effort, and management actions in the 2021 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 Pacific Salmon Treaty requirements for sockeye and pink salmon;
3) preliminary expectations and fishing plans for 2022.

2021 FISHERIES

Pink salmon returns were above average throughout Southeast Alaska and the southern Southeast Alaska pink salmon harvest was 38.1 million (Districts 101-108, all harvest codes, all gear), which was 207% of the recent ten-year average. For all of Southeast Alaska, excluding the Yakutat area, the pink salmon harvest was 48.5 million fish, which was above the preseason forecast point estimate of 28 million, and the 19-42 million 80% confidence interval range of the forecast.

The total 2021 Southeast Alaska pink salmon escapement index of 15.67 million index fish ranked 10th since 1960. Biological escapement goals were met in all three subregions, but escapements in the Northern Southeast Inside Subregion were more variable (Table 5). On a finer scale, escapements were met or exceeded for all 15 districts in the region and for 40 of the 46 pink salmon stock groups in Southeast Alaska. The Southern Southeast Subregion includes all the area from Sumner Strait south to Dixon Entrance (Districts 101–108). The escapement index value of 9.81 million was above the escapement goal range of 3.0 to 8.0 million index fish.

Sockeye salmon harvests in the Alaska boundary area were above the 1985–2020 average in the District 101–104 traditional purse seine fisheries, and were well below the treaty period average in the District 101 drift gillnet fishery. The Hugh Smith Lake adult sockeye salmon escapement was 3,200, which was well below the optimal escapement goal range of 8,000 to 18,000 adult sockeye salmon. Based on the expanded peak foot survey count, the escapement of sockeye salmon into McDonald Lake was 44,500 fish, which was below the sustainable escapement goal range of 55,000 to 120,000.

Summer chum salmon harvests in the Alaska boundary area were below the 1985–2020 average in the District 101–104 traditional purse seine fisheries and well below the treaty period average in the District 101 drift gillnet fishery. The Southern Southeast chum salmon stock group is composed of an aggregate of 15 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 62,000 index spawners (based on the aggregate peak survey to all 15 streams). Summer chum salmon escapements were below average at many index streams in southern Southeast Alaska, but the index of 77,000 fish in 2021 met the escapement goal.

Coho salmon harvests in the Alaska boundary area were above average in the District 101–104 traditional purse seine fisheries and average in the District 101 drift gillnet fishery. Coho salmon escapement counts and estimates in southern Southeast Alaska were within or above goal ranges. The combined peak count of 21,006 coho salmon in the 14 surveyed streams in the Ketchikan survey index was well above the escapement goal of 4,250–8,500 fish and was highlighted by a peak count of 9,000 fish at the Blossom River. The total escapement of 903 coho salmon to Hugh Smith Lake was within the biological escapement goal range of 500–1,600 fish.

The 2021 season was challenging due to the continued broad impact of the COVID-19 pandemic on all aspects of society, including fisheries and fisheries management. In March 2020, the State of Alaska designated fisheries as critical infrastructure to protect the food supply chain and the economy. The Commissioner of the Alaska Department of Fish and Game (ADF&G) immediately directed staff to develop action plans to safely implement field projects to the extent practicable so that fisheries could be prosecuted with the least amount of disruption. Alaska was successful in maintaining all its domestic projects necessary for fisheries management with no incidence of COVID-19, and fisheries occurred as planned with extra safety precautions in place for vessel operators, processors, and staff.

In Canadian Area 1, there are no longer commercial net interception fisheries on passing salmon stocks. Area 1 pink stocks are even year dominant, little to no return is expected in odd years. As expected, there were no harvestable surplus of pink salmon identified in 2021. In response to the low returns of chum salmon over the past decade, with no inspected streams reaching escapement targets, no harvestable surplus of chum salmon was identified. Therefore, no pink or chum-directed terminal gillnet and seine fisheries occurred in 2021. There were two troll fisheries operating in Area 1 in 2021, the pink-directed AB-Line fishery and the Chinook ITQ fishery, coho retention was permitted in both fisheries. Under the Pacific Salmon Strategy Initiative (PSSI), the Coho-directed troll fishery was closed in 2021. While Area 1 pink catches were below the 2020 totals, total harvest exceeded the last decadal average. In contrast, coho catches in Area 1 were well below the last decadal average.

The Area 3 commercial gillnet fishery was closed under Pacific Salmon Strategy Initiative (PSSI), therefore no openings were permitted in 2021. There were four commercial seine openings in 2021, which were pink-directed fisheries, operated with non-retention/non-possession restrictions for coho, chinook, sockeye, and steelhead. These retention restrictions were put in place in response to low abundances of sockeye salmon to the Gitwinsilhkw fishwheels during the time of the openings and the decreasing trend of Area 3/Nass coho salmon abundance. Specific measures continue to be in place to rebuild local wild chum and Chinook salmon populations, including time and area closures and retention restrictions. Pink salmon catches were well below average in Area 3 for seines, with a total harvest of 159,017 pinks, compared to the previous odd-year decadal average of 698,911.

There were no commercial fishing opportunities in Canadian Area 4 in 2021. In-season sockeye escapement estimates past the Skeena Tyee test fishery did not meet commercial triggers; subsequently, there were no commercial gillnet or seine openings targeting Skeena Sockeye salmon. In response to poor preseason forecasts for Skeena Chinook, no directed gillnet fisheries were permitted in 2021.

Area 5 did not open to commercial net fishing in 2021 due to lack of identified harvestable Skeena sockeye salmon.

The preliminary post-season sockeye salmon escapement estimate to the upper Nass River is 349,333 exceeded the escapement target of 200,000. The preliminary post-season sockeye salmon escapement estimate to the Skeena River is 1,256,958 exceeding the escapement target of 900,000, with a preliminary total run estimate of 1,726,883. Pink salmon returns throughout the North Coast area were much lower than historical averages, based on brood year strength, and it is likely that escapement goals were not met in many cases. Chum salmon escapements in Areas 3 and 4 have been improving with management actions to reduce impacts to wild chum implemented through the respective chum rebuilding plans, though both areas remain below escapement targets.

The COVID-19 pandemic continued to impact Canadian fisheries in 2021. In 2020, in response to the COVID-19 pandemic, Public Safety Canada identified workers undertaking fishing and fish processing essential functions to ensuring the health, safety, and well-being of the population. Department of Fisheries and Oceans staff maintained all critical functions to implement fisheries, including licensing, monitoring, and enforcement,

however some fisheries were implemented in a reduced or modified capacity due to concerns around COVID-19 transmission. Canada was able to meet all its PST obligations and does not anticipate any implications for meeting annual Treaty commitments due to the COVID-19 pandemic.

MANAGEMENT PERFORMANCE

Pacific Salmon Treaty based harvest sharing agreements were renewed in 2019 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.

In Alaska's District 104 purse seine fishery, the Nass and Skeena sockeye salmon run size determines the AAH of these stocks prior to Statistical Week 31. In Alaska's District 101 gillnet fishery, the AAH is based solely on the run size of Nass River sockeye salmon. 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. The agreement specifies a harvest in the District 104 purse seine fishery, from the beginning of the season through Statistical Week 30, of 2.45% of the combined AAH of both the Nass and Skeena River sockeye salmon runs. The District 104 purse seine fishery opens by regulation on the first Sunday in July. In 2021, the first potential opening was July 4 (week 28). The pre-week 31 fishing plan for District 104 was based on the preseason Canadian Department of Fisheries and Oceans (DFO) forecast returns of approximately 2.13 million Nass and Skeena sockeye salmon.

In the 2021 Treaty period (Alaska statistical weeks 28-30), 4,048 sockeye salmon and 11,201 sockeye salmon were harvested during two 8-hour opening in Week 29 (Table 4). In Week 30 a total of 7,564 sockeye salmon were taken during the initial 8-hour opening, and 26,491 sockeye salmon were harvested during the second 15-hour opening. The fishery was closed in Week 28 due to low Skeena River sockeye salmon abundance. A total of 48 purse seine vessels fished at some time in the district during the Treaty period. In past years 60% to 80% of Treaty-period sockeye salmon have been of Nass and Skeena origin, therefore we would anticipate between 30,000 and 39,000 Nass and Skeena sockeye salmon may have been harvested in the District 104 purse seine fishery during the 2021 Treaty period. The preliminary estimate for the number of Nass and Skeena sockeye salmon harvested was 32,312 fish in the District 104 purse seine fishery.

In the District 101 (Tree Point) drift gillnet fishery, 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. The agreement specifies a harvest of 13.8 percent of the AAH of the Nass River sockeye salmon run. The return of Nass sockeye salmon was forecast at 437,000 in 2021 which, minus an escapement goal of 200,000, would result in an AAH of about 237,000 fish. Using this forecast, the 2021 allowable harvest in the District 101 drift gillnet fishery was approximately 41,400 Nass River sockeye salmon. A total of 21,577 sockeye salmon were harvested, which was only 21% of the 1985-2020 average of 104,063 fish and was the fourth lowest harvest since the inception of the Pacific Salmon Treaty. A preliminary estimate based on genetics was 14,677 Nass River sockeye salmon harvested in the District 101 drift gillnet fishery. The final number of Nass River sockeye salmon harvested at Tree Point will not be available until catch, escapement, and stock composition estimates are finalized for the 2021 season.

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June, which was June 20 (week 26) in 2021. 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 2021, Canada was to manage the Area 3-1 to 3-4 net fisheries to achieve an annual catch share of 2.49% of the AAH of Alaskan Districts 101, 102 and 103 pink salmon with a total return of approximately 56.75 million pink salmon, the Alaskan Districts 101, 102 and 103 AAH was approximately 45.99 million pinks. The resulting Area 3-1 to 3-4 Canadian commercial net total allowable catch of this AAH was approximately 1.15 million pinks of Alaskan Districts 101, 102 and 103 origin. In the Canadian northern boundary area, pink salmon returns were anticipated to be average to below average for Area 3 and Area 4, based on brood year return strength. Actual returns to Area 3 and 4 were above the last decadal averages. In 2021, preliminary Canadian pink salmon catch in was 136,045, and the Alaska stock component of this catch is estimated to be 122,217, or 0.27 % of the AAH. This result is below the annex agreement of 2.49%.

In addition, Canada was to manage the Area 1 troll fishery to achieve an annual catch share of 2.57% of the AAH of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of 56.75 million pink salmon, the resulting Area 1 Canadian commercial troll total allowable catch of this AAH was approximately 1.18 million pink salmon of Alaskan Districts 101, 102 and 103 origin. The Canadian commercial troll fishery targeting pink salmon was open in the northern portion of Area 1 (Dixon Entrance AB Line) from July 1 to September 30. Additionally, pink retention was permitted in the Area 1 Chinook-directed troll fisheries. The Area 1 harvest equals a total of 81,799 pink salmon, with an estimated 77,103 being of Alaskan origin. This equates to 0.17% of the Alaskan District 101, 102 and 103 pink AAH, well below the annex agreement of 2.57%.

2022 FORECASTS

The Southeast Alaska pink salmon harvest in 2022 is predicted to be in the weak range, with a point estimate of 16 million fish (80% prediction interval: 10–24 million fish). The 2022 harvest forecast of 16 million pink salmon is approximately half of the recent 10-year average harvest of 34 million pink salmon. A forecast of 16 million pink salmon is an improvement over the previous even-year harvest in 2020 (8 million) and is just below of the average even-year harvest since 2006 (18 million). The harvest forecast was primarily based on juvenile pink salmon abundance indices collected by the NOAA/ADF&G Southeast Coastal Monitoring Project in northern Southeast Alaska inside waters during June and July. A multiple regression model was developed, using monthly peak juvenile CPUE (standardized catch based on 20-minute trawl sets) for the June and July surveys and an Icy Strait Temperature Index.

An improved Nass River sockeye salmon total run of 560,000 (with a 10% probability of the return exceeding 1.198 million and a 90% probability the return will exceed 267,000) is expected compared to recent trends. The sibling model forecast predicts a 50% probability of approximately 2.13 million sockeye salmon returning to the Skeena River in 2022 with a 10% probability of a return exceeding 4.53 million and a 90% probability the return would exceed 1.00 million. Below average pink salmon returns are anticipated to Areas 1, 3, 4 and 5, based on brood year escapements.

JOINT TRANSBOUNDARY TECHNICAL COMMITTEE

SALMON MANAGEMENT AND ENHANCMENT PLANS FOR THE STIKINE, TAKU AND ALSEK RIVERS, 2022

TCTR 22-02, APRIL 2022

Management of transboundary river salmon to achieve conservation, allocation and enhancement objectives, as stipulated by the PST, requires a cooperative approach by Canada and the United States. It is important that both Parties have a clear understanding of objectives and agree upon procedures to be used in managing fisheries, including criteria upon which modifications of fishing patterns will be based. This document is intended to facilitate cooperative salmon management, stock assessment, research and enhancement by ADF&G, CAFN, DFO, TCG, and TRTFN on transboundary stocks of salmon originating in the Canadian portions of the Stikine, Taku, and Alsek rivers.

This report contains, by river system (starting in the south and moving north) and species, the 2022 salmon run outlooks, spawning escapement goals, a summary of harvest sharing objectives, and an outline of management procedures to be used during the 2022 fisheries. Numerical forecasts are presented for Stikine River large Chinook (MEF > 659 mm; typically age 5–7) and sockeye salmon; Taku River large Chinook, sockeye and coho salmon; and Alsek River Chinook and sockeye salmon. Outlooks for other stocks are given qualitatively with reference to brood year escapement data where available. This report also contains plans for Stikine and Taku rivers sockeye salmon enhancement, as well as a detailed list of 2022 field projects that identify agency responsibility and contacts for various functions within each project. Information shown for 2021 is preliminary. Unless otherwise defined, the 10-year average is 2012 to 2021 and the 5-year average is 2017 to 2021.

JOINT TECHNICAL COMMITTEE ON DATA SHARING

No reports were finalized for publication during this reporting period.

JOINT SELECTIVE FISHERY EVALUATION COMMITTEE

REVIEW OF MASS MARKING AND MARK-SELECTIVE FISHERY ACTIVITIES PROPOSED TO OCCUR IN 2021

SFEC 22-02, DECEMBER 2022

This report provides a summary of the proposed coastwide plans for mass marking (MM) of Coho Salmon (*Oncorhynchus kisutch*) and Chinook Salmon (*O. tshawytscha*) and the conduct of mark-selective fisheries (MSFs) in 2021. Issues with implications for maintenance of the coastwide coded-wire-tag program are identified and recommendations are proposed.

Impacts of the COVID-19 Pandemic, Drought, and Recent Fires

Many of us in the Pacific Northwest have continued to work from home and follow social distancing guidelines while in the field. These guidelines are likely to continue to impact the implementation of tagging, marking, and sampling programs. For example, some agencies have reduced the number of staff in tagging trailers, resulting in

decreased output and fewer fish released tagged or marked. This document does not contain summaries of any known changes to-date in marking, tagging, and sampling plans in 2021, rather it focuses on what was included in the proposals.

In addition to COVID-19 impacts, our region experienced a continued drought and a number of extreme fires in 2020. One of the facilities impacted included the near complete loss of Oregon Department of Fish and Wildlife's (ODFW) Rock Creek Fish Hatchery near Roseburg which burned down in the Archie Creek Fire in September of 2020. ODFW plans to rebuild this facility. Also in Oregon, McKenzie and Leaburg Hatcheries have lost major water sources. Fish are, and may continue to be, raised at other hatcheries. Most of the facilities affected by fires in 2020 will experience brood failures.

Summary of 2021 Mass Marking Proposals

Throughout this report a mass marked fish refers to a fish with an adipose-fin clip (marked) that is not coded-wire tagged. A marked fish that is tagged with a coded-wire tag is not considered mass marked in this report and are referred to as single-index tagged. A double-index-tag (DIT) group includes two coded-wire-tag (CWT) paired-release groups, one marked and one unmarked. The terms 'marked' and 'clipped', and likewise 'unmarked' and 'unclipped', are used interchangeably.

Salmon coded-wire tag (CWT) and mark status (marked = adipose fin clipped) for all plausible groups of fish, including those under the definition of mass marked and in double index tag (DIT) paired-release groups.

Mass Marked	
Untagged + marked	
Not Mass Marked	**If Double Index Tag Program**
CWT + marked (Single Index Tag)	Group A. CWT + marked
CWT + unmarked (Single Index Tag)	Group B. CWT + unmarked
Untagged + unmarked	

MASS MARKING AND DIT PROGRAMS

Twenty-three proposals (8 for Coho and 15 for Chinook) were received for mass marking occurring in 2021 (Appendix A). Of these, one was a new proposal from Alaska (AK), two were from southern British Columbia (BC) and 20 from southern United States (SUS). The Selective Fishery Evaluation Committee (SFEC) believes these proposals cover all MM programs of relevance to the Pacific Salmon Commission (PSC).

The Southern Resident Killer Whale (SRKW) population has declined to abundance levels that prompted the species being listed as endangered under both the U.S. Endangered Species Act and the Canadian Species at Risk Act. The latest science suggests that SRKW have a diet reliant on Chinook Salmon, and to a lesser extent, Chum and Coho salmon. As such, there have been efforts to significantly increase hatchery production to benefit SRKWs (WDFW 2021, NMFS 2019). The increased hatchery production goals range from 20 million (NMFS 2019) to 51 million (WDFW 2021) additional smolts, based on 2018 production levels. Several hatchery facilities in Oregon and Washington have increased salmonid hatchery production using funding from the Washington State legislature and from the U.S. Section of the Pacific Salmon Commission per requirements in the Biological Opinion for Southeast Alaska salmon fisheries (NMFS 2019). All of these fish are expected to be released with an adipose fin clip.

Proposed mass marking of Coho and Chinook salmon in 2020 and 2021

Agency	Coho (in millions)		Chinook (in millions)	
	2020	**2021**	**2020**	**2021**
ADFG	-	-	-	1.0
CDFO	3.8	3.8	3.1	3.2
USFWS	1.9	2.0	22.2	26.5
WDFW/Tribes	24.1	22.4	77.1	80.7
ODFW/Tribes	4.7	5.3	19.6	24.9
Total	**34.4**	**33.6**	**122.0**	**136.3**

Approximately 33.6 million Coho are proposed to be mass-marked in 2021 from southern BC and SUS hatcheries, roughly 0.9 million less than proposed in 2020 (Table 2 1). This change in proposed releases reflects, in part, decreases in production and marking in the Columbia River. Most hatchery Coho production intended for harvest, from southern BC and SUS hatcheries (not including California) will continue to be ad-clipped (87% of releases). In 2021, there are 14 proposed Coho Salmon DIT groups (Table 2 1; Appendix B), of which seven are from Puget Sound, four from the Washington (WA) coast, and three from the Columbia River Basin. This is unchanged from what was proposed in 2020.

Approximately 132 million Chinook are proposed to be mass marked in 2021 from SUS hatcheries, 980 thousand from Southern SE Alaska, and 3.2 million are proposed to be mass marked and released from Canadian west coast of Vancouver Island hatcheries (Table 2 1). The newly proposed Southern SE Alaska mass marking is to improve in-season management by identifying hatchery stocks in spring troll Chinook terminal fisheries. The 2021 total level of 136 million mass marked fish is roughly 14 million more than proposed in 2020. Increased mass marked releases of 980 thousand in Southern SE Alaska, 4 million in Puget Sound, and 10.9 million Columbia River are proposed. Most hatchery Chinook production (92% of releases) from SUS hatcheries (not including California) intended for harvest will continue to be ad-clipped. Currently there are 15 proposed Chinook Salmon DIT groups (Table 2 1, Appendix C), of which eight are from Puget Sound facilities, two from WA coastal facilities, and five from Columbia River facilities.

SAMPLING PROGRAMS

Prior to MM, the adipose fin clip was employed as a visual indicator for fish containing a CWT. Consequently, visual sampling programs were designed to collect heads from fish with missing adipose fins, resulting in all sampled heads containing CWTs. With MM, a large number of marked fish do not contain CWTs; further, CWTs must be recovered from both marked and unmarked fish to obtain data for DIT releases to estimate fishery impacts. Electronic tag detection (ETD) equipment has been developed as a means to efficiently identify fish containing CWTs, regardless of a mark. However, ETD is not employed coastwide because of continuing reservations by some agencies regarding the cost, accuracy, and practical feasibility of incorporating this technology into their sampling programs. Visual sampling programs will not recover the unclipped component of DIT programs required to assess impacts of MSFs. Visual sampling creates gaps and increased uncertainty in the estimated impacts of fisheries on unmarked fish (PSC 2016). Addressing these gaps and uncertainties is time consuming.

Considering sampling programs coastwide, some agencies already implement comprehensive electronic sampling strategies to recover CWTs from sport and commercial fisheries, while other agencies have not fully

implemented electronic tag detection. All California Department of Fish and Wildlife (CDFW) fishery sampling programs use visual sampling.

Washington State agencies continue to electronically sample at most locations and report CWT recoveries of the unmarked components of DIT groups in recreational marine and some freshwater MSFs, as well as in non-selective fisheries (NSFs). Washington Department of Fish and Wildlife (WDFW) utilizes electronic sampling for all Chinook and Coho fishery sampling in the Columbia River, except for the non-mark selective Treaty and non-Treaty commercial fisheries which are still visually sampled.

Starting in 2008, Canada committed to full electronic sampling and reporting of all CWTs in all commercial fisheries for Chinook. Coho in Canadian commercial fisheries are electronically or visually sampled, depending on location. Canada continues to rely on the Sport Head Recovery Program (SHRP) to recover CWTs from NSFs and MSFs alike and thus, no unmarked coded-wire-tagged recoveries are available from them. Canada's First Nations (FN) food, social and ceremonial (FSC) fisheries, generally terminal, are sampled visually. Finally, Canada's escapement sampling is also visually sampled with electronic screening of heads to send only tagged heads to the dissection lab.

In 2011, Oregon Department of Fish and Wildlife (ODFW) initiated electronic sampling of all recreational and commercial ocean salmon fisheries off the coast of Oregon (OR). ODFW utilizes electronic sampling for all Chinook and Coho fisheries under their jurisdiction in the Columbia River except for the commercial Chinook fishery which is still visually sampled.

Alaska conducts visual sampling; however, uses electronic screening of heads for commercial fisheries and in most ports for sport fisheries, to send only tagged heads to the dissection lab. ADFG does not sample unmarked Coho Salmon for CWTs and discontinued sampling of unmarked Chinook for CWTs in all fisheries after 2019.

Encounters of large numbers of mass marked Chinook Salmon continue to impact visual catch sampling programs in northern fisheries; for example, approximately 57% of the Chinook sampled in the southeast Alaskan troll fishery with a missing adipose fin did not contain a CWT in 2019 (Figure 2 4). The increased costs to deal with the additional marked fish (e.g., storage, and shipping to and sorting of heads in the dissection laboratories) are not quantified but do have a substantial fiscal impact on these programs.

Summary of 2021 Mark-Selective Fishery Proposals

Mark-selective fisheries have been prosecuted for Coho Salmon since 1998 and for Chinook Salmon since 2003. For 2021, the SFEC received 77 MSF proposals for Coho and Chinook salmon in Canada, Washington, and Oregon fisheries. The SFEC believes these proposals cover most MSFs planned for 2021 of relevance to the PSC. The proposals submitted to the SFEC for review are listed in Table 3 1 (also see Appendix D). Further details describing the proposed MSFs and comments made by the SFEC are provided in Appendix E.

For 2021, 35 proposals were received for Coho Salmon MSFs and 42 proposals were received for Chinook Salmon MSFs. The SFEC received six new Coho proposals and four new Chinook proposals, all for recreational fisheries. MSF proposals for 2021 were again received from Idaho (IDFG) and the Lummi Nation. Agencies provided the majority of the requested information in each of the proposals and the proposals were submitted on time.

Proposals received by the SFEC for Coho and Chinook salmon mark-selective fisheries, 2020–2021

Agency	Coho		Chinook	
	2020	**2021**	**2020**	**2021**
ADFG	0	0	0	0
CDFO	9	9	2	2
WDFW	12	16	27	29
ODFW	5	7	4	4
WDFW/ODFW	3	3	5	5
IDFG	0	0	0	1
Lummi	0	0	0	1
Total	**29**	**35**	**38**	**42**

Up until 2008, Chinook MSFs were largely restricted to Puget Sound and Columbia River spring Chinook Salmon. Since then, Chinook MSFs have expanded substantially in both marine and freshwater areas. In 2007, 12 Chinook MSFs were prosecuted; in 2018, that number tripled to 36. The combined increase in numbers and geographic distribution of Chinook MSFs increases the likelihood that a larger number of indicator stocks will be encountered in MSFs.

The majority of MSF proposals are for terminal marine or freshwater areas, each of which will impact mature fish of one to several stocks originating from nearby river systems. Multiple MSFs for both Coho and Chinook salmon are also expected to continue to occur in ocean areas during 2021 in BC, WA, and OR. These fisheries will impact many stocks and also multiple broods of Chinook Salmon.

Recommendations and Issues Requiring PSC Direction

CONTINUED SUBMISSION OF MASS MARKING AND MARK-SELECTIVE FISHERY PROPOSALS

It is recommended that the PSC continue to request that agencies submit previously reviewed proposals for all potential 2022 MM and MSF activities by November 2021. New or substantially changed proposals should continue to be requested by June 1 of the year prior to implementation.

MARK-SELECTIVE FISHERY REPORTS ARE NEEDED

It is recommended that the PSC continue to request that agencies provide SFEC with post-season mark-selective fishery reports (see PSC website for current templates). The information in these tables should be completed prior to the PSC post-season meeting of the year following the fishery year. For instance, reports on fisheries occurring in 2020–2021 should be available by the post-season meeting in 2022. This information has only been received for some fisheries, such as Puget Sound, Oregon Coastal, Lower Columbia River, and SE Alaska, but not for others.

Post-season reports on MSFs are required for each MSF prosecuted. One of the basic functions of these reports is to provide a record of how fisheries were actually prosecuted (whether they took place) and whether there were any changes in the way the fisheries and sampling programs were conducted relative to the proposal. These reports are to be submitted in the form of tables (see PSC website for current templates). The first two tables should be submitted by the annual PSC post-season meeting following the year of the fishery. Both United States and Canadian PSC post-season reports continue to be missing SFEC post-season report/tables for most MSFs.

Although these SFEC tables are not included in the PSC post-season reports, CDFO and WDFW do provide fishery regulations and preliminary landed catch estimates for mark-selective fisheries in these reports.

SFEC representatives have been stepping up efforts in recent years to coordinate with key staff within the agencies in order to meet these reporting requirements. Although the information may be available in larger agency reports, the SFEC needs agencies to submit the post-season MSF information using the report templates provided (see PSC website for current templates), which will enable more efficient dissemination of post-season data to PSC's technical committees such as the CTC and CoTC. It is recommended that agencies prioritize this task and work with their SFEC representatives to develop these reports annually and provide them to the PSC in the required time frame.

NEW DATABASE IS NEEDED TO FACILITATE ANALYSES OF MSFS

To facilitate analyses by the technical committees, a database housing regulations and impact estimates of MSFs is needed. The Regional Mark Information System (RMIS) does not include all of the necessary data (i.e., regulations) to estimate fishery impacts on unmarked, tagged fish. In addition, the resulting estimates of impacts of MSFs on unmarked fish are needed for the PSC technical committees to perform cohort analyses on all stocks of concern. A prototype online database with impact estimates and summarized CWT data for Chinook MSFs conducted in WDFW marine areas 1–13 was developed jointly by WDFW and the NWIFC. This database is no longer being maintained. To facilitate compilation and accessibility of post-season MSF data, SFEC recommends the PSC develop and maintain a similar database for both Coho and Chinook MSFs coastwide.

CWT INDICATOR PROGRAMS NEED FURTHER REVIEW BY TECHNICAL COMMITTEES

Double index tag groups are one tool useful in evaluating if MSFs were significant enough to impart a difference between the exploitation rate of an indicator stock and the natural stock it represents. Significant differences between the marked and unmarked components of a DIT pair in return rates could be used as a screening tool to determine if further analysis is necessary to estimate the exploitation rates of unmarked fish. Mark-selective fisheries have tripled in number since 2007, with new areas and stocks being fished under mark-selective regulations. It is recommended that agencies review their indicator stock programs in light of the expansion of MSFs and any other new MSFs likely to be proposed in future years and evaluate the need for including additional DIT groups.

ALL MIXED-STOCK COHO AND CHINOOK SALMON FISHERIES NEED TO BE ELECTRONICALLY SAMPLED

Electronic tag detection (ETD) is necessary for detecting unmarked and tagged fish in fisheries and escapement. In order to carry out exploitation rate analysis for unmarked stocks using DIT analytical methods, it is necessary to have estimates of harvest of unmarked and tagged DIT groups in NSFs. This requires electronic sampling be used in NSFs and mixed-bag fisheries, where unmarked and tagged fish are retained, in particular if the stock has been subjected to MSFs in other areas or periods. The SFEC recommends that agencies review their sampling methods with respect to the current expansion of MSFs into coastal fisheries. Electronic sampling should be implemented for all remaining Columbia River fisheries using visual sampling to recover DIT release groups for Chinook and Coho exploitation rate indictor stocks.

AGENCIES PROPOSING MIXED-BAG REGULATIONS IN MSFS NEED TO PROVIDE NEW ANALYTICAL TOOLS TO ASSESS THESE FISHERIES

Regulations to implement MSFs for recreational fisheries have become more complex, making analyses to estimate impacts challenging in a number of ways. We continue to be concerned about monitoring, sampling, and estimation methods keeping pace with increases in regulation complexity. Different types of mixed-bag regulations continue to be proposed by Canada, Washington, and Oregon for recreational fisheries. A mixed-bag fishery is one where an angler may retain different proportions of clipped or unclipped fish, and often may include jacks as well as adults in their daily bag limits. There are no reliable methods for estimating impacts on marked and unmarked fish under mixed-bag regulations. The agencies proposing these mixed-bag regulations should assist in developing the analytical tools to measure the impacts of these fisheries.

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 2022/23 inclusive. For previous publications, please refer to the Pacific Salmon Commission's website at psc.org/publications.

ANNUAL REPORTS

Pacific Salmon Commission. *Thirty-Seventh Annual Report 2021/2022*. December 2022.

REPORTS OF JOINT TECHNICAL COMMITTEES

Joint Chinook Technical Committee

TCCHINOOK (22)-03. *2021 Exploitation Rate Analysis*. June 2022.

TCCHINOOK (22)-04. *Annual Report of Catch and Escapement for 2021*. June 2022.

TCCHINOOK (22)-05. *2022 PSC Chinook Model Calibration*. October 2022.

TCCHINOOK (23)-01. *2022 Exploitation Rate Analysis*. January 2023.

Joint Chum Technical Committee

No reports were finalized for publication during this reporting period.

Joint Coho Technical Committee

No reports were finalized for publication during this reporting period.

Joint Data Sharing Technical Committee

No reports were finalized for publication during this reporting period.

Joint Northern Boundary Technical Committee

TCNB (22)-01. *U.S./Canada Northern Boundary Area 2019 Salmon Fisheries Management Report and 2020 Preliminary Expectations*. April 2022.

TCNB (22)-02. *U.S./Canada Northern Boundary Area 2020 Salmon Fisheries Management Report and 2021 Preliminary Expectations*. September 2022.

TCNB (22)-03. *U.S./Canada Northern Boundary Area 2021 Salmon Fisheries Management Report and 2022 Preliminary Expectations*. November 2022.

Joint Transboundary Technical Committee

TCTR (22)-02. *Salmon Management and Enhancement Plans for the Stikine, Taku and Alsek Rivers, 2022*. April 2022.

Selective Fishery Evaluation Committee

SFEC (22)-02. *Review of Mass Marking and Mark-Selective Fishery Activities Proposed to Occur in 2021*. December 2022.

REPORTS OF THE FRASER RIVER PANEL

Report of the Fraser River Panel to the Pacific Salmon Commission on the 2020 Fraser River Sockeye Salmon Fishing Season. April 2022.

TECHNICAL REPORT SERIES OF THE PACIFIC SALMON COMMISSION

PSC Technical Report No. 48. *Review of available abundance, age, and stock composition data useful for reconstructing historical stock specific runs, harvest, and escapement of Yukon River Chinook salmon (Oncorhynchus tshawytscha).* April 2022.

PSC Technical Report No. 49. *Overview of pre-season and in-season assessment methods for Fraser River sockeye salmon*. June 2022.

PSC Technical Report No. 50. *Recommended Transition Plan for Estimating Calendar Year Exploitation Rates for Chinook Salmon Escapement Indicator Stocks Impacted by Mark-Selective Fisheries*. March 2023.

PUBLICATIONS BY PACIFIC SALMON COMMISSION SECRETARIAT STAFF

No reports were finalized for publication during this reporting period.

REPORTS OF THE INTERNATIONAL PACIFIC SALMON FISHERIES COMMISSION (IPSFC)

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 the *History of the International Pacific Salmon Fisheries Commission* may be ordered through the Library of the Pacific Salmon Commission.

Copies of all Progress Reports, Bulletins, and Annual Reports of the International Pacific Salmon Fisheries Commission are available on our website.

DOCUMENTS SUBMITTED BY THE PARTIES

In compliance with provisions of the Treaty, the Parties provide annual post-season fishery reports to the Commission. Documents received during 2022/23 were:

1. Fisheries and Oceans Canada. *2021 Post Season Report for Canadian Treaty Limit Fisheries*. October 2022.

2. United States Section. *2021 Post Season Report United States Salmon Fisheries of Relevance to the Pacific Salmon Treaty*. October 2022.

Report of the Auditors for 2022/2023

Financial Statements
(Expressed in Canadian dollars)

PACIFIC SALMON COMMISSION

And Independent Auditor's Report thereon

Year ended March 31, 2023

INDEPENDENT AUDITOR'S REPORT

To the Commissioners of the Pacific Salmon Commission

Opinion

We have audited the financial statements of Pacific Salmon Commission (the "Entity"), which comprise:

- the statement of financial position as at March 31, 2023
- the statement of operations and fund balances for the year then ended
- the statement of cash flows for the year then ended
- and notes to the financial statements, including a summary of significant accounting policies

(hereinafter referred to as the "financial statements").

In our opinion, the accompanying financial statements as at and for the year ended March 31, 2023, of the Entity are prepared, in all material respects, in accordance with the financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 17, 2023.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the ***"Auditor's Responsibilities for the Audit of the Financial Statements***" section of our auditor's report.

We are independent of the Entity in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of Matter – Financial Reporting Framework

We draw attention to Note 2(a) in the financial statements, which describes the applicable financial reporting framework and the purpose of the financial statements.

As a result, the financial statements may not be suitable for another purpose.

Our opinion is not modified in respect of this matter.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation of the financial statements in accordance with the financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 17, 2023; this includes determining that the applicable financial reporting framework is an acceptable basis for the preparation of the 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.

In preparing the financial statements, management is responsible for assessing the Entity's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Entity or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Entity's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit.

We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

  The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit 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.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor’s report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor’s report. However, future events or conditions may cause the Entity to cease to continue as a going concern.
- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Chartered Professional Accountants

Vancouver, Canada
November 7, 2023

PACIFIC SALMON COMMISSION

Statement of Financial Position
(Expressed in Canadian dollars)

March 31, 2023, with comparative information for 2022

	General Fund	Restricted: Working Capital Fund	Restricted: Test Fishing Fund	Restricted: Special Research and Project Fund	Restricted: Capital Assets Fund	Restricted: Capital Asset Replacement Reserve Fund ("CARRF")	Total	2023	2022
Assets									
Current assets:									
Cash and cash equivalents	$ 253,365	$ -	$ 407,376	$ 2,256,593	$ -	$ 214,497	$ 2,878,466	$ 3,131,831	$ 8,163,800
Short-term investments	1,366,767	114,054	300,000	2,000,000	-	-	2,414,054	3,780,821	363,340
Accounts receivable	251,076	843	348,781	-	-	-	349,624	600,700	595,032
Prepaid expenses	411,770	-	-	-	-	-	-	411,770	449,853
Due from Yukon River Fund (note 6)	-	-	-	-	-	-	-	-	123
Due from Northern Fund (note 6)	4,506	-	-	-	-	-	-	4,506	34,671
Due from Southern Fund (note 6)	68,565	-	-	-	-	-	-	68,565	139,526
	2,356,049	114,897	1,056,157	4,256,593	-	214,497	5,642,144	7,998,193	9,746,345
Prepaid expenses	1,743,918	-	-	-	-	-	-	1,743,918	1,863,565
Capital assets (note 4)	-	-	-	-	557,503	-	557,503	557,503	585,589
	$ 4,099,967	$ 114,897	$ 1,056,157	$ 4,256,593	$ 557,503	$ 214,497	$ 6,199,647	$10,299,614	$12,195,499
Liabilities and Fund Balances									
Current liabilities:									
Accounts payable and accrued liabilities	$ 1,276,038	$ -	$ 1,687	$ 246,070	$ -	$ -	$ 247,757	$ 1,523,795	$ 986,306
Government remittances payable	37,341	-	-	-	-	-	-	37,341	43,278
Deferred revenue (note 3)	2,028,402	-	-	-	-	-	-	2,028,402	4,074,288
	3,341,781	-	1,687	246,070	-	-	247,757	3,589,538	5,103,872
Accrued employee future benefits (note 5(b))	584,705	-	-	-	-	-	-	584,705	536,158
	3,926,486	-	1,687	246,070	-	-	247,757	4,174,243	5,640,030
Fund balances:									
Unrestricted	173,481	-	-	-	-	-	-	173,481	727,070
Restricted	-	114,897	1,054,470	4,010,523	-	214,497	5,394,387	5,394,387	5,242,810
Invested in capital assets	-	-	-	-	557,503	-	557,503	557,503	585,589
	173,481	114,897	1,054,470	4,010,523	557,503	214,497	5,951,890	6,125,371	6,555,469
Contractual obligations (note 7)									
	$ 4,099,967	$ 114,897	$ 1,056,157	$ 4,256,593	$ 557,503	$ 214,497	$ 6,199,647	$10,299,614	$12,195,499

See accompanying notes to financial statements.

Approved on behalf of the Commission:

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, 2023, with comparative information for 2022

		Restricted							
	General Fund	Working Capital Fund	Test Fishing Fund	Special Research and Project Fund	Capital Assets Fund	Capital Asset Replacement Reserve Fund ("CARRF")	Total	2023	2022
Revenue:									
Contributions from contracting-parties (note 3)	$ 3,759,272	$ -	$ 1,072,199	$ -	$ -	$ -	$ 1,072,199	$ 4,831,471	$ 4,156,652
Special contributions - pension (note 3)	332,500	-	-	-	-	-	-	332,500	332,500
Grants	134,838	-	-	-	-	-	-	134,838	2,598,153
Interest	390,571	1,277	15,801	-	-	-	17,078	407,649	40,762
Administration fees	229,591	-	-	-	-	-	-	229,591	234,274
Test fishing	-	-	650,710	-	-	-	650,710	650,710	395,323
Foreign exchange gain	32,305		10,383	167,462	-	-	177,845	210,150	-
	4,879,077	1,277	1,749,093	167,462	-	-	1,917,832	6,796,909	7,757,664
Expenses:									
Amortization	-	-	-	-	197,070	-	197,070	197,070	191,610
Salaries and employee benefits	3,626,963	-	-	-	-	-	-	3,626,963	3,459,808
Unfunded pension liability payments	332,500	-	-	-	-	-	-	332,500	332,500
Travel and transportation	122,456	-	-	-	-	-	-	122,456	31,888
Rents and communication	181,825	-	-	-	-	-	-	181,825	55,225
Contract services	886,412	-	-	-	-	-	-	886,412	741,382
Materials and supplies	59,510	-	-	-	-	-	-	59,510	38,579
Test fishing	-	-	1,345,185	-	-	-	1,345,185	1,345,185	981,447
Consultations and workshops	-	-	-	475,086	-	-	475,086	475,086	386,977
Foreign exchange loss	-	-	-	-	-	-	-	-	22,435
Loss on disposal of capital assets	-	-	-	-	-	-	-	-	12,010
	5,209,666	-	1,345,185	475,086	197,070	-	2,017,341	7,227,007	6,253,861
Excess (deficiency) of revenue over expenses	(330,589)	1,277	403,908	(307,624)	(197,070)	-	(99,509)	(430,098)	1,503,803
Fund balance, beginning of year	727,070	113,620	650,562	4,318,147	585,589	160,481	5,828,399	6,555,469	5,051,666
Interfund transfers:									
Contribution to CARRF	(223,000)	-	-	-	-	223,000	223,000	-	-
Purchase of capital assets, net	-	-	-	-	168,984	(168,984)	-	-	-
Fund balance, end of year	$ 173,481	$ 114,897	$ 1,054,470	$ 4,010,523	$ 557,503	$ 214,497	$ 5,951,890	$ 6,125,371	$ 6,555,469

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Statement of Cash Flows
(Expressed in Canadian dollars)

Year ended March 31, 2023, with comparative information for 2022

	2023	2022
Cash provided by:		
Operations:		
Excess (deficiency) of revenue over expenses	$ (430,098)	$ 1,503,803
Items not involving cash:		
Amortization	197,070	191,610
Loss on disposal of capital assets	-	12,010
Accrued employee benefits	48,547	2,522
Changes in non-cash operating working capital:		
Accounts receivables	(5,668)	482,401
Prepaid expenses	157,730	(887,671)
Accounts payable and accrued liabilities	537,489	(64,014)
Government remittances payable	(5,937)	6,190
Due from Yukon River Fund, Northern Fund and Southern Fund	101,249	425,437
Deferred revenue	(2,045,886)	1,713,386
	(1,445,504)	3,385,674
Investing:		
Purchase of capital assets	(168,984)	(155,647)
Redemption of short-term investments	5,363,340	2,340,274
Purchase of short-term investments	(8,780,821)	(1,104,836)
	(3,586,465)	1,079,791
(Decrease) increase in cash and cash equivalents	(5,031,969)	4,465,465
Cash and cash equivalents, beginning of year	8,163,800	3,698,335
Cash and cash equivalents, end of year	$ 3,131,831	$ 8,163,800

See accompanying notes to financial statements.

1. Nature of organization:

Pacific Salmon Commission (the “Commission”) was established by a 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 amended most recently on January 1, 2019.

2. Significant accounting policies:

(a) Basis of accounting:

These financial statements have been prepared in accordance with the financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 17, 2023. The financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws require the financial statements to be prepared in a manner consistent with generally accepted accounting principles (“GAAP”) with the following exceptions:

(*i*) 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 received. This exception is to comply with Chapter IX, Section D, Rule 10 of the Bylaws.

(*ii*) The Commission uses the triennial pension valuation report provided by the International Fisheries Commissions Pension Society (“IFCPS”) to determine the yearly pension expense. The pension expense consists of the employer portion of the current service pension contribution plus any additional yearly payments required by the IFCPS (as shown in the current valuation report) that are necessary to extinguish the unfunded portion of the pension obligation. Other post-employment benefits such as extended medical plans and life insurance are recorded as an expense in the fiscal year in which the respective invoice is dated. This exception is to comply with Chapter IX, Section D, Rule 11 of the Bylaws.

GAAP has been interpreted to mean Canadian Accounting Standards for Not-for-Profit Organizations in Part III of the CPA Canada Handbook (“Not-for-Profit Standards”).

The purpose of these financial statements is for the Entity to meet its obligations to the Contracting Parties. As a result, the financial statements may not be suitable for another purpose.

(b) 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.

2. Significant accounting policies (continued):

(c) Fund accounting and 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 on a temporary basis to satisfy the capital requirements of the Commission until 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.

(*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, U.S. Section grant funds for contracts and U.S. Section travel and workshop, Chinook Sentinel Stocks Program, and Mark-Selective Fishery project.

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

(*vi*) The Capital Asset Replacement Reserve Fund ("CARRF") was established to ensure regular availability of funds for lifecycle replacement of capital assets. On an annual basis, a fixed amount, as determined by the Commission, shall be transferred from the General Fund to the CARRF. The fund is to be used for the Commission's capital asset purchases.

Transfers between the funds are reviewed and approved by the Commissioners.

2. Significant accounting policies (continued):

(d) Financial instruments:

Financial instruments are recorded at fair value on initial recognition. Freestanding derivative instruments that are not in a qualifying hedging relationship and equity instruments that are quoted in an active market are subsequently measured at fair value. All other financial instruments are subsequently recorded at cost or amortized cost, unless management has elected to carry the instruments at fair value. The Commission has not elected to carry any such financial instruments at fair value.

Transaction costs incurred on the acquisition of financial instruments measured subsequently at fair value are expensed as incurred. All other financial instruments are adjusted by transaction costs incurred on acquisition and financing costs, which are amortized using the straight-line method.

Financial assets are assessed for impairment on an annual basis at the end of the fiscal year if there are indicators of impairment. If there is an indicator of impairment, the Commission determines if there is a significant adverse change in the expected amount or timing of future cash flows from the financial asset. If there is a significant adverse change in the expected cash flows, the carrying value of the financial asset is reduced to the highest of the present value of the expected cash flows, the amount that could be realized from selling the financial asset or the amount the Commission expects to realize by exercising its right to any collateral. If events and circumstances reverse in a future period, an impairment loss will be reversed to the extent of the improvement, not exceeding the initial carrying value.

(e) 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 as follows:

Asset	Rate
Automobiles	5 years
Boats	5 years
Computer equipment and software	3 years
Equipment	5 years
Furniture and fixtures	10 years
Leasehold improvements	Lease term of 10 years

2. Significant accounting policies (continued):

(f) Income taxes:

The Commission is exempt from income taxes under the Foreign Missions and International Organizations Act (1991).

(g) Post-employment benefits:

(i) Pension plan:

The Commission has a defined benefit pension plan covering its employees. The benefits are based on years of service and highest average salary. The Commission also sponsors a defined benefit life insurance and health care plan for substantially all retirees and employees. In accordance with the basis of accounting (note 2(a)), the Commission recognizes, annually, an expense equal to the amount of the required payment set forth by the pension plan, which is based on a triennial pension valuation. The Commission does not recognize an unfunded obligation related to the defined benefit pension plan, as referenced in note 5(i).

(ii) Severance:

Severance is accrued based on employees' current salary and number of years of service.

(h) Foreign exchange translation:

Transactions originating in foreign currencies are translated at the exchange rate prevailing at the transaction dates. Monetary 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.

(i) Measurement uncertainty:

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 could differ from those estimates.

(j) Short-term investments:

The short-term investments, consisting of Guaranteed Investment Certificates with interest rates ranging from 0.75% to 5.40% (2022 - 0.45% to 0.63%), are due on dates between April 2023 and November 2023. These investments are managed by an external investment manager and are recorded at cost plus accrued interest.

2. Significant accounting policies (continued):

(k) Life insurance and medical benefits:

The Commission recognizes, annually, an expense equal to the total amounts invoiced by health and life insurance benefit providers during the fiscal year.

(l) Related party transactions:

Monetary related party transactions and non-monetary related party transactions that have commercial substance are measured at the exchange amount when they are in the normal course of business. Where the transaction is not in the normal course of operations, it is measured at the exchange amount when there is a substantive change in the ownership of the item transferred and there is independent evidence of the exchange amount. All other related party transactions are measured at the carrying amount.

3. Related party transactions and deferred revenue:

During the year ended March 31, 2023, the Commission recognized operating contributions from the Contracting Parties totaling $3,759,272 (2022 - $3,759,272). The Commission recognized $166,250 (2022 – $166,250) from the Government of Canada and $166,250 (2022 - $166,250) from the Government of the United States of America in special contributions relating to future payments to International Fisheries Commission Pension Society for the unfunded pension liability. This amount has been included in deferred revenue and will be recognized when the related expense has been incurred.

The Commission retains $189,691 (2022 - $189,691) of funding provided by Canada, to be used upon authorization from the Government of Canada to help fund test fishing operations administered by Fisheries and Oceans Canada and/or other parties in non-Panel-approved area waters.

The office and warehouse premises of the Commission are provided by the Government of Canada at no charge.

Deferred revenue consists of unspent funds provided by the Contracting Parties that are reserved for future operating and capital expenditures of the Fund.

	2023	2022
Balance, beginning of year	$ 4,074,288	$ 2,360,902
Recognized as revenue	(2,045,886)	(166,250)
Operating contribution for 2023	-	1,879,636
Balance, end of year	$ 2,028,402	$ 4,074,288

4. Capital assets:

March 31, 2023	Cost	Accumulated amortization	Net book value
Automobiles	$ 231,607	$ 223,646	$ 7,961
Boats	179,248	108,675	70,573
Computer equipment	462,639	401,706	60,933
Computer software	286,417	269,754	16,663
Equipment	1,771,040	1,543,047	227,993
Furniture and fixtures	297,930	233,063	64,867
Leasehold improvements	303,550	195,037	108,513
	$ 3,532,431	$ 2,974,928	$ 557,503

March 31, 2022	Cost	Accumulated amortization	Net book value
Automobiles	$ 231,607	$ 215,685	$ 15,922
Boats	133,742	98,435	35,307
Computer equipment	445,189	373,538	71,651
Computer software	279,167	259,573	19,594
Equipment	1,764,714	1,523,517	241,197
Furniture and fixtures	289,918	214,775	75,143
Leasehold improvements	301,690	174,915	126,775
	$ 3,446,027	$ 2,860,438	$ 585,589

5. Employee future benefits:

(a) Pension plan:

The Commission and its employees contribute to the Pension Plan of the International Fisheries Commissions Pension Society for Employees of Participating Commissions, a multi-employer defined benefit plan, with Headquarters in Canada. The Plan covers 93 employees, of which 49 are current or past employees of the Commission.

The last actuarial valuation for the pension plan was performed as at January 1, 2023 and the next valuation is scheduled for January 1, 2026. Selected information about the Commission's defined benefit plan is as follows:

	January 1, 2023
Fair value of plan assets	$ 17,583,000
Benefit obligation	19,044,000
Funded status - plan deficit	$ (1,461,000)

5. Employee future benefits (continued):

(a) Pension plan (continued):

The funded status of the plan is not included in the statement of financial position.

A significant actuarial assumption adopted in measuring the Commission's benefit obligation is the use of a discount rate of 5.9% and expected rate of return on assets of 5.9%.

During the year ended March 31, 2023, the Commission made payments totaling $166,250 (2022 - $1,178,191) with respect to the unfunded pension obligation.

(b) Severance, life insurance and medical benefits:

The Commission also provides employee future benefits including severance, life insurance and medical benefits. Employees are entitled to severance payments calculated based on the length of continuous service completed by the employee. The accrued liability associated with these benefits is included in the Statement of Financial Position.

6. 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 and Southern Boundary and Transboundary River Restoration and Enhancement Trust Fund:

Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund ("Northern Fund") was created by the Governments of the United States of America and Canada to manage their interests in the Commission to promote cooperation in the management, research and enhancement of Pacific Salmon stocks. The Northern Fund is exempt from income taxes under the Foreign Missions and International Organizations Act (1991). The income earned on these contributions is distributed by the Commission staff as directed by the Northern Fund Committee.

Southern Boundary and Transboundary River Restoration and Enhancement Trust Fund ("Southern Fund") was created by the Governments of the United States of America and Canada to manage their interests in the Commission to promote cooperation in the management, research, and enhancement of Pacific Salmon stocks. The Southern Fund is exempt for income taxes under the Foreign Missions and International Organizations Act (1991). The income earned on these contributions is distributed by the Commission staff as directed by the Southern Fund Committee.

During the fiscal year ended March 31, 2023, the Commission received funding for projects from the Northern Fund and Southern Fund totaling $237,731 (2022 - $250,270). During the year, the Northern Fund and Southern Fund paid $393,014 (2022 - $360,468) to the Commission for allocated salaries and benefits, and administrative services. As at March 31, 2023, the Commission had a net receivable from the Northern Fund and Southern Fund of $73,071 (2022 - $174,197).

6. Trust funds (continued):

(b) Yukon River Salmon Restoration and Enhancement Fund:

Under the terms of an interim Yukon River Salmon Agreement in 1995, the United States and Canada established the Yukon River Salmon Restoration and Enhancement ("R&E") Fund and the Commission created an account to hold associated monies. The R&E Fund and its governing Yukon River Panel were finalized in the 2002 Yukon River Salmon Agreement and associated treaty amendments. The Commission Secretariat administers and holds R&E trust funds on behalf of the Yukon River Panel. The Yukon River Panel provides direction on how the monies are to be disbursed from the Fund. These amounts have been excluded from the Statement of Financial Position and Statement of Operations and Fund Balances of the Commission.

During the year, the R&E Fund paid $92,000 (2022 - $92,000) to the Commission for administrative services. As at March 31, 2023, the Commission had no receivable from the R&E Fund (2022 - $123).

(c) Summary of trust fund balances:

	Northern Fund	Southern Fund	Yukon River Fund	Total 2023	Total 2022
Assets	$ 181,948,828	$ 158,830,879	$ 1,548,110	$ 342,327,817	$ 342,370,153
Liabilities	$ 104,607	$ 162,533	$ 57,157	$ 324,297	$ 597,733
Fund balances	181,844,221	158,668,346	1,490,953	342,003,520	341,772,420
	$ 181,948,828	$ 158,830,879	$ 1,548,110	$ 342,327,817	$ 342,370,153

	Northern Fund	Southern Fund	Yukon River Fund	Total 2023	Total 2022
Fund balance, beginning of year	$ 183,706,030	$ 157,445,804	$ 620,585	$ 341,772,419	$ 324,936,172
Revenue	6,755,981	5,770,054	1,654,672	14,180,707	28,906,558
Expenses	8,617,790	4,547,512	784,304	13,949,606	12,070,310
	(1,861,809)	1,222,542	870,368	231,101	16,836,248
Fund balance, end of year	$ 181,844,221	$ 158,668,346	$ 1,490,953	$ 342,003,520	$ 341,772,420

	Northern Fund	Southern Fund	Yukon River Fund	Total 2023	Total 2022
Cash flow provided by (used in):					
Operations	$ (3,504,362)	$ (423,515)	$ 699,752	$ (3,228,125)	$ (730,082)

6. Trust funds (continued):

The Commission also administers amounts, in trust, on behalf of the Governments of the United States of America and Canada that are not included in the notes to the financial statements.

7. Contractual obligations:

The Commission has entered into a number of project grant contracts as at March 31, 2023 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.

As at March 31, 2023, the research project contractual obligations are $372,972 (2022 - $176,604).

8. Financial instruments and concentration of risks:

(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 and short-term investments, the Commission's as deposited cash and restricted cash and made investments with reputable financial institutions, from which management believes the risk of loss to be remote.

(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, which include a credit line that bears interest at prime plus 1% and no amounts were drawn as of March 31, 2023. 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.

(d) Currency risk:

The Commission has some exposure to foreign exchange risk through fluctuation of the U.S. dollar. The Commission receives contributions from the Government of the United States of America and also funds various projects in the U.S.

There has been no change to the risk exposures from 2022.

Appendices

Appendix A

Northern Fund Projects for 2022/2023

Project No.	Project Title	Lead Proponent	Lead Organization	Relevant PST Chapter
	Information			
1	Alsek River – Chinook and Sockeye Salmon Assessment	Kimberly Tuor	DFO	1 (Transboundary Rivers)
2	Stikine River- Chinook, Sockeye, and Coho Salmon Assessment and Fishery Monitoring	Johnny Sembsmoen	DFO	1 (Transboundary Rivers)
3	Taku River – Chinook, Sockeye, and Coho Salmon Fishery Monitoring and Stock Assessment	Aaron Foos	DFO	1 (Transboundary Rivers)
4	Transboundary Rivers Otolith Thermal Mark Recovery	Aaron Foos	DFO	1 (Transboundary Rivers)
5	Tahltan Lake Water Balance Study	Patrick Hudson	Tahltan Central Government	1 (Transboundary Rivers)
6	Taku River Salmon Stock Assessment	Jeff Williams	ADF&G	1 (Transboundary Rivers)
7	Alsek River Chinook and Sockeye Salmon Stock Assessment	Phil Richards	ADF&G	1 (Transboundary Rivers)
8	Stikine River Salmon Stock Assessment and Telemetry	Kristin Courtney	ADF&G	1 (Transboundary Rivers)
9	Kitwanga River Salmon Enumeration, 2023	Jordan Beblow	Gitanyow Huwilp Society	2 (Northern BC and Southeast Alaska)
10	KSEF Trap Box Modifications Year 2	Melissa Shirey	Gitanyow Huwilp Society	2 (Northern BC and Southeast Alaska)
11	2023 Babine Lake watershed sockeye smolt population estimation project – mark-recapture	Donna MacIntyre	Lake Babine Nation	2 (Northern BC and Southeast Alaska)
12	Nass Sockeye Salmon Fishwheel DNA Analyses Project 2023	Bob Bocking	LGL Ltd	2 (Northern BC and Southeast Alaska)
13	Area 3 Chum Salmon Escapement Surveys 2023	Bob Bocking	LGL Ltd	2 (Northern BC and Southeast Alaska)
14	Area 3 Odd-Year Pink Salmon Escapement Surveys 2023	Bob Bocking	LGL Ltd	2 (Northern BC and Southeast Alaska)
15	Production capacity and habitat status of Meziadin Lake – Year 3	Allison Oliver	Skeena Fisheries Commission	2 (Northern BC and Southeast Alaska)
16	2023 North Coast Lakes Juvenile Sockeye Hydroacoustic Surveys	Janvier Doire	Skeena Fisheries Commission	2 (Northern BC and Southeast Alaska)
17	Slamgeesh Salmon Counting Fence - 2023 Operations	Anissa Watson	Wilp Gwininitxw Land & Resource Management Society	2 (Northern BC and Southeast Alaska)
18	Northern Boundary Area Sockeye Salmon Genetic Stock Identification for 2023	Wesley Larson	NOAA	2 (Northern BC and Southeast Alaska)
19	Southeast Alaska Trolling Vessel Ocean Measurement Program	Tyler D. Hennon	University of Alaska Fairbanks	2 (Northern BC and Southeast Alaska)
20	2023 Meziadin Lake Sockeye Smolt Hydroacoustic Estimation	Mark Cleveland	Gitanyow Fisheries Authority	2 (Northern BC and Southeast Alaska)
21	Area 3 Assessment of Coastal Chinook Salmon Escapement to Ksi Hlginx (Ishkeenickh River) and Ksi X'anmas (Kwinamass River) in 2023	Bob Bocking	LGL Ltd	3 (Northern Stocks)

22	Assessing Nass Chinook Salmon Mark-Recapture Methods 2023	Bob Bocking	LGL Ltd	3 (Northern Stocks)
23	Zymacord River Coho Salmon Escapement Estimate	Laura K. Elmer	LK Environmental	5 (Northern Stocks)
24	Identifying opportunities to increase the robustness of assessment and harvest management to increasing environmental change and variability for the next PST	Natascia Tamburello	ESSA	Multiple / Others
25	Yakoun River, Haida Gwaii, annual chinook & coho assessments	Victor Fradette	Haida Nation Fisheries	Multiple / Others
26	Lower Skeena River Recreational Fishery Creel Survey, 2023	Karl English	LGL Ltd	Multiple / Others
27	Area 6 Creel Survey, 2023	Angela Addison	North Coast Skeena First Nations Stewardship Society	Multiple / Others
28	Area 3 and 4 Creel Survey, 2023	Angela Addison	North Coast Skeena First Nations Stewardship Society	Multiple / Others
29	Workshop on Integrating ways of knowing to provide sustainable North Pacific fisheries and ecosystems	Sonia Batten	North Pacific Marine Science Organization (PICES)	Multiple / Others
30	Multi-species Salmon Assessment for the Waanukv (Wannock) River, 2023	Jason Slade	Wuikinuxv Nation	Multiple / Others
31	Boundary Area Coho Salmon Escapement	Justin Priest	ADF&G	Multiple / Others
32	Productivity, migration timing, and survival of sockeye, coho, and pink salmon at Auke Creek	Scott Vulstek	NOAA	Multiple / Others
33	Southeast Alaska Coastal Monitoring	Wesley Strasburger	NOAA	Multiple / Others
34	Chum Salmon Hatchery/Wild Interactions	Scott Wagner	Northern SE Regional Aquaculture Association	Multiple / Others
35	Second-generation consequences of sockeye salmon enhancement in Auke Creek, Alaska, Year 3	Megan McPhee	University of Alaska Fairbanks	Multiple / Others
	Habitat			
36	Upper Stikine Chinook habitat conservation	Kerry Carlick	Tahltan Central Government	1 (Transboundary Rivers)
37	Kuthai Lake and King Salmon River access improvement	Mark Connor	Taku River Tlingit First Nation	1 (Transboundary Rivers)
	Enhancement			
38	2023 Tahltan Lake Limnology and Productivity Investigations	Sean Collins	DFO	1 (Transboundary Rivers)
39	2023 Tuya Lake Post-Enhancement Investigations	Sean Collins	DFO	1 (Transboundary Rivers)
40	Transboundary Rivers, Juvenile Rearing Habitat Assessment	Adam Brennan	DFO	1 (Transboundary Rivers)
41	Lower Iskut Fisheries Enhancement Study (LIFES)	Richard Erhardt	Tahltan Central Government	1 (Transboundary Rivers)
42	Recovery Enhancement of Kilbella-Chuckwalla Chinook, 2023-2024	Jason Hwang	Pacific Salmon Foundation	3 (Northern Stocks)
	US Projects			
	Canadian Projects			

Appendix B

Southern Fund Projects for 2022/2023

Project No.	Priority type	Project Title	Lead Proponent	Lead Organization	Location	Species
1	Habitat	Englishman River Claybank Remediation Monitoring, Design and Permitting	Jeramy Damborg	BC Conservation Foundation	Englishman River, Parksville, BC	Chinook, Coho
2	Habitat	Hiłsyaqƛis (Tranquil) Watershed Restoration 2023	Jessica Hutchinson	Redd Fish Restoration Society	Hiłsyaqƛis (Tranquil) Watershed, Clayoquot Sound, West Coast Vancouver Island	Chinook
3	Habitat	Horseshoe Bend [HSB] (Bridge River) Pacific Salmon Rearing Ponds	Ellen Reyes	St'at'imc Government Services	Xwísten Territory (Bridge River), Coordinates: 50.859983°, -122.155514°	Chinook, Coho, Pink, Sockeye
4	Habitat	Restoration of Juvenile Rearing Habitats in Support of Increased WCVI Chinook Production	Ryan Abbott	MC Wright and Associates Ltd	Lower Nitinat River/Carmanah Main 48°50'00"N, 124°39'22"W	Chinook, Chum, Coho
5	Habitat	Swinomish Channel Fill Removal Construction	Eric Mickelson	Skagit River System Cooperative	Western shoreline of the Swinomish Channel, La Conner, WA	Chinook, Coho, Chum
6	Habitat	2023 Middle Skagit Riparian Restoration Project	Brenda Clifton	Skagit River System Cooperative	Skagit Basin, WA	Chinook, Coho, Chum
7	Habitat	Jumpstarting salmon recovery above the Toutle Sediment Dam – planning for recolonization in a key Lower Columbia watershed	Thomas Buehrens	WDFW	North Fork Toutle, WA	Chinook, Coho
8	Habitat	South Fork Nooksack River Fobes Phase 2 Restoration	Kelley Turner	Lummi Indian Business Council	South Fork Nooksack River, River Mile (RM) 18.2 – 19.5	Chinook
9	Southern Panel	Juan de Fuca Strait Chum Salmon Sampling program. Year 4	Pieter Van Will	DFO	Juan de Fuca Strait	Chum

10	Southern Panel	An investigation into Nanaimo River Chinook ecotype (spring, summer, and fall) and Coho run timing and marine survival	Jamieson Atkinson	BC Conservation Foundation	Nanaimo River, Nanaimo, BC	Chinook
11	Southern Panel	Estimating Aggregate Coho Salmon Escapement to the Lower Fraser Management Unit	Ashlee Prevost	Lower Fraser Fisheries Alliance Society	Lower Fraser River and Chilliwack River	Coho
12	Southern Panel	Parental Based Tagging of Southern BC Enhanced Chum	Jason Mahoney	DFO	Southern BC – Lower Fraser Area	Chum
13	Southern Panel	Puget Sound Chum salmon GSI	Garrett McKinney	WDFW	Central & South Puget Sound	Chum
14	Southern Panel	Chum Salmon Baseline and GSI in Southern Boundary Region	Garrett McKinney	WDFW	North Puget Sound Areas 4B/5/6C and 9	Chum
15	Fraser River Panel	Collaborative improvement of Lower Fraser species composition estimates: development of models and evaluation using Qualark data (Phase I)	Brooke Davis	DFO	Qualark Hydroacoustic site	Sockeye, Chinook, Pink
16	Fraser River Panel	Improving the processing and analysis of hydroacoustic data at Mission by recoding the Flux Estimator in the R	Rachael Hornsby	Pacific Salmon Commission	Vancouver, BC	Sockeye, Pink
17	Fraser River Panel	Lower Fraser River Gillnet Test Fishery Site Evaluation	Tosh Sutherland	Pacific Salmon Commission	Lower Fraser River, BC	Sockeye, Pink
18	Fraser River Panel	Big Bar synthesis: Understanding the impact of Big Bar Slide on salmon survival and relevance to management of Sockeye, Chinook, Coho, and Pink salmon in the Fraser River	David Patterson	DFO	Fraser River Watershed	Sockeye, Chinook, Coho, Pink
19	Fraser River Panel	Understanding juvenile sockeye	Dave Scott	Raincoast Conservation Foundation	Richmond, BC	Sockeye

		salmon habitat utilization in the Lower Fraser River and estuary, BC				
20	Chinook Technical Committee	Novel environmental DNA approaches to fill critical knowledge gaps on freshwater distributions and abundance estimates for management of Chinook and coho in the Fraser and South Coast Rivers	Josephine Iacarella	DFO	Fraser basin and South Coast Rivers basin	Chinook
21	Chinook Technical Committee	Estimating Cowichan River Wild Chinook Freshwater Smolt Production through a PIT tag based Mark Recapture Program	Jeramy Damborg	BC Conservation Foundation	Cowichan River, Duncan, BC	Chinook
22	Chinook Technical Committee	Estimating Late Marine Survival on Cowichan River Chinook Related to Log Boom Presence, Seal Abundance, and other Environmental Factors	Jamieson Atkinson	BC Conservation Foundation	Cowichan River, Duncan, BC	Chinook
23	Chinook Technical Committee	Burman River Hydrology method validation project: Indexing Ocean-type WCVI Chinook spawning area residence time with rainfall timing and stream type	Roger Dunlop	Mowachaht/Muchalaht First Nation	Conuma River, PFMA 25 Tranquil Creek, PFMA 24, WCVI	Chinook
24	Chinook Technical Committee	Bedwell River Smolt Outmigration Assessment	Jared Dick	Nuu-chah-nulth Tribal Council	Bedwell/Ursus River, Clayoquot Sound. West Coast Vancouver Island (WCVI), BC	Chinook
25	Chinook Technical Committee	Collection of baseline samples to improve GSI baselines in BCs South Coast	Matthew Clarke	DFO	Mainland Inlets of South Coast BC	Chinook

26	Chinook Technical Committee	Abundance Estimates of Chinook Salmon in the Stillaguamish River using Trans-Generational Mark Recapture	Anya Voloshin	Stillaguamish Tribe of Indians-Ntrl Resources Dept	Stillaguamish River	Chinook
27	Other	Identifying opportunities to increase the robustness of assessment and harvest management to increasing environmental change and variability for the next PST	Natascia Tamburello	ESSA Technologies Ltd.	Cross-region	Sockeye, Pink, Coho, Chinook, Chum
28	Other	Enhancing salmon productivity by understanding the relative threats of climate change and freshwater aquatic invasive species	Thomas Therriault	DFO	Columbia River watershed	Chinook
29	Other	Enabling in-person speakers for the PSC seminar at the 2023 and 2024 post season meetings	John Field	PSC		
		US Projects				
		Canadian Projects				

Appendix C

Appointment of Officers for 2022/2023

Effective November 2, 2022 a new slate of officers for the Pacific Salmon Commission was identified as follows:

OFFICE	COUNTRY	REPRESENTATIVE
Commission Chair	Can	Rebecca Reid
Commission Vice-Chair	U.S.	W. Ron Allen
Fraser River Panel Chair	Can	Lester Jantz
Fraser River Panel Vice-Chair	U.S.	Jason Gobin
Northern Panel Chair	Can	Sandra Davies
Northern Panel Vice-Chair	U.S.	Lowell Fair
Southern Panel Chair	Can	Linda Higgins
Southern Panel Vice-Chair	U.S.	Joseph Oatman
Transboundary Panel Chair	Can	Steve Gotch
Transboundary Panel Vice-Chair	U.S.	Troy Thynes
Stan. Comm. on F&A - Chair	Can	Andrew Thomson
Stan. Comm. on F&A - Vice-Chair	U.S.	W. Ron Allen
Stan. Comm. on Scientific Cooperation - Chair	Can.	Brendan Connors
Stan. Comm. on Scientific Cooperation - Vice-Chair	U.S.	Scott McPherson
Technical Committee on Data Sharing - Co-Chair	Can	Nicholas Komick
Technical Committee on Data Sharing - Co-Chair	U.S.	Nancy Leonard
Fraser River Panel Technical Committee - Co-Chair	Can	Jamie Scroggie
Fraser River Panel Technical Committee - Co-Chair	U.S.	Gordon Rose
Northern Boundary Technical Committee - Co-Chair	Can	Charmaine Carr-Harris
Northern Boundary Technical Committee - Co-Chair	U.S.	Bo Meredith
Transboundary Technical Committee - Co-Chair	Can	Bill Waugh
Transboundary Technical Committee - Co-Chair	U.S.	Edgar Jones
Enhancement Subcommittee of the Transboundary Technical Committee - Co-Chair	Can	Corino Salomi
Enhancement Subcommittee of the Transboundary Technical Committee - Co-Chair	U.S.	Garold Pryor
Joint Chinook Interface Group - Chair	Can.	Andrew Thomson
Joint Chinook Interface Group - Vice-Chair	U.S.	Phil Anderson
Joint Technical Committee on Chinook - Co-Chair	Can	Antonio Velez-Espino
Joint Technical Committee on Chinook - Co-Chair	U.S.	Jonathan Carey
Joint Technical Committee on Coho - Co-Chair	Can	John Holmes
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.	Bill Patton
Selective Fishery Evaluation Committee - Co-Chair	Can	Rob Houtman
Selective Fishery Evaluation Committee - Co-Chair	U.S.	Ryan Lothrop

Appendix D

Approved Budget FY 2022/2023

		Forecast results 2022/2023
1	INCOME	(Adams)
A.	Contribution from Canada (Notes 1,2)	1,879,636
B.	Special contribution pension CA	166,250
C.	Contribution from U.S.A.	1,879,636
D.	Special contribution pension U.S.A.	166,250
	Sub total	4,091,772
E.	Interest	250,000
F.	Other income (Note 1)	225,000
G.	Carry-over from previous fiscal year	727,070
H.	Total Income	5,293,842
2	EXPENDITURES	
A.	1. Permanent Salaries and Benefits (Note 3)	3,187,864
	2. Unfunded pension liability payments	332,500
	3. Temporary Salaries and Benefits	282,735
	4. Total Salaries and Benefits	3,803,099
B.	Travel	100,779
C.	Rents, Communications, Utilities	153,429
D.	Contractual Services	836,354
E.	Supplies and Materials	47,762
F.	Equipment	223,000
G.	Total Expenditures	5,164,423
3	BALANCE (DEFICIT)	129,419
	Carry-over generated (expended) in the year	($597,651)

Appendix E

Pacific Salmon Commission Secretariat Staff as of March 31, 2023

EXECUTIVE OFFICE

John Field
Executive Secretary

FINANCE & ADMINISTRATION

Ilinca Manisali
Director of Finance

Witty Lam
Senior Accountant

Koey Lu
Accountant

Teri Tarita
Librarian/Records Administrator

Julie Ehrmantraut
Administrative Assistant

Kimberly Bartlett
Meeting Planner

Sascha Bendt
Fund Manager

Victor Keong
Fund Assistant

Christina Langlois
Administrative Assistant – Restoration and Enhancement Funds

FISHERIES MANAGEMENT

Fiona Martens
Chief, Fisheries Management Programs

Catherine Michielsens
Chief, Fisheries Management Science

STOCK ASSESSMENT GROUP

Merran Hague
Quantitative Fisheries Biologist

Mark McMillan
Database Manager

Rachael Hornsby
Fisheries Biologist

Serena Wong
Data and Assessment Biologist

STOCK MONITORING GROUP

Tosh Sutherland
Test Fishing Operations Manager

Christopher Daily
Assistant Quantitative Fisheries Biologist

Eric Taylor
Quantitative Biologist

Jordan Maguire
Fisheries Technician

Caroline Graham
Chinook Technical Committee Coordinator

Kristen Hayward
Assistant Fisheries Biologist

HYDROACOUSTIC SECTION

Jacqueline Nelitz
Hydroacoustic Technician

STOCK IDENTIFICATION GROUP

Steve Latham
Manager, Stock ID

Julie Sellars
Scale Lab Analyst

Angela Phung
Stock ID Biologist

Catherine Ball
Scale Lab Technician

Maxine Reichardt
Manager, Scale Lab

Dejan Brkic
Salmon Data Technician

INFORMATION TECHNOLOGY GROUP

John Son
Information Technology Manager

Appendix F

Membership of the Pacific Salmon Commission as of March 31, 2023

COMMISSIONERS

Canada	United States
Ms. Rebecca Reid (Chair)	Mr. W. Ron Allen (Vice-Chair)
Ms. Susan Farlinger	Mr. Phil Anderson
Mr. John McCulloch	Dr. Scott M. Rumsey
Mr. Murray Ned	Mr. Douglas S. Vincent-Lang

ALTERNATE COMMISSIONERS

Canada	United States
Dr. Katrina Connors	Mr. William F. Auger
Chief Russ Jones	Mr. Rick Klumph
Mr. Martin Paish	Mr. David T. Moore
Mr. Andrew Thomson	Mr. McCoy Oatman

FRASER RIVER PANEL

Canada	United States
Mr. Lester Jantz (Chair)	Mr. Jason Gobin (Vice-Chair)
Mr. Chris Ashton	Mr. Mark Baltzell
Mr. Mike Griswold	Mr. James Dixon
Grand Chief Ken Malloway	Mr. Robert F. Kehoe
Mr. Michael Frost	
Mr. Aaron Murray	

FRASER RIVER PANEL - ALTERNATES

Canada	United States
Mr. Shaun Hollingsworth	Mr. Ronald G. Charles
Mr. Darrel McEachern	Mr. Jack R. Giard
Mr. Matt Mortimer	Mr. Anthony “Tony” Siniscal
Mr. Tony Roberts Jr.	
Mr. Marcel Shepert	
Mr. Greg Witzky	

NORTHERN PANEL

Canada	United States
Ms. Sandra Davies (Chair)	Mr. Lowell Fair (Vice-Chair)
Ms. Angela Addison	Mr. Clay Bezenek
Mr. Jason Harris	Mr. Mitchell Eide
Chief Harry Nyce Sr.	Mr. Andrew K. Gray
Ms. Joy Thorkelson	Ms. Deborah Lyons
Mr. Mike Wells	Mr. Russell Thomas

NORTHERN PANEL - ALTERNATES

Canada	United States
Dr. William Atlas	Mr. John Carle
Mr. Stuart Barnes	Mr. Travis Bangs
Mr. Jeff Grout	Mr. Douglas H. Duncan
Mr. Rick Haugan	Mr. Andrew Piston
Mr. Greg Knox	Mr. Dennis Watson
Mr. Urs Thomas	

SOUTHERN PANEL

Canada	United States
Ms. Linda Higgins (Chair)	Mr. Joseph Oatman (Vice-Chair)
Dr. Don Hall	Ms. Laurie Peterson
Mr. Jeremy Maynard	Mr. Gerald I. James
Mr. Richard Michelson	Mr. Jeromy Jording
Mr. Laurie Milligan	Mr. Burnie Bohn
Ms. Debra Toporowski	Mr. Aldrich J. (Butch) Smith

SOUTHERN PANEL - ALTERNATES

Canada	United States
Mr. Rod Cootes	Ms. Denise Hawkins
Mr. Michael Baird	Mr. Vincent “Kyle” Adicks
Ms. Marla Maxwell	Mr. Edward Johnstone
Ms. Marilyn Murphy	Mr. Mark Newell
Mr. Gordon Sterritt	Mr. Joseph C. Peters
Mr. Phil Young	

COHO WORKING GROUP

Canada

Ms. Marla Maxwell (Co-Chair)
Mr. Rod Cootes
Dr. Don Hall
Dr. John Holmes
Mr. Laurie Milligan
Ms. Marilyn Murphy
Mr. Peter Nicklin
Ms. Lynda Ritchie
Mr. Joel Sawada
Mr. Gordon Sterritt
Ms. Mary Thiess

United States

Ms. Laurie Peterson (Co-Chair)
Ms. Carrie Cook-Tabor
Ms. Angelika Hagen-Breaux
Ms. Denise Hawkins
Dr. Diego Holmgren
Dr. Marisa Litz
Mr. Edward Johnstone
Mr. Jeromy Jording
Dr. Gary S. Morishima
Mr. Joseph Oatman
Mr. Joseph C. Peters
Dr. Laurie Weitkamp

TRANSBOUNDARY PANEL

Canada

Mr. Steve Gotch (Chair)
Mr. Tom Buzzell
Mr. Kerry Carlick
Mr. Richard Erhardt
Ms. Cheri Frocklage
Ms. Nicole Gordon
Mr. Kevin Gould
Mr. Chris Kendel
Mr. Dennis Zimmerman

United States

Mr. Troy Thynes (Vice-Chair)
Mr. Brennon Eagle
Mr. Larry Edfelt
Mr. Jacob Miller
Mr. Patrick Robbins
Mr. Scott Vulstek
Mr. Cole Wilburn

STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

Canada

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