PACIFIC REGION
DRAFT

INTEGRATED FISHERIES MANAGEMENT PLAN

JUNE 1, 2024 - MAY 31, 2025

SALMON
SOUTHERN BC

Genus Oncorhynchus

Fisheries and Oceans Canada
Pêches et Océans Canada
Canada

This Integrated Fisheries Management Plan is intended for general purposes only. Where there is a discrepancy between the Plan and the *Fisheries Act* and Regulations, the Act and Regulations are the final authority. A description of Areas and Subareas referenced in this Plan can be found in the *Pacific Fishery Management Area Regulations*, 2007.

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DEPARTMENT CONTACTS

A more comprehensive list of contacts can be found online at:
http://www.dfo-mpo.gc.ca/contact/index-eng.htm

24 Hour Recorded Information (Commercial)
Vancouver ..... (604) 666-2828
Toll Free 1-888-431-3474

Pacific Salmon Commission (PSC) Office ..... (604) 684-8081

PSC Test Fisheries (Recorded, In-Season Information) ..... (604) 666-8200

Recreational Fishing: http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html
Commercial Fishing: http://www.dfo-mpo.gc.ca/fisheries-peches/commercial-commerciale/pac-yukon-eng.html

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FISHERIES AND OCEANS CANADA GENERAL INFORMATION

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http://www.dfo-mpo.gc.ca

Our Vision, Latest News, Current Topics

Twitter:
DFO Pacific: @DFO_Pacific
En Français: @MPO_Pacifique

ACTS, ORDERS, AND REGULATIONS

https://www.dfo-mpo.gc.ca/acts-lois/index-eng.htm

Atlantic Fisheries Restructuring Act, Canada Shipping Act, Coastal Fisheries Protection Act, Department of Fisheries and Oceans Act, Financial Administration Act, Fisheries Act, Fisheries Development Act, Fisheries Improvements Loan Act, Fishing and Recreational Harbours Act, Freshwater Fish Marketing Act, Great Lakes Fisheries Convention Act, Oceans Act, Species at Risk Act

REPORTS AND PUBLICATIONS

http://www.dfo-mpo.gc.ca/reports-rapports-eng.htm

Administration and Enforcement of the Fish Habitat Protection and Pollution Prevention Provisions of the *Fisheries Act*, Audit and Evaluation Reports - Audit and Evaluation Directorate, Canadian Code of Conduct for Responsible Fishing Operations, Departmental Performance Reports, Fisheries Research Documents, Standing Committee's Reports and Government responses, Sustainable Development Strategy

FEDERAL SCIENCE LIBRARIES NETWORK

https://science-libraries.canada.ca/eng/fisheries-oceans/

Fisheries and Oceans Canada online library catalogue

PACIFIC SALMON TREATY

http://www.psc.org

Background information; full text of the treaty

PACIFIC REGION GENERAL

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http://www.pac.dfo-mpo.gc.ca/index-eng.html

General information, Area information, Latest news, Current topics

POLICIES, REPORTS AND AGREEMENTS

https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/fisheries-peche-eng.html

Reports and Discussion Papers, New Directions Policy Series, Agreements

OCEANS PROGRAM

http://www.pac.dfo-mpo.gc.ca/oceans/index-eng.html

Integrated Coastal Management; Marine Protected Areas; Areas of Interest; Canada's Ocean Strategy; *Oceans Act*

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ABORIGINAL FISHERIES STRATEGY

http://www.dfo-mpo.gc.ca/fm-gp/aboriginal-autochtones/index-eng.htm

Aboriginal Fisheries Strategy (AFS) principles and objectives; AFS agreements; Programs; Treaty Negotiations

AQUACULTURE MANAGEMENT

http://www.pac.dfo-mpo.gc.ca/aquaculture/index-eng.html

The federal regulatory program for aquaculture in British Columbia; Program overview and administration, public reporting, and aquaculture science

RECREATIONAL FISHERIES

http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html

Fishery Regulations and Notices, Fishing Information, Recreational Fishery, Policy and Management, Contacts, Current BC Tidal Waters Sport Fishing Guide and Freshwater Supplement; Rockfish Conservation Areas, Shellfish Contamination Closures; On-line Licencing

COMMERCIAL FISHERIES

http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/comm/index-eng.htm

Links to Groundfish, Herring, Salmon, Shellfish and New and Emerging Fisheries homepages; Selective Fishing, Test Fishing Information, Fishing Areas, Canadian Tide Tables, Fishery Management Plans, Commercial Fishery Notices (openings and closures)

INITIATIVE TO UPDATE THE COMMERCIAL SALMON ALLOCATION FRAMEWORK

http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html

Links to the Departments' consultation website which provides an overview of the process to update the Commercial Salmon Allocation Framework (CSAF), including links to summary reports and submissions with recommendations.

FISHERIES NOTICES

http://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?

Want to receive fishery notices by e-mail? If you are a recreational sport fisher, processor, multiple boat owner or re-distribute fishery notices, register your name and/or company at the web-site address above. Openings and closures, updates, and other relevant information regarding your chosen fishery are sent directly to your registered email. It's quick, it's easy and it's free.

INTEGRATED FISHERY MANAGEMENT PLANS

http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/index-eng.htm

Current Management Plans for Groundfish, Pelagics, Shellfish (Invertebrates), Minor Finfish, Salmon; sample Licence Conditions; Archived Management Plans

SALMON TEST FISHERY - PACIFIC REGION

https://www.pac.dfo-mpo.gc.ca/pacific-smon-pacifique/science/research-recherche/testfishery-pechedessai-eng.html

Definition, description, location and target stocks

LICENCING

http://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/index-eng.html

Contact information; Recreational Licencing Information, Commercial Licence Types, Commercial Licence Areas, Licence Listings, Vessel Information, Vessel Directory, Licence Statistics and Application Forms

NATIONAL ONLINE LICENSING SYSTEM (NOLS)

https://fishing-peche.dfo-mpo.gc.ca
E-mail: fishing-peche@dfo-mpo.gc.ca
(Please include your name and the DFO Region in which you are located.)
Telephone: 1-877-535-7307

TTY: 1-800-465-7735

SALMON

https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/index-eng.html

Salmon Facts; Salmon Fisheries; Enhancement and Conservation; Research and Assessment; Consultations; Policies, Reports and Agreements; Glossary of Salmon Terms

FRASER AND INTERIOR AREA RESOURCE MANAGEMENT AND STOCK ASSESSMENT

http://www.pac.dfo-mpo.gc.ca/fm-gp/fraser/index-eng.html

Contact information; Test fishing and survey results (Albion, creel surveys, First Nations); Fraser River Sockeye and Pink escapement updates; Important notices; Recreational fishing information

NORTH COAST RESOURCE MANAGEMENT

http://www.pac.dfo-mpo.gc.ca/fm-gp/northcoast-cotenord/index-eng.html

First Nations fisheries, Recreational fisheries; Commercial salmon and herring fisheries; Skeena Tyee test fishery; Counting facilities; Post-season Review; Contacts

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http://www.pac.dfo-mpo.gc.ca/yukon/index-eng.html

Fisheries Management; Recreational fisheries; Habitat; Licencing; Contacts

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Publications (legislation, policy, guidelines, educational resources, brochures, newsletters and bulletins, papers and abstracts, reports); GIS maps and Data (habitat inventories, spatial data holdings, land use planning maps); Community involvement (advisors and coordinators, educational materials, habitat conservation and Stewardship Program, projects, Stream Talk).

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http://www.pac.dfo-mpo.gc.ca/index-eng.html

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CONSULTATION SECRETARIAT

http://www.pac.dfo-mpo.gc.ca/consultation/index-eng.html

Consultation Calendar; Policies; National; Partnerships; Fisheries Management, Oceans, Science and Habitat and Enhancement Consultations; Current and Concluded Consultations

PUBLICATIONS CATALOGUE

http://www.pac.dfo-mpo.gc.ca/publications/index-eng.html

Information booklets and fact sheets available through Communications branch

SPECIES AT RISK ACT (SARA)

https://www.dfo-mpo.gc.ca/species-especes/sara-lep/index-eng.html

SARA species; SARA permits; public registry; enforcement; Stewardship projects; Consultation; Past Consultation; First Nations; Related Sites; News Releases

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http://www.pac.dfo-mpo.gc.ca/science/index-eng.html

Science divisions; Research facilities; PSARC; International Research Initiatives

GLOSSARY AND LIST OF ACRONYMS

A comprehensive glossary is available online at:
http://dev-public.rhq.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/gloss-eng.html

LIST OF ACRONYMS USED IN THIS PLAN:

ACRONYM	PHRASE
AABM	Aggregate Abundance-Based Management
AAROM	Aboriginal Aquatic Resource and Oceans Management
AHC	Area Harvest Committee
AFS	Aboriginal Fisheries Strategy
ATP	Allocation Transfer Program
B_{MSY}	Biomass at Maximum Sustainable Yield
CCTAC	Canadian Commercial Total Allowable Catch
CTAC	Canadian Total Allowable Catch
CEDP	Community Economic Development Program
COHO ABM	Coho Abundance-Based Management
COSEWIC	Committee for the Status of Endangered Wildlife in Canada
CPUE	Catch Per Unit Effort
CSAB	Commercial Salmon Advisory Board
CSAP	The Centre for Scientific Advice Pacific
CSAS	The Canadian Science Advisory Secretariat
CSAF	Commercial Salmon Allocation Framework
CU	Conservation Unit
CWT	Coded Wire Tag
DBE	Difference Between Estimates
DIDSON	Dual Frequency Identification Sonar
DU	Designatable Unit
EO	Economic Opportunity
ER	Exploitation Rate
ESSR	Excess Salmon to Spawning Requirements
FNFC	First Nations Fishery Council
FOS	Fishery Operating System
FRP	Fraser River Panel
FRSSI	Fraser River Sockeye Salmon Initiative
FSC	Food, Social and Ceremonial
FSMB	Fraser Salmon Management Board
FSMC	Fraser Salmon Management Council
GN	Gill Net
HA	Harvest Agreement
HG	Haida Gwaii

ACRONYM	PHRASE
ITQ	Individual Transfer Quota
IHPC	Integrated Harvest Planning Committee
IFR	Interior Fraser River
iREC	Internet Recreational Effort and Catch reporting program
ISBM	Individual Stock-Based Management
ISC	Inside Southern Chum
LAER	Low Abundance Exploitation Rate
LGS	Lower Strait of Georgia
LRP	Lower Reference Points
MA	Management Adjustment
MCC	Marine Conservation Caucus
MPA	Marine Protected Area
MSY	Maximum Sustainable Yield
MU	Management Unit
MVI	Mid Vancouver Island
NMCAR	National Marine Conservation Area Reserve
NOLS	National On-line Licensing System
NWA	National Wildlife Area
PA	Precautionary Approach
pDBE	Proportional Difference Between Estimates
PICFI	Pacific Integrated Commercial Fisheries Initiative
PFMA	Pacific Fisheries Management Areas
pMA	Proportional Management Adjustment
PSC	Pacific Salmon Commission
PNCIMA	Pacific North Coast Integrated Management Area
PSM	Pre-Spawn Mortality
PSSI	Pacific Salmon Strategy Initiative
PST	Pacific Salmon Treaty
RCA	Rockfish Conservation Area
SARA	*Species at Risk Act*
SCC	First Nations Salmon Coordinating Committee
SEG	Sustainable Escapement Goal
SEP	Salmonid Enhancement Program
SFAB	Sport Fishing Advisory Board
S_{GEN}	Spawner abundance required to get to S_{MSY} in 1 generation
SHMF	Selective Hatchery Mark Fishery
S_{MSY}	Spawners at Maximum Sustainable Yield
SN	Seine
TAC	Total Allowable Catch
TAM	Total Allowable Mortality
TR	Troll

ACRONYM	PHRASE
WCVI	West Coast Vancouver Island
WSP	Wild Salmon Policy (Canada's Policy for Conservation of Wild Pacific Salmon)

FOREWORD

The purpose of this Integrated Fisheries Management Plan (IFMP) is to identify the main objectives and requirements for the Southern B.C. Pacific salmon fishery, as well as the management measures that will be used to achieve these objectives. This document also serves to communicate the basic information on the fishery and its management to Fisheries and Oceans Canada (DFO, the Department) staff, legislated co-management boards, First Nations, harvesters, and other interested parties. This IFMP provides a common understanding of the basic "rules" for the sustainable management of the fisheries resource.

This IFMP is not a legally binding instrument that can form the basis of a legal challenge. The IFMP can be modified at any time and does not fetter the Minister's discretionary powers set out in the *Fisheries Act*. The Minister can, for reasons of conservation or for any other valid reasons, modify any provision of the IFMP in accordance with the powers granted pursuant to the *Fisheries Act*.

Where DFO is responsible for implementing obligations under land claims agreements, the IFMP will be implemented in a manner consistent with these obligations. In the event that an IFMP is inconsistent with obligations under land claims agreements, the provisions of the land claims agreements will prevail to the extent of the inconsistency.

NEW FOR 2024/2025

KEY CHANGES FOR THE 2024/25 SOUTHERN BC SALMON IFMP

PACIFIC SALMON STRATEGY INITIATIVE

The Pacific Salmon Strategy Initiative (PSSI) will continue its long-term strategy to address serious declines in key Pacific salmon populations through a series of initiatives under four pillars.

Under the Harvest Transformation pillar, the Department will continue to seek feedback from First Nations and stakeholders on other areas where additional changes may be implemented to modernize fisheries management and stabilize and restore Pacific salmon. Aspects of the Harvest Transformation Pillar include the Licence Retirement Program, longer term commercial closures, advancing shared-based management, and improved catch monitoring. Harvest transformation initiatives will continue to be discussed in further detail at meetings in 2024.

In 2023, the Department completed round 1 and launched round 2 of the Pacific Salmon Commercial Licence Retirement Program to transform the harvest sector for greater adaptability and economic viability by reducing the commercial salmon fleet to better align with longer-term prospects for commercial harvest.

In 2024, the Department will continue to implement longer term commercial closures that were identified in 2022 where stocks of conservation concern may be intercepted as bycatch or in directed fisheries. Further details on longer term commercial closures or additional mitigations can be found in Appendix 8.

For commercial fisheries, the Department is interested in exploring opportunities to expand share-based management (e.g. Individual Transferable Quota, Individual Transferable Effort, pooled arrangements) to support more predictable and sustainable harvest opportunities.

Beginning in 2024/25, the Department intends to work with commercial harvesters to develop implementation plans, and test approaches for implementing an interim minimum standard of independent verification of landed catch and at-sea releases by the 2025/26 season. The Department is seeking feedback on the interim commercial minimum standard (Section 12.4 while longer term comprehensive monitoring plans will be developed through consultation in subsequent years.

Further details can be found here: Pacific Salmon Strategy Initiative (dfo-mpo.gc.ca)

ENVIRONMENTAL CONDITIONS AND DROUGHT MANAGEMENT

The 2024 Pacific salmon returns experienced varying environmental conditions across their freshwater and marine residences. Canadian Pacific salmon productivity (adult recruits produced per parental spawner) is expected to be mixed in 2024.

Summer river temperatures are increasingly exceeding upper thermal tolerances for salmon in assessed systems. In addition, early loss of snowpack can contribute to warmer summer river and lake temperatures.

B.C. experienced significant droughts in recent years. In summer 2021 and fall 2022, severe to extreme drought impacted multiple regions in B.C. Lower water levels can increase water temperatures, reduce water quality, block passage to key spawning habitat, strand salmon, and increase their exposure to predators.

Large marine heatwaves were observed every year in the Northeast Pacific between 2019 and 2023. These included some of the largest marine heatwaves on record since observations began in 1982.

Looking further into the future, it is not anticipated that long-term salmon survival patterns will reflect what we have seen historically. Pacific salmon are responding to environmental changes driven by climate change and other human activities. Climate change vulnerability assessments can provide a longer-range outlook for Canadian Pacific salmon to better inform current and future management decisions, and support efforts to adapt to the changing salmon landscape (MacDonald and Grant 2023).

DFO has heard an increasing number of requests from First Nations and stakeholders to make adjustments to fisheries when extreme environmental conditions occur. DFO resource management will be using available resources to respond to extreme environmental conditions such as drought at a local level based on scientific advice that considers data quality and incorporates uncertainty. Since the environmental stressors encountered by individual salmon populations vary, so should the responses. Fisheries management responses may involve further reductions in fisheries for stocks impacted by these extreme events. Situations will be reviewed on a case-by-case basis by area staff, in collaboration with First Nations, with advice from Regional Salmon, DFO Science, and the Province of BC.

In the absence of a drought management strategy, DFO will continue to manage fisheries using the precautionary principle. Temporary fishery measures (i.e., time and area closures, variation in opening times, etc.) are anticipated to respond to potential extreme low flow and associated high temperature events. Additional management measures may also be considered to address

specific challenges related to environmental conditions (e.g., work to restore access to spawning streams, management measures to protect holding fish, etc.).

FISH STOCKS PROVISIONS / REBUILDING PLANS

In April of 2022, three stocks of Pacific Salmon were included in a regulatory amendment to the *Fishery (General) Regulations* (FGR) under the Fish Stocks Provisions (FSP). FSP includes obligations to maintain prescribed fish stocks at levels necessary to promote their sustainability (s. 6.1) and to develop and implement rebuilding plans for stocks that have declined to or below their limit reference point (LRP) (s. 6.2). The first three prescribed salmon stocks are Okanagan Chinook, West Coast Vancouver Island (WCVI) Chinook, and Interior Fraser River (IFR) Coho. Collaborative work is underway to develop Rebuilding Plans for both WCVI Chinook and Okanagan Chinook. A rebuilding plan for IFR Coho is not required as this population is above the expected LRP. The Department will consult with First Nations and stakeholders on the Record of Evidence which describes the current management strategy for Interior Fraser Coho, and how it is compliant with the Precautionary Approach policy.

In addition to the first batch of stocks, the Department sought feedback from October 19 to December 19, 2022 on a proposal for a regulatory amendment to the FGR to prescribe the second batch of fish stocks that would be subject to FSP (sections 6.1–6.3 of the Fisheries Act). This regulatory amendment would see the addition of 62 fish stocks to Schedule IX of the FGR nationally, including four Pacific salmon stocks. Schedule IX currently contains 30 fish stocks.

Information on the proposed batch two stocks can be found here: Consultation on a Regulatory Proposal to Prescribe Stocks to the Fish Stocks Provisions in the Fisheries Act (dfo-mpo.gc.ca). In response to feedback received during this consultation period, a fifth salmon stock may be added to the regulatory amendment.

West Coast Vancouver Island Chinook Rebuilding Plan Updates:

The Rebuilding Plan for WCVI Chinook is underway with a regulatory completion date of April 3, 2024. Engagement with First Nations and stakeholders on rebuilding objectives, management measures and implementation is ongoing.

Okanagan Chinook Rebuilding Plan Updates:

The Rebuilding Plan for Okanagan Chinook is underway with an expected completion date of April 3, 2024. The Rebuilding Plan was collaboratively developed with the Okanagan Nation Alliance.

Interior Fraser Coho Update:

Interior Fraser River (IFR) Coho are above their anticipated LRP, and therefore are subject to Section 6.1 of the *Fisheries Act* and do not require a rebuilding plan at this time. Details on the status of IFR Coho and how the current management strategy is consistent with the Precautionary Approach can be found in Appendix 11.

SOUTHERN BC AND FRASER RIVER CHINOOK

Conservation Measures

Management measures to address conservation concerns for wild Southern BC and Fraser Chinook continue to be required in 2024 and will likely be maintained for many years to facilitate the rebuilding of at-risk Chinook stocks. It is important to note that five-year-old Chinook returning in 2024 are the brood of the 2019 fish that were significantly impacted by the Big Bar landslide. An estimated 80% of Spring 5_2 and 50% of Summer 5_2 Chinook stocks that migrated over the slide died enroute to the spawning grounds. In 2020, approximately 20% of these Spring 5_2 stocks died due to migration challenges over the slide.

Precautionary fishery restrictions continue to be necessary to provide a high degree of protection to at-risk Fraser stream-type Chinook management units (Spring 4_2, Spring 5_2, and Summer 5_2). This will require continued restrictions and/or closures to fisheries in times and areas where these stocks are encountered in Northern and Southern BC.

The Fraser Salmon Management Board (FSMB) recommends the continuation of precautionary fishery restrictions to provide a high degree of protection to at-risk Fraser stream-type Chinook management units (Spring 4_2, Spring 5_2, and Summer 5_2). For Summer 5_2 Chinook, the FSMB recommends the continuation of precautionary fishery restrictions in Canadian fisheries to maintain very low fishery mortalities in the range of 10% to 14% to allow as many fish to pass through to the spawning grounds as possible. For more details see Section 13.1.5.1.

An assessment of fishery mortalities for the 2023 season, including information from coded-wire tags and genetic samples, is expected to be available in fall 2024. This information may inform additional adjustments to management measures in 2025. The Department is also continuing to monitor the performance of Chinook indicator stocks to meet Pacific Salmon Treaty obligations and future adjustments may be required.

For a description of the FSMC, please see Section 3.6.2.

Mass Marking / Mark-Selective Fisheries

Since 2020 the Department approved a small number of recreational Chinook mark selective fishery (MSF) opportunities, which are planned to continue in 2024/2025, pending the post-season review of the available fisheries information. Details can be found here in Table 13- : Approved MSF Openings – Southern ISBM.

The Pacific Salmon Strategy Initiative (PSSI) provides new investments to support potential implementation of Chinook mass marking and mark-selective fisheries as part of an integrated management approach. To advance this work, DFO sought input from First Nations and stakeholders during a series of workshops that began in December 2022, leading to DFOs development of *An Implementation Framework for Mark-Selective Fisheries for Southern British Columbia Chinook Salmon* (Appendix 12). The purpose of this framework is to outline a risk-based, transparent and collaborative process for the evaluation, decision making, mitigation measures, implementation, review and improvements of MSFs targeting adipose fin-clipped hatchery Chinook Salmon in a manner consistent with the regulatory and policy requirements for Pacific salmon management. Proposals for new MSF opportunities may be submitted by all harvest sectors, or by DFO, and they will evaluated against the key criteria laid out in the framework.

Pacific Salmon Treaty Obligations for Fraser Fall 4₁ (Harrison Chinook)

The Pacific Salmon Treaty specifies that for individual stock-based management ("ISBM") fisheries, U.S. and Canada shall manage these to limit the total adult equivalent mortality for stocks listed in Chapter 3 Attachment I of the Treaty that are not meeting agreed biologically-based management objectives (escapement targets), or that do not have agreed management objectives (escapement targets), to no more than the limits identified in Attachment I of the Treaty.

Under Chapter Three of the PST, in response to not meeting the escapement goal for three consecutive years, Canada is obligated to reduce the ISBM CYER on Harrison Chinook to below the running three-year average from years that meet the specific inclusion criteria. No additional management actions are planned at this time, given the ISBM CYER was low in 2022 (~4.7%), and the escapement goal was met in 2022 and 2023.

SOUTHERN RESIDENT KILLER WHALES - FISHERY MANAGEMENT MEASURES TO SUPPORT PREY AVAILABILITY AND REDUCE PHYSICAL AND ACOUSTIC DISTURBANCE

The Government of Canada is taking important steps to protect and recover the Southern Resident Killer Whale population, in keeping with recovery measures identified in *Species at Risk Act* (SARA) recovery documents. In May 2018, the Minister of Fisheries, Oceans and the Canadian Coast Guard and Minister of Environment and Climate Change determined the Southern Resident Killer Whale population faces imminent threats to its survival and recovery. Since 2018, the Government of Canada, with input from the Indigenous and Multi-Stakeholder Advisory Group and Technical Working Groups and consultation with Indigenous groups, stakeholders, and the public, has implemented a number of measures aimed at increasing prey

availability for Southern Resident Killer Whales – particularly Chinook Salmon—and reducing physical and acoustic disturbance by focusing on protecting key foraging areas within Southern Resident Killer Whale critical habitat. These measures include fishing closures, Interim Sanctuary Zones (i.e., no-go zones), Speed Restricted Zones for vessels , vessel avoidance distances, and a number of voluntary measures in the presence of killer whales.

For the 2024 and 2025 fishing seasons, Fisheries and Oceans Canada (DFO) is working with Indigenous groups and stakeholders to inform potential changes for 2024 and 2025. DFO intends for actions to be implemented to coincide with the return of Southern Resident Killer Whales in typically greater numbers to Canadian Pacific waters. For up-to-date information regarding the Southern Resident Killer Whale management measures, please visit: https://www.canada.ca/southern-resident-killer-whaleshttps://www.canada.ca/southern-resident-killer-whales.

Actions taken to protect and recover Southern Resident Killer Whales also included funding to study Southern Resident Killer Whale diet. As one component of this research, Chilliwack Fall Chinook hatchery production was increased in years 2019 to 2023 (from 1 million to 2 million) to test the effectiveness of expanded hatchery programming to support Southern Resident Killer Whale recovery. In 2024, Chilliwack Fall Chinook production is planned to return to the previous level (1 million). Data will be collected from 2022 to 2028 to assess whether this increase in Chinook production was detected in the Southern Resident Killer Whale diet.

The Government of Canada is asking vessel operators to respect the following voluntary measures year-round and in all Canadian Pacific waters:

- Stop fishing (do not haul gear where appropriate) within 1,000 metres of killer whales and let them pass;
- Reduce speed to less than 7 knots when within 1,000 metres of the nearest killer whale;
- When safe to do so, turn off echo sounders and fish finders; and
- Place engine in neutral idle and allow animals to pass if your vessel is not in compliance with the approach distance regulations.

For more information on the best ways to help whales while on the water, when on both sides of the border, please visit: bewhalewise.org.

For more information regarding the Southern Resident Killer Whale management measures to support recovery, please contact the Marine Mammal Team (DFO.SRKW-ERS.MPO@dfo-mpo.gc.ca) or visit www.pac.dfo-mpo.gc.ca/southern-resident-killer-whale

CHUM MANAGEMENT

INTERIOR FRASER RIVER (THOMPSON AND CHILCOTIN) STEELHEAD AND FRASER RIVER CHUM

For 2024, window closures implemented starting in 2019 to protect Interior Fraser River (IFR) Steelhead from bycatch fishing mortality occurring in salmon fisheries will continue to be in place. IFR Steelhead window closure dates by area are outlined in Appendix 9, and implementation details are provided for all affected fisheries in Section 13.

The current IFR Steelhead window closures in the Fraser River overlap with approximately three quarters of the Fraser Chum return. Any Fraser Chum fishing opportunities identified in-season will therefore only be able to access a portion of the overall Fraser Chum return. Potential long-term consequences of fishing pressure on the tail end of the run may include: a shift to earlier peak timing of the entire return; shorter overall duration of the return; and loss of genetic diversity and capacity to withstand environmental change. Section 13.2.3 of this IFMP outlines a method to scale available TAC on Fraser Chum to account for these concerns. In addition, fishery end dates for all FSC, commercial and recreational fisheries will be considered for Fraser River mainstem and tributary fisheries.

Longer term closures will continue to be implemented in a number of Southern BC commercial Chum fisheries in 2024 to protect stocks of conservation concern. A list of closures can be found in Appendix 8.

FRASER RIVER SOCKEYE

2024 marks the second return of Sockeye affected by the Big Bar landslide, and the first year where both four and five year olds were impacted by this landslide. For stocks above Big Bar, escapements in 2020 were some of the lowest on record with some early stocks (e.g., Early Stuart, Bowron, Taseko) experiencing near total in-river mortality. As such, in addition to typical stock uncertainties, forecasts for stocks migrating above Big Bar are highly uncertain with comparisons to brood year and cycle average varying widely.

For the 2024 forecast, final escapement plan, window closure dates, ESSR fishery guidelines and a proposed framework, please refer to the Fraser River Sockeye section of the Southern Sockeye Salmon Fishing Plan in Section 13.

BIG BAR LANDSLIDE

On June 23, 2019, a significant landslide was reported in a remote, rugged canyon along the Fraser River near Big Bar Creek, north of Lillooet, British Columbia. Approximately 110,000 m^3 of rock and debris sheared off a 125-metre cliff, falling into the river and creating a five-metre

waterfall across the channel. This barrier prevented migrating Pacific salmon from moving beyond the landslide to reach their spawning grounds, disrupting the reproductive cycle of several key Upper Fraser salmon populations.

Salmon migration monitoring results in 2023 at the Big Bar landslide site indicate no delay in salmon passage in 2023 as in 2022. The monitoring team collected migration data from the radio telemetry and hydro acoustic sonar programs throughout the Early Stuart Sockeye migration from mid June to early August. 77,853 salmon were detected 40 km upstream of the slide site with 117 radio tags applied to chinook salmon and 66 radio tags applied to sockeye salmon. Tag application was conducted in collaboration with Matsqui First Nation operating a fishwheel. The 2023 monitoring data in conjunction with data from 2022 has provided valuable information to inform recommendations into the Structured Decision Making process (SDM).

With the need for a long-term solution for safe fish passage, a structured decision-making (SDM) process began in December 2021. With the support of First Nations partners and the Province of BC, DFO worked with a third party consultant (Compass Resource Management) on the SDM process to redefine the passage problem, determine project and management objectives, research alternative management actions and their consequences/tradeoffs to arrive at a solution that satisfies the objectives.

The SDM process developed recommendations based on review of all potential options for a long-term solution to ensure fish passage at the Big Bar slide site. Specialized teams conducted in-river modeling and measuring the movement of salmon through Big Bar during various river flows. A robust monitoring program for 2022 significantly bolstered the existing data with expanded fish tracking through the slide area. The SDM process has now concluded, as Big Bar no longer appears to be the primary factor limiting the overall success of salmon migration into the Upper Fraser River watershed. Monitoring of 2021, 2022, and 2023 salmon migration has demonstrated that Big Bar is likely no longer a significant barrier to fish passage through a broader range of water levels. However, recognizing Big Bar is still a concern, the site will continue to be monitored by DFO with First Nations involvement. Should future monitoring indicate that salmon passage thresholds at Big Bar are decreasing, it is then recommended the Big Bar Joint Executive Steering Committee (JESC) should reopen the SDM process within the broader context of fish passage problems and potential solutions along the entire Fraser River. 2024 Migration monitoring during Early Stuart Sockeye migration will continue through implementation of sonars downstream and upstream of the slide site to inform migration. In addition, hydraulic monitoring and assessment of the stability of the Nature Like Fishway (NLFW) will continue on an annual basis for the next 5 years.

DFO and Upper Fraser First Nations continue to work together to plan and implement hatchery production of Sockeye and Chinook populations affected by the Big Bar landslide. Proposed hatchery production for 2024 builds upon the knowledge and experience gained through recent

years' emergency enhancement. 2024 returns are anticipated to be very low due to the impacts of the slide on the 2019 and 2020 brood years.

Additional information and updates can be found at the following link: https://www.pac.dfo-mpo.gc.ca/pacific-smon-pacifique/big-bar-landslide-eboulement/index-eng.html

COMMERCIAL SALMON ALLOCATION FRAMEWORK (CSAF)

*Please see Appendix 6 for details of CSAF demonstration fisheries for 2024.

Additional information on the work completed since 2013 can be found at the following link: http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html

The Department is continuing to implement existing and review new CSAF demonstration fisheries proposals through the IFMP process. CSAF demonstration fishery proposals are intended to provide increased flexibility for harvesters to fish their commercial salmon shares. CSAF demonstration fishery proposals are assessed through an Evaluation Framework which outlines Departmental objectives and were developed with support from the Salmon Coordinating Committee (SCC) and Commercial Salmon Advisory Board (CSAB).

1 OVERVIEW

1.1 INTRODUCTION

The Southern BC Salmon Integrated Fisheries Management Plan (IFMP) covers the period June 1, 2024 to May 31, 2025.

This IFMP provides a broad context to the management of the Pacific salmon fishery and the interrelationships of all fishing sectors involved in this fishery. Section 2 considers stock assessment, while Sections 3 and 4 consider the shared stewardship arrangements and the social, cultural, and economic performance of the fishery. Section 5 describes the broader management issues, and the objectives to address these issues are identified in Section 6. Sections 7 and 8 describe allocation, general decision guidelines, and compliance plans. 2023 post-season review information is outlined in Section 9. Sections 10, 11, and 12 are sections that describe the different fisheries and Section 13 of the IFMP covers off the fishing plans for each salmon species.

The Appendices in the IFMP provide information such as the fishing vessel safety, advisory board members, and maps of commercial licence areas.

1.2 HISTORY

Fish and marine resources are central to the culture, society, and well-being of First Nations and provide a critical connection to language, traditional knowledge, and health of communities. For thousands of years, the history, economy, and culture of Canada's west coast have been inextricably linked to Pacific salmon. Since the late 1800s, salmon have supported a vibrant commercial fishing industry, vital to the establishment and well-being of many coastal communities. Salmon, particularly Chinook and Coho, also play a key role in the west coast recreational fishery.

1.3 TYPE OF FISHERY AND PARTICIPANTS

This plan describes the management of First Nations, recreational, and commercial fisheries for Pacific salmon in southern BC and the factors that influence decision-making. Salmon fisheries are coordinated regionally with many management decisions occurring in area and field offices. Key to salmon management is the development and implementation of integrated fisheries management plans that meet specified objectives focusing on conservation, allocation, and obligations to First Nations and international treaties.

1.4 LOCATION OF FISHERY

This IFMP covers fisheries in tidal and non-tidal waters from Cape Caution south to the BC/Washington border, including the Fraser River watershed.

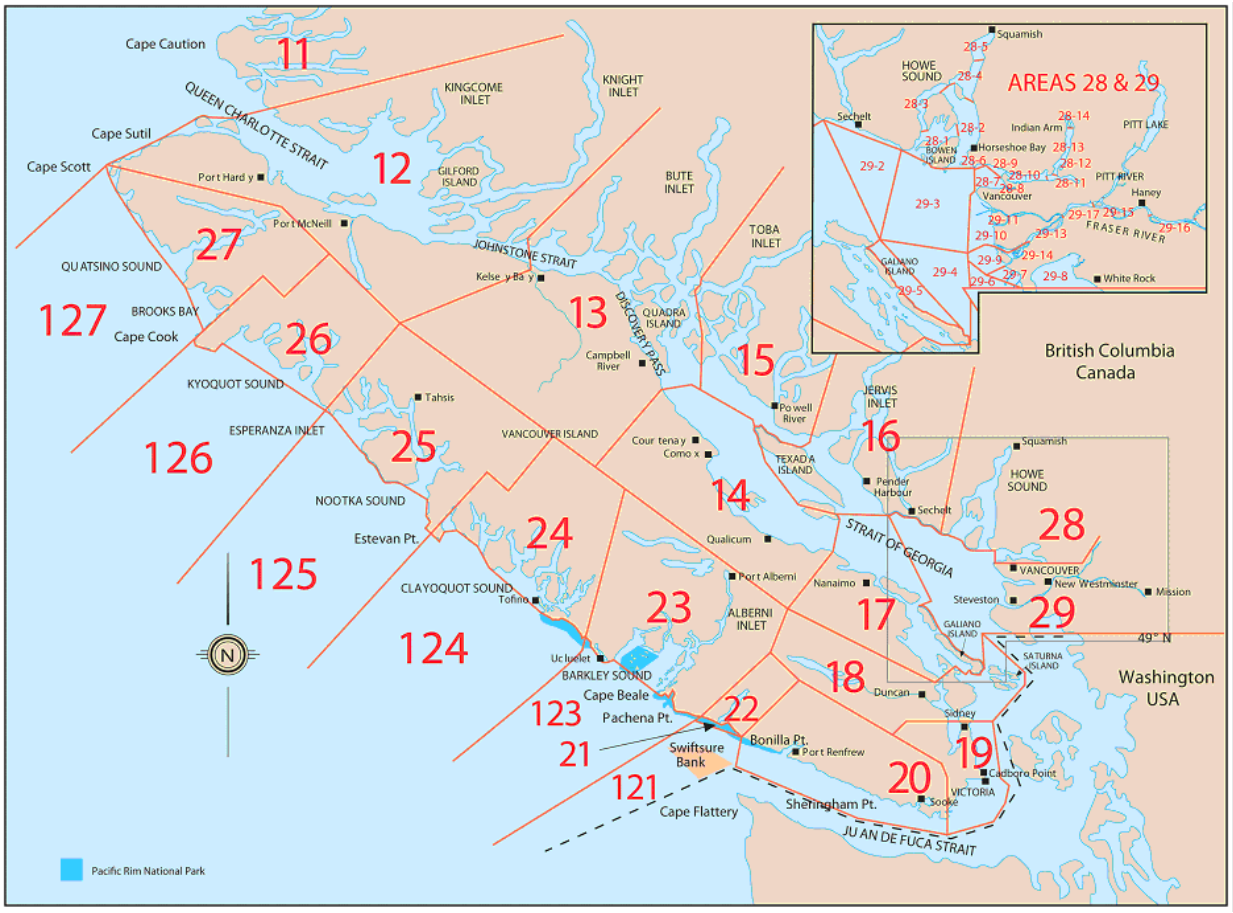

Figure 1-1: Management Areas for Southern BC

1.5 FISHERY CHARACTERISTICS

Pacific salmon species covered in the plan include Sockeye, Coho, Pink, Chum, and Chinook. Fisheries include those undertaken by First Nations as well as the recreational and commercial sectors.

In the 1990 Sparrow decision, the Supreme Court of Canada found that where an Indigenous group has an Aboriginal right to fish for food, social, and ceremonial (FSC) purposes, it takes priority — after conservation — over other uses of the resource.

There are four modern treaties in British Columbia, which all have fisheries chapters: Nisga'a Final Agreement, Tsawwassen First Nation Final Agreement, Maa-nulth First Nations Final Agreement, and Tla'amin (Sliammon) Nation Final Agreement. Through these modern treaties, Nations work with DFO to manage treaty fisheries on an annual basis. There are also historic treaties in British Columbia (Douglas Treaties and Treaty 8). For a detailed list of long-term fisheries arrangements in BC and Yukon, please see the internet at https://www.pac.dfo-mpo.gc.ca/abor-autoc/treaty-traites-eng.html. For information on Tsawwassen First Nation, Maa-nulth First Nations and Tla'amin Nation fisheries please see Section 10.1.

Pre-season, DFO engages in a variety of consultation and collaborative harvest planning processes with First Nations at the community level, broader tribal, or watershed levels. Fisheries are then authorized via a Communal Licence issued by the Department under the *Aboriginal Communal Fishing Licences Regulations*. These licences are typically issued to individual bands or tribal aggregates, and describe the details of authorized fisheries including dates, times, methods, and locations of fishing. For modern treaty Nations, a Harvest Document is issued, which authorizes domestic harvest in accordance with their Final Agreement. Licences, Harvest Documents and Aboriginal Fisheries Strategy (AFS) agreements (where applicable) include provisions that allow First Nations' designation of individuals to fish for the group and in some cases, vessels that will participate in fisheries.

Fishing techniques used in FSC and domestic use fisheries are quite varied, ranging from traditional methods such as dip nets to modern commercial methods such as seine nets, fished from specialized vessels.

Separate from FSC fisheries, some First Nations have communal access to commercial opportunities as follows:

- Right-based sale access for five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht). DFO has developed a Fishery Management Plan for the 2023/2024 season.
- Negotiated through a side agreement, some modern treaty First Nations have communal commercial access through a Harvest Agreement outside of the constitutionally protected treaty. More information is provided in Section 10.3.2.
- Commercial fisheries access through communal commercial licences obtained via a DFO voluntary licence relinquishment programs (e.g., Pacific Integrated Commercial Fisheries Initiative (PICFI), or the Allocation Transfer Program (ATP). These communal commercial licences are fished in a manner that is comparable to the general commercial fishery.

Negotiated economic opportunity fisheries (Lower Fraser and West Coast of Vancouver Island only) and demonstration fisheries (select locations, to date supported through commercial licence eligibilities relinquished from the commercial salmon fleet, through the ATP and PICFI programs).

Community-Based Fisheries (CBFs), including Community Based Economic Fisheries (CEBFs), are collaboratively-managed (by DFO and First Nations) sale fisheries that may be established pursuant to reconciliation agreements, and are designed to enable enhanced community participation by supporting First Nations to fish existing commercial fishing access according to a set of negotiated flexibilities.

Excess Salmon to Spawning Requirements (ESSR) fisheries may also be provided that permit the sale of fish in some highly terminal areas where spawner abundance is in excess of spawning requirements. Modern treaty Nations with provisions for access to surplus salmon under their Final Agreement, may be authorized to selective, terminal commercial sale fisheries where abundance permits.

Fisheries and Oceans Canada regulates recreational fishing for Pacific salmon in both tidal and non-tidal waters. All recreational fishers must possess a valid sport fishing licence. Tidal licences are issued by DFO, and non-tidal licences are issued by the Province of BC. Anglers wishing to retain salmon taken from either tidal or non-tidal waters must have a valid salmon conservation stamp affixed to the licence. The proceeds from the sale of tidal Pacific Salmon Conservation stamps are used to fund salmon restoration projects supported by the non-profit Pacific Salmon Foundation. The proceeds from the sale of non-tidal Conservation Surcharge stamps directly benefit fish conservation through the Habitat Conservation Trust Foundation.

Fishing techniques used in the recreational fishery include trolling, mooching, and casting with bait, lures, and artificial flies. Boats are most commonly used, but anglers also fish from piers, shores, or beaches. Only barbless hooks may be used when fishing for salmon in British Columbia.

Commercial salmon licences are issued for three gear types: troll, seine, and gill net. Trollers employ hooks and lines, which are suspended from large poles extending from the fishing vessel. Altering the type and arrangement of lures used on lines allows various species to be targeted. Seine nets are set from fishing boats with the assistance of a small skiff. Nets are set in a circle around schools of fish. The bottom edges of the net are then drawn together into a "purse" to prevent escape of the fish. Salmon gill nets are rectangular nets that hang in the water and are set from either the stern or bow of the vessel. Fish swim headfirst into the net, entangling their gills in the mesh. Altering the mesh size and the way in which nets are suspended in the water allows nets to target certain sizes of fish. Gill-netters generally fish near coastal rivers and inlets.

Licence conditions and commercial fishing plans lay out allowable gear characteristics such as hook styles, mesh size, net dimensions, and the methods by which gear may be used.

1.6 GOVERNANCE

Departmental policy development related to the management of fisheries is guided by a range of considerations that include legislated mandates, judicial guidance, and international and domestic commitments that promote biodiversity and a precautionary, ecosystem-based approach to the management of marine resources. Policies were developed with consultation from those with an interest in salmon management. While the policies themselves are not subject to annual changes, implementation details are continually refined where appropriate.

1.6.1 POLICY FRAMEWORK FOR THE MANAGEMENT OF PACIFIC SALMON FISHERIES

Salmon management programs continue to be guided by the following policies: *Canada's Policy for Conservation of Wild Pacific Salmon* (WSP), *An Allocation Policy for Pacific Salmon, A Policy for Selective Fishing, A Framework for Improved Decision Making in the Pacific Salmon Fishery*, and the Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries. These policies are available at:
https://www.dfo-mpo.gc.ca/reports-rapports/regs/policies-politiques-eng.htm

Canada's Policy for Conservation of Wild Pacific Salmon (the Wild Salmon Policy) sets out the vision regarding the importance and role of Pacific wild salmon as well as a strategy for their protection. More information on this can be found in Section 5.1.1 of this plan or at:
https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/index-eng.html

The 1999 *An Allocation Policy for Pacific Salmon* sets out principles for allocating salmon in BC among the three harvest groups (First Nations food, social and ceremonial; commercial; and recreational) and within the commercial fishery among gear types (gillnet, seine and troll). It forms the basis for general decision guidelines outlined in Section 7 of this plan.

Since the Salmon Allocation Policy was first adopted over twenty years ago, there have been significant changes to fisheries management, policy, and Aboriginal rights. Most recently, within the 2018 BC Supreme Court *Ahousaht* decision (Ahousaht Indian Band and Nation et al v. Canada (Attorney General) 2018 BCSC 633), the application of the SAP (1999) was found to be an unjustified infringement of the five Nuu-chah-nulth Nations' (Ahousaht, Ehattesaht/ Chinehkint, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht) Aboriginal rights to fish and sell fish insofar as the SAP accords priority to the recreational fishery over the Five Nations' right-based sale fishery for Chinook and Coho salmon. To the extent that the SAP applies to the Five Nations in the manner declared an unjustifiable infringement by the Court, the SAP is of

no force and effect in its application to the Five Nations' exercise of their Aboriginal right to fish and sell fish. DFO has responded to the court decision through the development of an annual Fisheries Management Plan for the Five Nations, which addresses the right to sell fish. Rather than designing a process solely to address the Court's findings in Ahousaht, DFO has also initiated a process to review and replace the SAP (1999).

The Department has embarked on a collaborative, phased process with First Nations and stakeholders to review and update the policy. This process of updating the Salmon Allocation Policy is being conducted in a manner that is intended to respect Canada's nation-to-nation relationship with Indigenous peoples and engage stakeholders. For more information on the SAP Review process, please visit our website: http://www.pac.dfo-mpo.gc.ca/consultation/smon/sap-prs/index-eng.html.

Pacific Fisheries Reform, announced by the Department in April of 2005, provides a vision of a sustainable fishery where the full potential of the resource is realized, Aboriginal rights and title are respected, there is certainty and stability for all, and fishery participants share in the responsibility of management. Future treaties with First Nations are contemplated, as is the need to be adaptive and responsive to change. This policy direction provides a framework for improving the economic viability of commercial fisheries, to addressing First Nations aspirations with respect to FSC and commercial access and involvement in management.

In May 1999, the Department released *A Policy for Selective Fishing in Canada's Pacific Fisheries*. Under the Department's selective fishing initiative, harvester groups have experimented with a variety of methods to reduce the impact of fisheries on non-target species, with a number of measures reaching implementation in fisheries.

1.6.1.1 SUSTAINABLE FISHERIES FRAMEWORK

The Sustainable Fisheries Framework (SFF) is a toolbox of policies to ensure that Canadian fisheries support conservation and sustainable use of resources.

These policies include:

- *Fishery Decision-Making Framework Incorporating the Precautionary Approach*
    - Guidelines for Implementing the Fish Stocks Provisions in the *Fisheries Act*
    - Guidelines for writing rebuilding plans per the Fish Stocks Provisions and A Fishery-Decision-making Framework Incorporating the Precautionary Approach
- *Fishery Monitoring Policy*
    - Introduction to the procedural steps for implementing the Fishery Monitoring Policy
- *Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas*

    - Ecological Risk Assessment Framework (ERAF) for Coldwater Corals and Sponge Dominated Communities
- *Policy on Managing Bycatch*
- *Policy on New Fisheries for Forage Species*
- *Canada's Policy for Conservation of Pacific Salmon* (Wild Salmon Policy)

For more information on the Sustainable Fisheries Framework and its policies, visit: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/overview-cadre-eng.htm

Sustainability Surveys for Fisheries: DFO annually tracks the performance of key fish stocks that it manages through the Sustainability Survey for Fisheries. Results of previous Sustainability Surveys are available at:

***Sustainable Fisheries Framework work plans*:** Each year, DFO develops a work plan and reports on priorities and targets regarding the sustainable management of Canada's marine resources. These work plans are available at: https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/index-eng.html

1.6.1.2 PRECAUTIONARY APPROACH FRAMEWORK

The Sustainable Fisheries Framework policy suite includes a decision-making framework incorporating a precautionary approach to commercial, recreational, and food, social, and ceremonial fishing: http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precaution-eng.htm

The precautionary approach in fisheries management requires caution when scientific knowledge is uncertain. The absence of adequate scientific information should not result in postponed action or failure to take action to avoid the risk of serious harm to the resource.

Applying the precautionary approach to fisheries management decisions entails establishing harvest strategies that:

- identify three stock status zones – Healthy, Cautious, and Critical – delineated by an upper stock reference point and a limit reference point;
- set the removal rate at which fish may be harvested within each stock status zone; and
- adjust the removal rate according to fish stock status (i.e. spawning stock biomass or another index/metric relevant to population productivity), based on pre-agreed decision rules.

The framework requires that a harvest strategy be incorporated into respective fisheries management plans to keep the removal rate moderate when the stock status is in the Healthy Zone, to promote rebuilding when stock status is low, and to ensure a low risk of serious or irreversible harm to the stock.

A key component of the Precautionary Approach Framework requires that when a stock has declined to the Critical Zone, a rebuilding plan must be in place with the aim of having a high probability of the stock growing out of the Critical Zone within a reasonable timeframe: http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precautionary-precaution-eng.htm

1.6.1.3 FISHERIES ACT: FISH STOCK PROVISIONS

Amendments to the *Fisheries Act* (Bill C-68) were passed into legislation in 2019 and include new authorities to amend the Fishery (General) Regulations and requirements to maintain major fish stocks at sustainable levels, and to develop and implement rebuilding plans for stocks that have declined to their critical zone. Amendments are available at: https://www.parl.ca/LegisInfo/en/bill/42-1/C-68

An associated regulatory amendment to prescribe the first batch of major fish stocks and describe requirements for rebuilding plans was registered and came into force on April 3, 2022, and published in Canada Gazette, Part II. Available at: https://www.gazette.gc.ca/rp-pr/p2/2022/2022-04-13/html/sor-dors73-eng.html

1.6.1.4 FISHERY MONITORING AND CATCH REPORTING

DFO released the national Fishery Monitoring Policy in 2019, which will replace the regional Strategic Framework for Fisheries Monitoring and Catch Reporting in the Pacific Fisheries (2012). The national policy seeks to provide dependable, timely and accessible fishery information through application of a common set of steps used to establish fishery monitoring requirements across fisheries. Available at: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fishery-monitoring-surveillance-des-peches-eng.htm

The 2012 Pacific Strategic Framework for Fisheries Monitoring and Catch Reporting is available at: https://www.pac.dfo-mpo.gc.ca/fm-gp/docs/framework-monitoring-cadre-surveillance-eng.html

To ensure consistent national application, further guidance is provided through in the Introduction to the Procedural Steps of Implementing the Fishery Monitoring Policy, available at: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fmp-implementation-psp-mise-en-oeuvre-eng.htm

1.6.1.5 POLICY FOR MANAGING THE IMPACTS OF FISHING ON SENSITIVE BENTHIC AREAS

To avoid serious or irreversible harm to sensitive benthic habitat, species and communities and to otherwise address impacts to benthic habitat, communities and species, this policy outlines a

five (5) step process. Available at: http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/benthi-eng.htm

1.6.1.6 ECOLOGICAL RISK ASSESSMENT FRAMEWORK & COLD-WATER CORAL AND SPONGE CONSERVATION STRATEGY

The *Ecological Risk Assessment Framework for Coldwater Corals and Sponge Dominated Communities* (or ERAF) outlines a process for identifying the level of ecological risk of fishing activity and its impacts on sensitive benthic areas in the marine environment. Available at: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/risk-ecolo-risque-eng.htm.

DFO's *Pacific Region Cold-water Coral and Sponge Conservation Strategy* aims to promote the conservation, health and integrity of Canada's Pacific Ocean cold-water coral and sponge species. For more information, visit: https://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/conservation-eng.html

1.6.1.7 POLICY ON MANAGING BYCATCH

The *Policy on Managing Bycatch* supports sustainable fisheries management by minimizing the risk of fisheries causing serious or irreversible harm to bycatch species, and by accounting for total catch, including retained and non-retained bycatch. Available at: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/bycatch-policy-prise-access-eng.htm

The *Guidance on Implementation of the Policy on Managing Bycatch* supports policy implementation: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/bycatch-guide-prise-access-eng.htm

1.6.1.8 POLICY ON NEW FISHERIES FOR FORAGE SPECIES

While other new fisheries may be started under the *New and Emerging Fisheries Policy*, this policy outlines the special considerations for new fisheries on forage species, which must not threaten the conservation of other species that depend on the forage species for food. Available at: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/forage-eng.htm

1.6.1.9 WILD SALMON POLICY

Canada's Policy for Conservation of Wild Pacific Salmon (WSP) guides Canada and its partners in protection and conservation actions for the five iconic wild Pacific salmon species and their habitats. For more information visit: https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/index-eng.html

1.6.2 FIRST NATIONS' FISHERIES

Section 35(1) of the *Constitution Act, 1982* recognizes and affirms the existing Aboriginal and treaty rights of the Indigenous peoples in Canada. The Government of Canada's legal and policy frameworks identify a special obligation to provide First Nations the opportunity to harvest fish for food, social and ceremonial purposes. Treaty Agreements signed between Nations and the Government of Canada also obligate Canada to provide these opportunities.

DFO is committed to the recognition and implementation of Aboriginal and treaty rights related to fisheries, oceans, aquatic habitat, and marine waterways in a manner consistent with section 35 of the *Constitution Act, 1982*, the United Nations Declaration on the Rights of Indigenous Peoples Act, and the federal Principles Respecting the Government of Canada's Relationship with Indigenous peoples. The DFO-CCG Reconciliation Strategy provides a guidance document to better understand why and how reconciliation informs the work of the Department.

For further details on the implementation of the United Nations Declaration on the Rights of Indigenous Peoples Act see: https://www.justice.gc.ca/eng/declaration/index.html

For further details on the United Nations Declaration on the Rights of Indigenous Peoples Act see: https://laws-lois.justice.gc.ca/eng/acts/u-2.2/

For further details on the UNDA Action Plan 2023-2028 see: https://justice.gc.ca/eng/declaration/ap-pa/index.html

For further details on the Principles Respecting the Government of Canada's Relationship with Indigenous peoples see: https://www.justice.gc.ca/eng/csj-sjc/principles-principes.html

DFO's Reconciliation Strategy can be found at: https://www.dfo-mpo.gc.ca/fisheries-peches/aboriginal-autochtones/reconciliation-eng.html

For further details on reconciliation in British Columbia and Yukon, refer to: https://www.pac.dfo-mpo.gc.ca/abor-autoc/reconciliation-pacific-pacifique-eng.html

Information on Indigenous fisheries and reconciliation is available at: http://www.pac.dfo-mpo.gc.ca/abor-autoc/index-eng.html

Information on the Government of Canada work to advance reconciliation can be found here: https://www.rcaanc-cirnac.gc.ca/eng/1400782178444/1529183710887

Fisheries and Oceans Canada recognizes that the following section does not necessarily reflect Indigenous perspectives on the social and cultural importance of salmon fisheries to First Nations, and is considering how Indigenous perspectives may be better reflected in future Integrated Fisheries Management Plans for salmon.

Fish and marine resources are central to the culture, society, and well-being of First Nations and provide a critical connection to language, traditional knowledge, economies and health of communities.

1.7 Consultation Process

This plan considers the results of consultations and input from First Nations, recreational and commercial harvesters and conservation organizations. Input was received directly through bilateral meetings and submissions to DFO on the proposed plan. Meetings with First Nations, Indigenous organizations and the Integrated Harvest Planning Committee (IHPC) provided opportunities for various parties to come together to discuss issues and concerns related to the management of salmon.

Any further significant changes to provisions in the IFMP will be identified to the parties prior to implementation, unless if circumstances require changes to be made without prior notification, such as the case of in-season forecast updates.

Fisheries and Oceans Canada is committed to working with First Nations on planning and management of the salmon fisheries through existing and emerging bilateral and regional processes and relationships, and to achieving reconciliation with Indigenous peoples by working towards renewed nation-to-nation relationships and partnerships that contribute to reconciliation, the recognition of rights and mutual understanding, trust and respect. Fisheries and Oceans Canada also continues to consult with recreational and commercial harvesters, and conservation organizations to seek input on the IFMP and to further plan and co-ordinate fishing activities.

Further information on salmon consultations, including IHPC terms of reference, membership, and meeting dates can be found on the Salmon Consultation website at: http://www.pac.dfo-mpo.gc.ca/consultation/smon/index-eng.html.

1.8 Approval Process

This plan will be approved by the Regional Director General – Pacific Region on behalf of the Minister of Fisheries and Oceans Canada.

2 STOCK ASSESSMENT, SCIENCE AND INDIGENOUS KNOWLEDGE

2.1 BIOLOGICAL SYNOPSIS

Pacific salmon managed by DFO include five species belonging to the genus *Oncorhynchus*: Pink *(O. gorbuscha)*, Chum *(O. keta)*, Sockeye *(O. nerka)*, Coho *(O. kisutch)* and Chinook *(O. tshawytscha)*. The native range of Pacific salmon includes the North Pacific Ocean, Bering Strait, south-western Beaufort Sea and surrounding fresh waters. They occur in an estimated 1300 - 1500 rivers and streams in BC and Yukon; notably, the Skeena River and Nass River in the north and the Fraser River in the south, collectively accounting for roughly 75% of the total salmon production in Canada.

Each Pacific salmon species has unique physical characteristics, life histories and spawning habits, with further variation observed among populations of each species.

Table 2- provides a brief summary of the contrasts in life history characteristics among species of Pacific salmon (from Haig-Brown Kingfisher Creek Restoration Project, 1998-99).

Chinook Salmon produce the largest adults of all the Pacific salmon species and typically live the longest (six or more years). Chinook Salmon fry may go to sea soon after hatching or, after one to two years in fresh water. Chinook Salmon generally mature at age three to seven years, but ”jacks” and occasionally “jills”, defined as two-year-old sexually mature males and females that return to spawn, are also common among some Chinook Salmon populations (as well as some Coho and Sockeye salmon populations).

Adult Coho generally return from late summer and early fall. Most populations originate from streams close to the ocean, although some journey as far as 1,500 kilometers inland. In contrast to other Pacific salmon, most Coho fry remain in freshwater for a full year after emerging from the gravel. Their age at maturity is normally three years, though a number of northern stocks may spend two years in freshwater before returning to spawn as four-year-olds. Similarly, approximately ten percent of Interior Fraser Coho mature as four-year-olds due to a two-year juvenile freshwater residency period.

Sockeye Salmon generally spawn in streams with lake outlets. Young Sockeye typically spend between one and three years in their “nursery lake” before migrating to sea, although there are populations which do not require nursery lakes as part of their life history. Upon entering the ocean, Sockeye Salmon move rapidly out of the estuaries and travel thousands of miles into the Gulf of Alaska and the North Pacific to feed. They generally return to their natal spawning stream at ages three to six years.

Chum Salmon generally spawn in early winter in lower tributaries along the coast, rarely more than 150 kilometers inland. Fry emerge in the spring and go directly to sea. Chum generally mature in their third, fourth, or fifth year.

Pink Salmon live only two years, spending the majority of their life in ocean feeding areas. Pink Salmon fry migrate to the sea as soon as they emerge from the gravel. Once mature, adults leave the ocean in the late summer and early fall and usually spawn in streams not fed by lakes, short distances from their ocean-entry point.

The numbers of Pacific salmon returning to BC waters varies greatly from year to year and decade to decade, often with pronounced population cycles. For example, populations of Pink Salmon usually have a dominant odd-year or even-year cycle, and a number of Sockeye Salmon populations are very abundant every fourth year. This is seen most dramatically in the Fraser River, where the abundance of some populations in abundant years is many times larger than that of other years. Longer term cycles are also apparent but less regular and seem to be associated with changes in ocean conditions that affect survival during the feeding migration period.

All five Pacific salmon species are harvested in First Nations fisheries in coastal and inland areas. Coho and Chinook are the preferred species in the BC coastal mixed-stock recreational and commercial hook-and-line fisheries, and to a lesser extent, are caught by gill and seine nets. Sockeye, Pink and Chum are harvested primarily in First Nations and commercial net fisheries, but are also caught in recreational fisheries.

For more information, refer to the Fisheries and Oceans Canada Pacific Salmon Facts website at: https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/facts-infos-eng.html.

Table 2-1: Summary of general biological and life history characteristics for five species of Pacific salmon

Life History Characteristic	Coho *O. kisutch*	Sockeye *O. nerka*	Pink *O. gorbuscha*	Chum *O. keta*	Chinook *O. tsawytscha*
Season when eggs hatch	Spring	Spring	Spring	Spring	Spring
Length of stay in freshwater	1–2 years; 1 year is common.	1 month to 2 years	Virtually none; often straight to ocean.	Virtually none; often straight to ocean.	Ocean-type: 60-150 days Stream-type: 1-2 years
Primary rearing habitat	Stream	Lake/stream	Estuary	Estuary	Stream/Ocean
Size at ocean migration	10 cm or more	Variable, 6.5 to 12 cm	About 3.3 cm	2.8 to 5.5 cm	5 to 15 cm
Ocean voyage	4–18 months	16 months to 4 years	18 months	2 to 5 years	4 months to 5 years
Age at return to freshwater	During 2nd to 4th year	During 3rd to 5th years	During 2nd year	During 3rd to 5th years	During 2nd to 6th years
Season/month of return	Late summer to January	Mid-summer to late autumn	July to September	July to October	Spring to fall; some rivers support more than one run.
Number of eggs/female	2,000–3,000	2,000–4,500	1,200–2,000	2,000–3,000	2,000-17,000 (generally 5,000-6,000)
Preferred spawning area	Small streams	Near and in lake systems	Close to ocean	Above turbulent areas or upwellings	Very broad tolerances

SALMON LIFE CYCLE

The Pacific salmon life-cycle includes periods in fresh water and the marine environment, with varying durations across species and populations. For all species, life begins in freshwater, when eggs deposited into gravel beds (called redds) the fall prior hatch as alevins by mid-winter. After surviving the rest of winter living in the gravel, young fry emerge in spring to reside in freshwater streams and lakes from a few hours (Pink and some Chum salmon populations) up to two years (some Coho and Chinook populations). Most fry then migrate to the sea to become smolts (transitioning to the salt water environment) and spend one to five years in the ocean, often undertaking prolonged (and sometimes distant) ocean-feeding migrations which are thought to be population-specific (Figure 2.1). (Notable exceptions include

some Sockeye Salmon that have developed a land-locked form—called Kokanee–that do not go to sea). In the ocean, Sockeye, Pink and Chum feed primarily on plankton and crustaceans such as tiny shrimp. Chinook and Coho also eat smaller fish, such as herring. At sea, Pacific salmon species attain the following average adult weights: 1 to 3 kg for Pink; 5 to 7 kg for Chum; 3.5 to 7 kg for Coho; 2 to 4 kg for Sockeye; and 6 to 18 kg for Chinook (the largest recorded Chinook was 57.27 kg). As anadromous species, Pacific salmon migrate back into rivers and streams as adults to spawn (often to the same river and even gravel bed from which they hatched). The return migration to fresh water can occur from spring to fall (timing is species- and/or population-dependent) but spawning generally takes place through the fall and early winter. In general, Sockeye and Chinook travel the farthest upstream to spawn—some as far as 1,500 kilometres. Chum, Coho and Pink usually originate from spawning sites located closer to the ocean. A notable exception is Yukon River Chum Salmon that travel 3,200 kilometres to their spawning grounds. Following courtship, spawning females release eggs that are fertilized by a spawning male; the eggs are then buried by the female to start the next generation. Both adults die after spawning. Total life spans range from two years (for Pink Salmon populations) up to six or seven years (for some Sockeye and Chinook salmon populations).

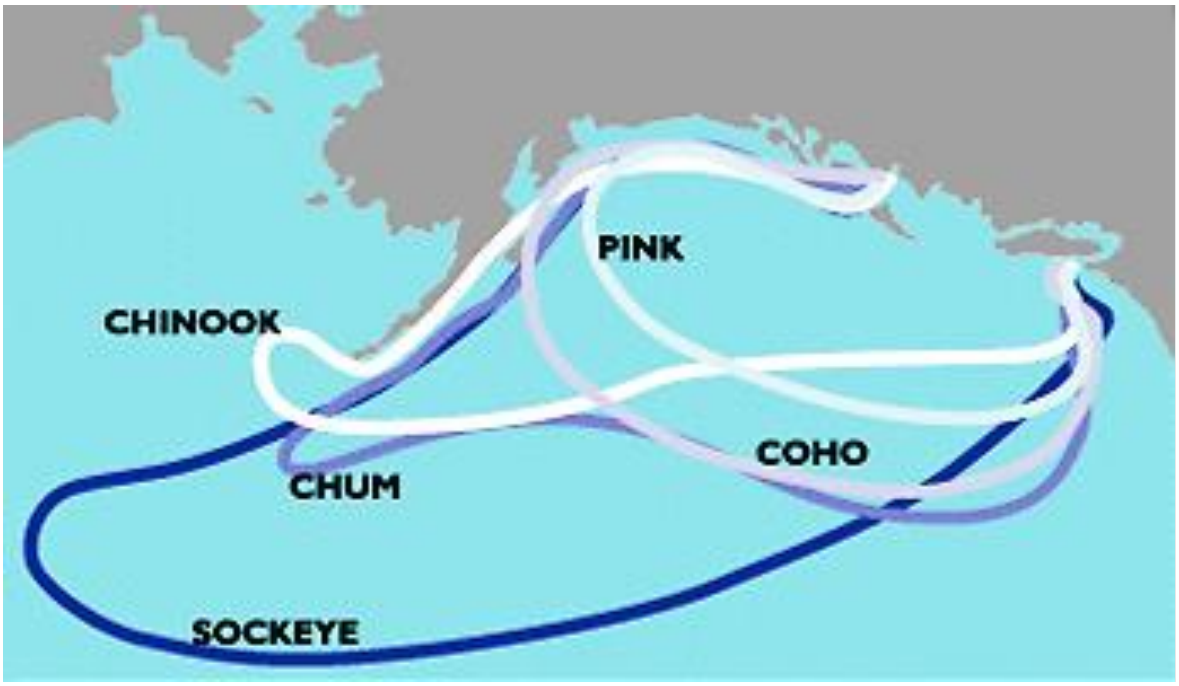

Figure 2.1-2-1: Generalized habitat of British Columbia Pacific salmon species in the North Pacific Ocean.

2.2 ECOSYSTEM INTERACTIONS

As a consequence of their anadromous life history, salmon are sensitive to changes in both the marine and freshwater ecosystems. Salmon are an ecologically important species supporting complex food webs in oceanic, estuarine, freshwater and terrestrial ecosystems by providing nutrients every year during their migration to the rivers and lakes to spawn.

DFO is moving away from management on a single species and moving towards an integrated ecosystem approach to science and management. Strategy 3 of the Wild Salmon Policy (WSP), Inclusion of Ecosystem Values and Monitoring, states the Department's intent to progressively incorporate ecosystem values in salmon management. The main focus of this effort will be on developing ecosystem-related indicators and science-based tools to better understand the pressures on Conservation Units (CUs) of Pacific salmon and for integrating salmon conservation and other planning objectives. This strategy will include extraction of relevant information on environmental conditions in marine and freshwater ecosystems, in a risk-based framework.

The greatest challenge in implementation of the WSP is balancing the goals of maintaining and restoring healthy and diverse salmon populations and their habitats, with social and economic objectives that reflect people's values and preferences. Standardized monitoring and assessment of wild salmon populations, habitat and eventually ecosystem status will facilitate the development of comprehensive integrated strategic plans (WSP Strategy 4) that will address the goals of the WSP while addressing the needs of people. Outcomes of these plans will include biological objectives for salmon production from CUs and, where appropriate, anticipated timeframes for rebuilding and management plans for fisheries and watersheds, all of which will reflect open, transparent, and inclusive decision processes involving First Nations, communities, environmental organizations, fishers and governments.

For strategic planning and successful management of Pacific salmon, it will be essential to link variation in salmon production with changes in climate and their ecosystems. Salmon productivity in the Pacific is clearly sensitive to climate-related changes in stream, estuary and ocean conditions. Historically, warm periods in the coastal ocean have coincided with relatively low abundances of salmon, while cooler ocean periods have coincided with relatively high salmon numbers. In the past century, most Pacific salmon populations have fared best in periods having high precipitation, deep mountain snowpack, cool air and water temperatures, cool coastal ocean temperatures, and abundant north-to-south upwelling winds in spring and summer.

The Department conducts programs to monitor and study environmental conditions. Information on these programs is available at: http://www.pac.dfo-mpo.gc.ca/science/index-eng.html.

These programs include:

I. The Strait of Georgia Ecosystem Research Initiative

II. Fraser River Environmental Watch

III. Monitoring of physical, biological, and chemical freshwater and marine conditions

IV. Chlorophyll and phytoplankton timing and abundance

The annual State of the Pacific Ocean Report describes changes and trends in atmospheric and oceanic conditions that have the potential to affect Pacific salmon (and other species) populations and informs science-based decision-making and DFO's management of fisheries and marine resources in the Pacific Region. It is available at: http://www.dfo-mpo.gc.ca/oceans/publications/index-eng.html.

2.2.1 PACIFIC SALMON RETURNING IN 2024: MIXED SIGNALS FROM ENVIRONMENTAL CONDITIONS

B.L. MacDonald, N.L. Wilson, S.C.H. Grant, J.L. Boldt, D.A. Patterson, K. A. Robinson, A. Sastri, C. Hannah

Summary

We predict that 2024 Canadian Pacific salmon productivity (adult recruits produced per parental spawner) will be mixed. The 2024 Pacific salmon returns experienced varying environmental conditions across their freshwater and marine residences. The effects of environmental conditions on salmon returning in 2024 will depend on the specific conditions encountered by each population, and their life-histories.

This outlook provides environmental and biological data from 2019-2024, to coincide with parental spawning and egg incubation through to ocean rearing conditions experienced by the 2024 salmon returns. While we do not have relevant data for each salmon population returning in 2024, we provide a general description of what is known about overall environmental conditions experienced by these Pacific salmon. Specifically:

1) Summer river temperatures are increasingly exceeding upper thermal tolerances for salmon in assessed systems. In the Fraser River, summer temperatures in 2019, 2021, and 2022 regularly exceeded such thresholds.

2) Early, rapid snowmelt depleted snowpacks in most of B.C. by mid-May/early-June in 2019. Early loss of snowpack can contribute to warmer summer river and lake temperatures. Snowpacks were more variable across B.C. in 2020 and 2021, though some areas were well below average by late spring. Cool spring temperatures led to an above average late–spring snowpack in 2022.
3) B.C. experienced significant droughts in recent years. In summer 2021 and fall 2022, severe to extreme drought impacted multiple regions in B.C. Lower water levels can increase water temperatures, reduce water quality, block passage to key spawning habitat, strand salmon, and increase their exposure to predators.
4) Unprecedented flooding in southwestern B.C. during November 2021 may have scoured out salmon eggs in some of the impacted systems.
5) Large marine heatwaves were observed every year in the Northeast Pacific between 2019 and 2023. These included some of the largest marine heatwaves on record since observations began in 1982.
6) In 2021 and 2022, zooplankton community composition off the west coast of Vancouver Island and in Hecate Strait had generally returned to average conditions after being dominated by lower quality species since the 2013-2016 heatwave (the Blob).

Looking further into the future, we do not anticipate that long-term salmon survival patterns will reflect what we have seen historically. Pacific salmon are responding to environmental changes driven by climate change and other human activities. Climate change vulnerability assessments can provide a longer-range outlook for Canadian Pacific salmon to better inform current and future management decisions, and support efforts to adapt to the changing salmon landscape (MacDonald and Grant 2023).

General Distribution of the 2023 Pacific Salmon Returns

Five species of Pacific salmon are assessed and managed by the Department of Fisheries and Oceans: sockeye, Chinook, coho, pink and chum. Species and populations exhibit considerable variation in the habitats they occupy and the life history strategies they employ.

Most Canadian Pacific salmon returning in 2024 would have been deposited as eggs in their freshwater spawning grounds between 2019 and 2022 and will return at an age falling between two and five years old (Figure 1). The majority of sockeye and Chinook populations, and all coho populations, rear in fresh water for one to two years as juveniles before migrating to the ocean. The remaining sockeye and Chinook populations, and all chum and pink populations, migrate to the ocean shortly after hatching and emergence, with only a limited freshwater juvenile stage. We present general freshwater conditions for 2019 to 2022, when the majority of 2024 returns would have inhabited freshwater environments (Figure 1).

The majority of 2024 Pacific salmon returns would have entered into the marine environment between 2021 and 2023, depending on the species and population. We present general marine conditions for 2021 to 2023 where available.

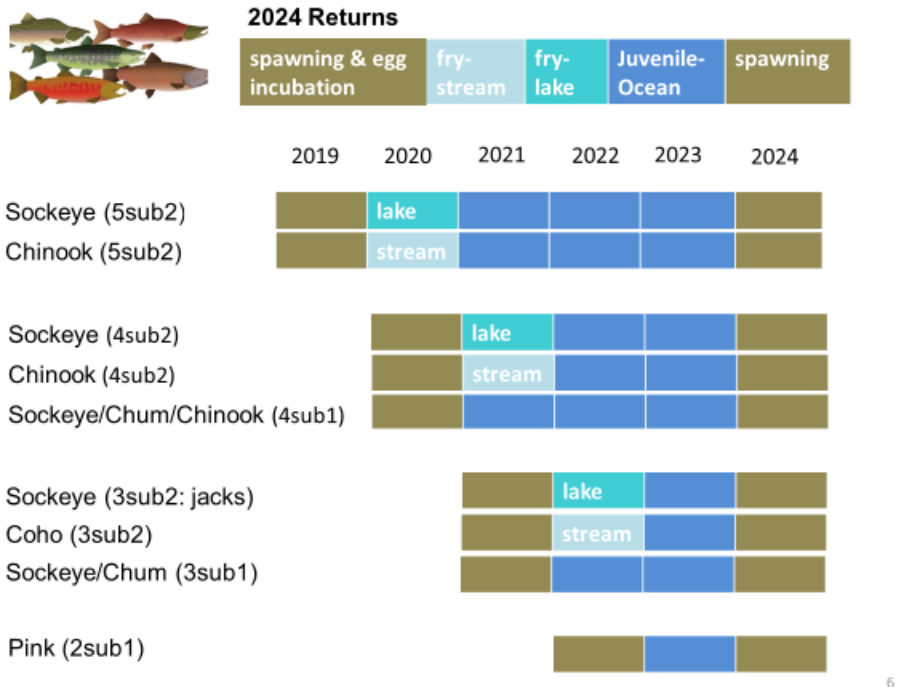

Figure 2.2-1: Timing of common age classes of Pacific salmon returning in 2024 in each habitat they occupy. For each species, the most common life-history types are presented using the Gilbert-Rich age designation system (in brackets); the number on the left indicates the total age at return, while the subscript shows the number of winters spent in fresh water prior to migrating to the ocean. Coloured boxes show the life stage and habitat occupied by each group of animals in every year of their life, leading up to their return to fresh water to spawn in 2024.

Global and Regional Environmental Context for Salmon Outlook

The planet is warming (Figure 2). Average land-ocean temperature has risen by 1.09°C over the last century (IPCC 2022), and the years 2015 to 2023 were the warmest on record (WMO 2023). Like many parts of Canada, due to its northern latitude British Columbia is experiencing warming that is twice the global average, while warming in northern B.C. and the Yukon is three times as high in some areas (Bush and Lemon 2019). We are already approaching the 1.5°C global limit of warming that the IPCC recommends as critical if we are to avoid significant issues related to food, water, and other life support systems on the planet (IPCC 2014, 2018, UNEP 2019).

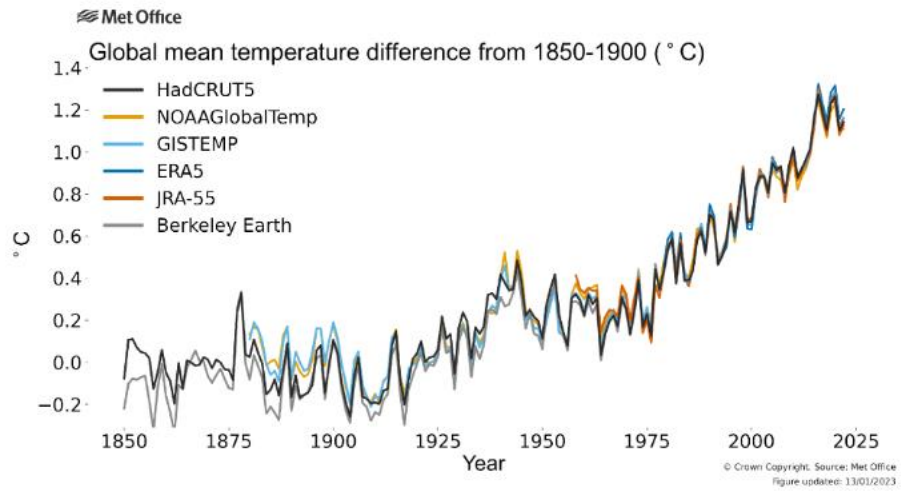

Figure 2.2-2: Global annual mean temperature difference from pre-industrial conditions (1850-1900). Canada's temperature increases are double this global rate of warming, typical of countries occupying northern latitudes. The World Meteorological Organization (WMO) uses six international data sets to provide an authoritative assessment of global temperature change presented in this figure: Had CRUT5; NOAAGlobalTemp; GISTEMP; ERA5; JRA-55; Berkeley Earth. Source https://www.metoffice.gov.uk/weather/climate-change/what-is-climate-change. Accessed Sept 7, 2023.

What does this warming mean? In B.C., average precipitation is increasing; snowpacks are melting earlier, altering river flows in snow-dominated systems; lakes and rivers are becoming ice-free earlier in the spring; river temperatures are warming, and sea-surface temperatures are warming along the coast (White et al. 2016). The Yukon has experienced accelerated warming during the winter months, increases in precipitation, melting glaciers, thawing permafrost, and earlier snowmelt over the past 50 years. Such changes are leading to increases in flooding and winter low flows (Streicker 2016).

Extreme events are likely to become more common and more severe in the Pacific Region as global temperatures continue to rise (White et al. 2016; Philip et al. 2021). A "heat dome" like that experienced in June 2021 would have historically occurred once every 1,000 years. With 2°C of global warming above the pre-industrial (1850-1900) average, the frequency of such an event would increase to roughly every 5 to 10 years (Philip et al. 2021). Similarly, human-induced climate change has increased the likelihood of westerly atmospheric river events like that experienced in fall 2021 by at least 60% (Gillett et al. 2022). Climate change is also likely increasing the area burned by wildfires in Canada (Gillett et al. 2004; Wang et al. 2017). In 2023, wildfires in B.C. burned more than double (2.8 million hectares) the area of the previous record year (2018), and ten times the 20-year average (B.C. Wildfire Service 2023).

Environmental Conditions are Affecting the Salmon Outlook for 2024: Why does this matter?

Pacific salmon are responding to environmental changes driven by climate change and other human activities (Grant et al. 2022). Though there are exceptions, we present general trends:

- Chinook salmon abundances have declined throughout their range across B.C. and the Yukon (Dorner et al. 2018; Grant et al. 2019; North Pacific Anadromous Fish Commission 2023).
- Many sockeye salmon populations have declined and/or exhibited low abundances in southern latitudes in the past decade (Peterman and Dorner 2012; Grant et al. 2019; Hyatt et al. 2021). In recent years, sockeye abundances were generally poor throughout their Canadian range, including northern areas, though 2022 returns were strong in the Skeena/Nass and Transboundary regions (MacDonald et al. 2023).
- Coho salmon declined in the mid-1980's throughout B.C. (North Pacific Anadromous Fish Commission 2023). Northern B.C. coho recovered in the mid-2000s. Southern populations have generally continued to exhibit low marine survival and exist at low abundances (North Pacific Anadromous Fish Commission 2023), though returns to some systems in 2023 were above average.
- Chum salmon exhibited better trends throughout B.C. and Yukon (with exceptions) prior to 2017. Between 2017 and 2022, poor returns were observed in many areas (North Pacific Anadromous Fish Commission 2023).
- Odd-year pink salmon have generally not exhibited declines in the past decade (Grant et al. 2019, 2020, 2021, 2022). However, even-year pink salmon have shown declining trends in recent years (North Pacific Anadromous Fish Commission 2023).

This qualitative outlook describes broad-scale patterns in freshwater and marine conditions to provide an indication of overall conditions for salmon survival, specifically for the 2024 returns. Physical changes in freshwater and marine environments affect Pacific salmon through their

habitats and food availability, and salmon respond through their behaviour, growth rates, and overall survival (NOAA Fisheries 2021). While we do not have relevant data for all species in all locations, we provide a general description of what is known about environmental conditions experienced by the 2024 returns, in relation to historical conditions.

Salmon populations returning in 2024 will have been exposed to varying freshwater and marine conditions during the years 2019-2024. The specific environmental conditions experienced by each population are determined by their spawning and juvenile rearing distributions, age of return, and other characteristics such as migration timing. Additional factors can also contribute to salmon productivity, including habitat alteration from natural and human activities, particularly in fresh water, hatchery contributions, disease, contaminants, predation, competition, and other local environmental conditions.

Given the environmental changes we have observed, and those predicted for the future in B.C. and the Yukon, we do not anticipate that long-term salmon survival patterns will reflect those we have seen historically. Climate change vulnerability assessments for Pacific salmon on the west coast of the U.S. indicate that vulnerability to climate change varies across Pacific salmon species and populations, determined by the habitats they occupy and their life histories (Crozier et al. 2019). Climate vulnerability is largely higher for southern and interior populations, and is influenced by the amount of time salmon spend in fresh water and estuaries (Crozier et al. 2019). These patterns corroborate some of the general trends that have been observed across Pacific salmon populations in Canada (Grant et al. 2019).

As environmental conditions continue to change, climate change vulnerability assessments will be a valuable tool for providing a longer-range outlook for Canadian Pacific salmon. Such assessments will provide a more detailed understanding of the distribution of climate vulnerabilities across Pacific salmon populations in Canada to better inform current and future management decisions, and support efforts to adapt to the changing salmon landscape (MacDonald and Grant 2023).

Freshwater Indicators of Health for Spawning, Egg Incubation, and Juvenile Rearing Life Stages between 2019-2022

Air Temperatures

Air temperature is an important determinant of river temperature, and therefore an important indicator of health for salmon in the freshwater stages of their lifecycle. Canadian Pacific salmon returning in 2024 have lived during some of the hottest years experienced since records began in the mid-1800s (WMO 2023). In 2019, spring months were warmer than average in B.C, while summer 2019 was generally variable and at times cooler than average. In 2020, B.C. experienced a relatively cool spring apart from May, which was warm throughout most of the

central and western parts of the province. Warm conditions were prevalent in southeast B.C. in August 2020, and September was warm throughout all of B.C. In 2021, while spring months were closer to average, summer daily temperatures were some of the warmest on record (Anslow and Sobie 2022). The summer of 2021 began with an extreme heatwave that blanketed Western Canada in late June, sending temperatures soaring well above all-time heat records across the region (Di Liberto 2021). This heatwave was found to be "virtually impossible" in the absence of human-caused climate change (Philip et al. 2021). Spring temperatures in 2022 were cooler than average, but summer air temperatures were once again well above average and almost as warm as those recorded overall for the summer months of 2021.

Pacific Climate Impacts Consortium Weather Anomaly Viewer 2019-2022: https://services.pacificclimate.org/weather-anomaly-viewer

River Temperatures

Salmon have challenges migrating upstream to their spawning grounds when rivers are too warm. Annual river temperatures are not available for most B.C./Yukon systems, but in the Fraser River system, where data are available, summer temperatures regularly exceeded upper thermal thresholds for salmon in 2019, 2021, and 2022.

Fisheries and Oceans Canada Fraser River Environmental Watch reports: https://www.pac.dfo-mpo.gc.ca/science/habitat/frw-rfo/reports-rapports/archives-eng.html.

In 2020, river temperatures were relatively average, though they exceeded 18°C for a short period at the end of July.

Fisheries and Oceans Canada Fraser River Environmental Watch reports: https://www.pac.dfo-mpo.gc.ca/science/habitat/frw-rfo/index-eng.html.

Peak summer water temperatures in the Fraser River increased by greater than 1.8°C in the fifty years preceding 2008 (Farrell et al. 2008). It is now common each year to have days where river temperatures exceed 18°C at some point in the spring/summer. Temperatures above 18°C can result in decreased adult salmon swimming performance, and above 20°C can increase adult mortality, adult disease, egg inviability, and cause legacy effects that have negative impacts on juvenile condition (Tierney et al. 2009; Burt et al. 2011; Eliason et al. 2011; Sopinka et al. 2016). High in-river spawning and incubation temperatures can have population-specific negative effects on fertilization success and embryo survival, affect timing of hatch (Whitney et al. 2014), emergence (Macdonald et al. 1998), and reduce swimming endurance and impair swimming behavior of fry (Burt et al. 2012). For juveniles that rear in fresh water, warmer temperatures can improve juvenile growth rates when prey are not limiting (Brett 1971, Edmundson & Mazumder 2001), and also increase the length of the growing season in some areas (Schindler et al. 2005). The exposure of a salmon population to these various temperature-related freshwater

conditions will vary by system. However, as temperatures continue to increase from global climate change, the net effect is expected to be negative (Crozier et al. 2019).

Snowpack

The timing and rate of snowpack loss are significant factors in the volume and timing of spring freshets. Late-spring snowpack in the mountains is an indicator of river water volume, flow rates and temperatures in the summer months (Patterson and Hague 2007). Early loss of snowpack reduces the cool water inputs into rivers and lakes from snowmelt in warmer summer months.

In 2019, the onset of snowmelt began several weeks earlier than normal and most regions of B.C. had below-average snowpacks by the second week of May. The 2020 season had a mix of snowmelt conditions, with early melt in low and mid-elevation areas and a delay in the melt of high elevation snowpacks. Snowpack in 2021 was average to well above average until April. Snowmelt began earlier than normal, particularly at lower elevations. By the end of May, snowpack was above average in northern B.C., below average in southeast B.C. and Vancouver Island, and well below average in some parts of Interior B.C. While snowpack in 2022 was around average in early spring, by late spring most regions reported snowpacks above or well above average due to colder spring temperatures and some precipitation.

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development, River Forecast Center, Snow Conditions & Water Supply Bulletin: https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/drought-flooding-dikes-dams/river-forecast-centre/snow-survey-water-supply-bulletin

Spring Freshet

Spring freshets were earlier than normal in 2019. In 2020, early seasonal melt and low peak snow accumulation in some areas of the province saw some rivers trend towards an earlier freshet and below seasonal stream flow, while others remained close to normal or slightly above. Snowmelt began early at low and mid elevations in 2021. Due to cool weather and persistent snowpacks, snowmelt in 2022 was delayed by two-four weeks.

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development, River Forecast Center, Snow Conditions & Water Supply Bulletin: https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/drought-flooding-dikes-dams/river-forecast-centre/snow-survey-water-supply-bulletin

Summer Drought

Drought can result in lower river and lake levels, deteriorate water quality, block access to spawning habitat, strand salmon, increase exposure to predators and increase the risk of low

oxygen levels in some freshwater systems. Parts of B.C. have experienced record droughts in recent years. In 2019, a spring heatwave created dry conditions across the province, and drove down stream flows, though heavy rains in July helped to relieve the drought. Most of the province experienced wet conditions in early summer 2020. However, Vancouver Island and some southern B.C. watersheds became dry by late summer. In both 2019 and 2020, most of the province had returned to average conditions by October. In 2021, below average precipitation in spring and summer months combined with very warm summer temperatures, punctuated by several heatwaves. This led to severe drought conditions in southern B.C. that lasted from July to September (Anslow and Sobie 2022). Though 2022 began with cooler than usual spring temperatures, by August heatwaves and lower than average precipitation had once again led to drought conditions in southern B.C. Drought continued to escalate into September, with very little rain in the fall.

British Columbia Drought Information Portal: https://governmentofbc.maps.arcgis.com/apps/MapSeries/index.html?appid=838d533d8062411c820eef50b08f7ebc

Fall Floods

In Fall 2021, extended periods of extreme rainfall caused unprecedented flooding in southwestern B.C. and Washington State. Flooding and high river flows can scour spawning beds or bury salmon eggs in sediment (Holtby and Healey 1986; Lisle 1989; Lapointe et al. 2000; Pike et al. 2010; Cloutier et al. 2017; Crozier et al. 2019).

Marine Indicators of Health for Juvenile Rearing to Adulthood Life Stages between 2020-2023

Ocean Temperature

Salmon metabolic demands increase with temperature. Without a concurrent increase in prey quality or quantity, salmon growth and productivity will decrease under warming conditions (Holsman et al. 2018). Predation also can intensify in warmer ocean conditions, increasing salmon mortality (Holsman et al. 2012).

Sea surface temperatures have been warm in the Northeast Pacific Ocean in recent decades (Figure 3), having increased linearly by 0.87°C over the past 100 years (Chandler 2022). Following "The Blob", the notable North Pacific marine heatwave (MHW) of 2013 to 2016, there was a return to near-average sea-surface temperatures in 2017 and 2018. However, this was likely due to the cooling effect of the La Niña that persisted until the second half of 2018 (Ross and Robert 2018, 2019). New marine heatwaves were observed in the late summer and fall of 2018 and throughout most of 2019 and 2020 in the northeast Pacific (Hannah et al. 2019; Ross

and Robert 2020, 2021). The 2020 marine heatwave persisted into the latter half of 2020, despite the emergence of La Niña conditions (Ross and Robert 2021).

Sea surface temperatures in the northeast Pacific were generally cooler in 2021 and 2022 than in 2020 (Ross and Robert 2022, 2023). In both years, near average, or slightly warm temperatures (2021) were observed. This was likely due to the influence of strong cool phases of climate oscillations (ENSO & PDO) layered on top of long-term warming due to climate change (Ross and Robert 2022, 2023). However, multiple marine heatwaves were observed in both years, including the 6th and 4th largest MHW's on record (Leising and Williams 2023).

El Niño conditions arrived in mid-2023. In May 2023, a new marine heatwave formed in the Northeast Pacific. By August 2023 this MHW had arrived on most of the B.C. coastline as an extreme MHW – replacing the 2022 heatwave as the fourth most expansive since monitoring began in 1982 (NOAA Fisheries 2023; Ghoussoub 2023). At the time of writing, this heatwave had receded from the coast and decreased in size (NOAA Fisheries 2023). El Niño conditions are expected to persist through winter then transition to ENSO-neutral in spring 2024 (NOAA National Weather Service 2024).

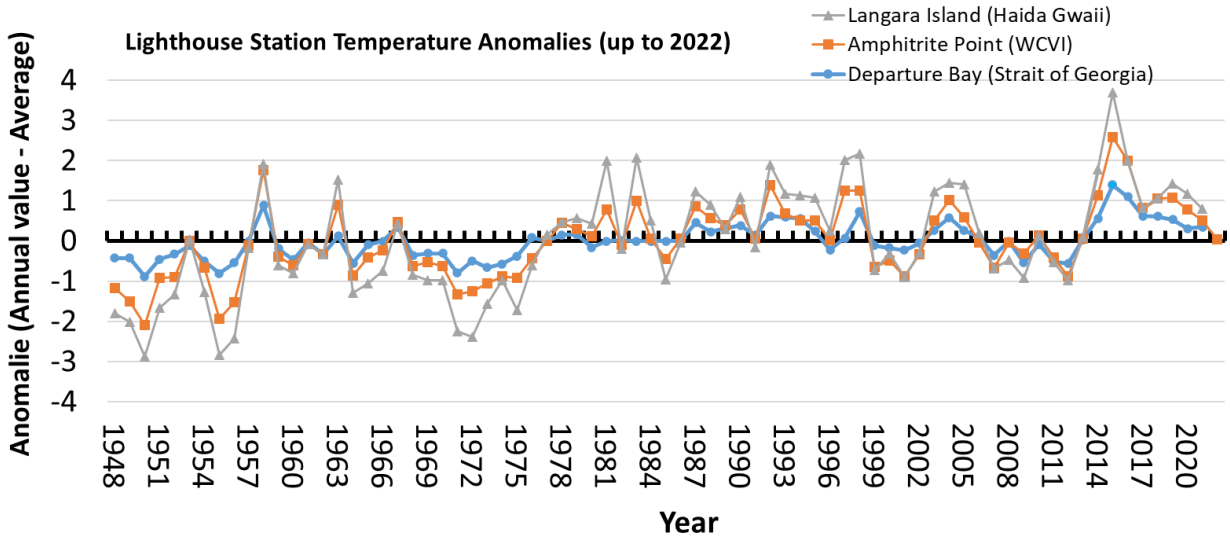

Figure 2.2-3. Annual average sea-surface-temperature anomalies from Fisheries & Oceans Canada lighthouse stations: https://www.dfo-mpo.gc.ca/science/data-donnees/lightstations-phares/index-eng.html. Anomalies represent the departure from a mean reference period (1948-2022). Temperature anomalies are expressed as degree Celsius (C).

Physical Oceanography

Deep water convection is one of the major processes driving open-ocean primary productivity in the Pacific Ocean. Strong winter mixing brings more nutrients to the surface from deeper

waters. Mixing in the winters of 2020/21 and 2021/22 was closer to normal than the previous two years, which experienced weak mixing (Ross and Robert 2022, 2023).

The timing of the *Spring Transition* to upwelling favorable winds off the West Coast of Vancouver Island, and the magnitude of those winds over the warmer months, are indicators of coastal productivity (Boldt et al. 2022). In 2021, the *Spring Transition* was early while the magnitude of winds was average, indicating average to above average productivity (Hourston and Thomson 2022). In 2022 the transition was very late and wind strength was low, which favors below average upwelling-based productivity (Hourston and Thomson 2023).

Food Web: Phytoplankton

Phytoplankton are the base of the aquatic food web, feeding a host of other animals, such as zooplankton. The size and composition of phytoplankton communities affect the zooplankton that are able to feed on them, causing impacts further up the food chain (Batten and Ostle 2020).

Surveys conducted in 2021 and 2022 off the west coast of B.C. suggest that offshore phytoplankton communities have largely returned to average abundances and composition after the severe MHWs that occurred between 2014-2016 (Ostle and Batten 2022, 2023). Phytoplankton in the shelf region still show similarities to recent warms years (Ostle and Batten 2022, 2023).

Food Web: Zooplankton

Zooplankton play a key role in the marine food web, supporting higher trophic levels. Lipid-rich boreal and sub-arctic copepods are very nutritious species of zooplankton that occur along the outer B.C. coast. Sub-arctic copepods are more abundant in relatively cool years (Hipfner et al. 2020). Smaller and comparatively lipid-poor southern copepods are less nutritious and have distributions centered off California. Warmer ocean temperatures, such as those seen in marine heatwaves like The Blob, cause northward shifts in the distribution of southern copepod species to occupy habitats otherwise too cold for them (Mackas et al. 2004). Such shifts in zooplankton composition are a key pathway potentially linking reduced salmon productivity to warmer temperatures in the Northeast Pacific Ocean (Mackas et al. 2007).

Similar to phytoplankton, zooplankton community composition appears to have returned to pre-marine heatwave (The Blob) conditions in 2021 and 2022 (Ostle and Batten 2023). Boreal and subarctic copepods were above or near average in most areas in 2021 and all areas in 2022 (Galbraith and Young 2022, 2023). Meanwhile, southern copepods continued to decline in all surveyed areas in 2021 and 2022, compared to years affected by the 2014-2016 MHW (Galbraith and Young 2022, 2023). Biomass of gelatinous zooplankton returned to the long term average in 2021, following a period of positive anomalies from 2014-2019 (Galbraith and Young 2022). In 2022, positive anomalies were again observed in coastal shelf areas (Galbraith and Young 2023).

Zooplankton biomass in the Strait of Georgia has been trending upwards since 2011 (Perry et al. 2021), and was above average in both 2021 and 2022 (Young et al. 2022, 2023). Biomass was dominated by medium and large bodied copepods and other large crustaceans (Young et al. 2022, 2023), which tend to be the preferred prey for several species of juvenile fish of commercial interest (Perry et al. 2021).

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2.3 INDIGENOUS KNOWLEDGE

The term Indigenous knowledge may not be universally used. Other terms such as Indigenous Knowledge Systems, Traditional Knowledge, Traditional Ecological Knowledge, or Aboriginal Traditional Knowledge all convey similar concepts.

In 2019, the *Fisheries Act* was amended to include provisions for the where the Minister may or shall consider provided Indigenous knowledge in making decisions pertaining to fisheries, fish and fish habitat. Section 61 of the act ensures this knowledge is protected and can only be provided with consent. There are also provisions under the *Species At Risk Act* (s.10.2, s.15.2, s.16, s.18.1) that support inclusion of Indigenous knowledge to inform the assessment and protection of species at risk. Likewise, the *Oceans Act* (s.42) allows the Minister to consider Indigenous knowledge in oceans-related decisions.

The Government of Canada and the scientific community acknowledge the need to incorporate Indigenous knowledge in meaningful and respectful ways. Work is underway at a National level to develop processes for how DFO receives Indigenous knowledge and applies it to inform decision-making. Many outstanding questions remain on how to move forward in a way that respects, meaningfully incorporates, and protects the knowledge that may be shared with DFO, to mutual benefit. For example, how to engage knowledge holders, and how to ensure that the knowledge can be shared and considered in a mutually acceptable manner by both knowledge holders and the broader community of First Nations, stakeholders, managers, and policy makers involved in the fisheries. Given the diversity of knowledge and relationships, regional work will involve an iterative process in collaboration with First Nations, Indigenous groups and knowledge holders, to ensure appropriate inclusion and protection of the knowledge provided. The Department is committed to finding a way forward that respects the knowledge and the knowledge holders, and upholds the Principles respecting the Government of Canada's relationship with Indigenous peoples, which are available online at: https://www.justice.gc.ca/eng/csj-sjc/principles-principes.html.

More information on the updates to the *Fisheries Act:* https://www.dfo-mpo.gc.ca/campaign-campagne/fisheries-act-loi-sur-les-peches/reconciliation-eng.html

See Sections 2.5, 34.1, and 61.2 in the *Fisheries Act* (2019): https://laws-lois.justice.gc.ca/eng/acts/f-14/.

Section 61.2 protections for Indigenous knowledge have also been included in the *Access to Information Act*, Schedule 2: https://laws-lois.justice.gc.ca/eng/acts/a-1/page-15.html#h-1230

The *Wild Salmon Policy* (WSP) (2005) and *Wild Salmon Policy Implementation Plan* (2018) both acknowledge the importance of integrating Indigenous Knowledge (IK) and Traditional Ecological Knowledge (TEK) into the strategic planning process. The Department may identify potential partnerships with First Nations organizations to develop an approach for integrating IK into the WSP, particularly in planning initiatives.

The *Species at Risk Act* makes a special reference to the inclusion of Traditional Knowledge in the recovery of species at risk. The Department has developed an operational guidance document for SARA practitioners (Guidance on Considering Traditional Knowledge in Species at Risk Implementation, 2011). Indigenous groups have participated in the development and implementation of Interior Fraser River Coho and Cultus Lake Sockeye salmon species management actions.

2.4 STOCK ASSESSMENT

Salmon stock assessment provides sound scientific information to inform activities relating to the conservation and management of salmon resources. Stock assessment describes the past and present state of salmon stocks and forecasts of future states. Stock assessment programs contribute information to the fisheries management process, from the initial setting of objectives (and policies) to providing expert advice in the implementation of management plans. Stock assessment information also supports First Nations and Treaty obligations, integrated ocean management planning, development of marine protected areas, protection and recovery of species at risk, and international Treaty obligations and negotiations.

Historically, stock assessment has primarily focused on population dynamics of individual exploited stocks, as well as biological and population processes such as growth, reproduction, recruitment and mortality. As DFO moves to implementation of an ecosystem approach, populations must be considered in a broader context and all activities impacting status, not just fishing, must be considered.

In the Pacific Region, salmon stock assessment advice is provided through the Salmon Assessment Section in conjunction with core Salmon Stock Assessment staff in the Stock Assessment and Research Division of Science Branch. External partners and clients play an increasing role in delivery of stock assessment activities. Some First Nations, recreational and commercial harvesters contribute directly through data collection and reporting. First Nations

and community groups conduct field data collection projects. Universities and non-government organizations (NGOs) are active in analytical and peer review processes. Stock assessment staff collaborate with other regional, national and international organizations and conduct numerous cooperative and/or joint programs.

The Salmon Stock Assessment Framework is shaped by the WSP Strategy 1 which specifies requirements for standardized monitoring, status & management predicated on benchmarks. Strategy 1 identifies three elements:

- WSP Strategy 1 provides a standardized process for organizing Pacific salmon into Conservation Units (CUs), groups of wild salmon living in an area that are sufficiently isolated from other wild salmon such that the area is unlikely to be recolonized naturally in an acceptable period of time if they are extirpated. Scientists have grouped the greater than 9,600 Pacific salmon stocks into just over 450 discreet Conservation Units.
- DFO has developed criteria to assess CUs and identified a range of metrics for setting upper and lower CU benchmarks of status, dependent on data quality and availability (Holt et al. 2009; Holt et al. 2018). For each metric, lower and upper benchmarks will delimit three status zones of a CU. Management actions will be determined based on a CUs biological status relative to these benchmarks. Management will be focused on conservation measures for CUs in the red zone (i.e. below the lower benchmark), shift to cautionary management in the amber zone (between the lower and upper benchmark), and emphasizes sustainable use in the green zone (i.e., above the upper benchmark).
- A key requirement of the WSP is ongoing monitoring and assessment of the status of CUs. Monitoring wild salmon status in a cost-effective manner poses a challenge. It is not practical or cost effective to monitor all salmon demes. (A deme, as defined in the WSP, is a term for a local population of organisms of one species that actively interbreed with one another and share a distinct gene pool.) When groups of CUs are exposed to common threats, the approach will be to monitor a subset of these units. Annually, assessment monitoring plans are updated by the Salmon Assessment Coordinating Committee (SACC) based on CU status determination and risks. The CU status will generally determine the frequency and intensity of the assessment effort. For example, when a CU falls within the Red Zone, ongoing annual assessment of its status including fishery and habitat impacts may be required. The SACC is developing a database that describes benchmarks, status, major risk factors, resource management objectives, and assessment requirements. Assessment procedures will build on existing programs and local partnerships.

The vast number of stocks and the complex life cycle of salmon present substantial assessment and management challenges. Stock assessment activities are largely project-based and required on an ongoing basis because populations are dynamic and subject to shifts in productivity and abundance in response to environmental, biological, and human-induced factors. Responsible management requires continual updating of assessment information and advice. Scientists use a variety of techniques to generate estimates and forecasts of abundance (e.g., enumeration of juvenile "recruits", females or adults on the spawning grounds, tagging and mark recapture studies, etc.). For most species, several methods may be used to generate the estimates and forecasts of abundance.

2.5 SCIENCE INFORMATION SOURCES

The Canadian Science Advisory Secretariat (CSAS) serves as the primary departmental forum for peer review and evaluation of scientific research and literature relating to Pacific salmon. CSAS fosters national standards of excellence and coordinates the peer review of scientific assessments and advice for the DFO in the Pacific region. This review body allows for participation by outside experts, First Nations, fisheries stakeholders and the public. CSAS also coordinates communication of the results of the scientific review and advisory processes.

Additional information about CSAS, the peer review process and meeting schedule, reports on the status of salmon, environmental and ecosystem overviews prior to 2014, and existing research documents are available from CSAS web site:
http://www.dfo-mpo.gc.ca/csas-sccs/index-eng.htm

Recent research projects and Science advice processes include:

- Recovery Potential Assessment for Fraser River Sockeye Salmon (Doutaz et al, 2023)
- Guidelines for Defining Limit Reference Points for Pacific Salmon Stock Management Units (Holt C.A. et al, 2023)
- Case Study Applications of LRP Estimation Methods to Pacific Salmon Stock Management Units (Holt, K.R et al, 2023)
- Biological Benchmarks And Building Blocks For Aggregate-Level Management Targets For Skeena And Nass Sockeye Salmon (Oncorhynchus nerka): https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2023/2023_008-eng.html
- Juvenile Pacific Salmon Survey in the Strait of Georgia and Associated Waters: https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41197033.pdf
- Proposed changes to the conservation unit for Nanaimo River watershed spring chinook (DFO, 2023)

Annually, DFO provides a qualitative outlook of status for salmon management, the Salmon Outlook, for planning purposes prior to formal forecasts of abundance. The Salmon Outlook for the current year is available in Appendix 10.

The number of salmon returning to spawn in a river, called "escapement", has long been an important stock assessment measure of abundance. Salmon escapement data are now available from the Government of Canada Open Data portal at:
http://open.canada.ca/data/en/dataset/c48669a3-045b-400d-b730-48aafe8c5ee6

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2.6 PRECAUTIONARY APPROACH

Generally, science advice to fisheries management considers data quality and incorporates uncertainty (i.e., stock status forecasts presented as a statistical distribution rather than point estimate). WSP benchmarks of biological status will inform the development of a precautionary approach to management of salmon resources. Decisions on recovery and fisheries objectives will be made as part of the Strategic Planning Process described under WSP Strategy 4. To date, benchmarks have been reviewed for Southern BC Chinook, Interior Fraser River, Georgia Strait Mainland, East Vancouver Island Coho, Skeena and Nass Sockeye and Fraser Sockeye CUs. Until benchmarks are determined for each CU, DFO must rely on indicators of status and existing species- and stock-specific constraints established for escapement goals and harvest rates by domestic and international (e.g., Pacific Salmon Treaty) processes.

2.7 SHARED STEWARDSHIP

In the context of fisheries management, stewardship is often considered in terms of "shared stewardship," whereby First Nations, fishery participants, and other interests are effectively involved in fisheries management decision-making processes at appropriate levels, contributing specialized knowledge and experience, and sharing in accountability for outcomes.

Moving toward shared stewardship is a strategic priority for DFO. This is reflected in a number of policies and initiatives, including the *Wild Salmon Policy* (WSP), the Resource Management Sustainable Fisheries Framework (SFF), Pacific Fisheries Reform, Aboriginal Aquatic Resource and Oceans Management (AAROM) Program, and the Aboriginal Fisheries Strategy (AFS).

DFO is advancing shared stewardship by promoting collaboration, participatory decision-making, and shared responsibility and accountability with resource users and others. Essentially, shared stewardship means that those involved in fisheries management work cooperatively in inclusive, transparent, and stable processes, to achieve conservation and management goals.

2.8 RESEARCH

An overview of the science and research in the Pacific region is available on the regional website:
http://www.pac.dfo-mpo.gc.ca/science/index-eng.html

Current research projects on salmon and environmental and human-induced factors affecting their status include:

- Climate change impacts on Pacific salmon are being investigated by multiple sectors within DFO and in collaboration with external partners. In 2011, DFO implemented a science-based climate change program focused on adaptation in decisions and activities to consider the vulnerabilities, risks, impacts, and opportunities associated with a changing climate.
  https://www.dfo-mpo.gc.ca/science/oceanography-oceanographie/index-eng.html
- An example of this work is the Aquatic Climate Change Adaptation Services Program (ACCASP) which has an emphasis on the development of new science knowledge to support the development of adaptation tools and strategies that will enable the integration of climate change considerations into the delivery of the Department's programs and policies. More information on this program is available at:
  http://www.dfo-mpo.gc.ca/science/rp-pr/accasp-psaccma/index-eng.html

- State of Salmon Program (SOS): this program integrates information on Pacific salmon (abundance, productivity, size, fecundity, run timing, etc.) and their freshwater and marine ecosystems (water temperatures, river discharge, ocean upwelling, etc.) to understand the state of Pacific salmon, and the factors that contribute to these states. Collaboration across DFO Science, DFO Areas, and other Sectors is foundational to this program.
- Salmon in Regional Ecosystems (SIRE) program investigates the mechanisms controlling recruitment variations and changes in productive capacity of salmon stocks within freshwater and/or marine ecosystems.
- Ongoing research related to improving forecasting ability for salmon stocks and CUs is being conducted by DFO Stock Assessment and the Fisheries and Oceanography Working Group. The annual State of the Pacific Ocean Reports were published by the Canadian Science Advisory Secretariat (CSAS) until 2012. Recent reports are available at: http://www.dfo-mpo.gc.ca/oceans/publications/index-eng.html.
- The Fraser River Environmental Watch program provides scientific advice on the impact of different environmental factors on the migration success of Pacific salmon in fresh water. http://www.pac.dfo-mpo.gc.ca/science/habitat/frw-rfo/index-eng.html
- DFO scientists are studying salmon production, distribution and survival in the North Pacific Ocean including the Salish Sea, and developing leading indicators of salmon returns in collaboration with other organizations, including the North Pacific Anadromous Fisheries Commission (NPAFC), the Pacific Salmon Commission (PSC), and the Pacific Salmon Foundation (PSF).
- Annual juvenile salmon surveys monitor the distribution, migration, and survival of salmon in their freshwater and early marine life history.
- Ongoing collaborative research between DFO and aquaculture industry to investigate the interactions between wild and cultured salmon through the Program for Aquaculture Regulatory Research (PARR) and Aquaculture Collaborative Research and Development Program (ACRDP)
- Ongoing development of quantitative tools to inform rebuilding plans for depleted (red-status) CUs given climate/oceanographic change and variability and constraints from mixed-CU fisheries.

3 STEWARDSHIP, CO-MANAGEMENT, CONSULTATION AND ADVISORY BOARDS

Stewardship refers to the care, supervision or management of something, especially the careful and responsible management of something entrusted to one's care.[1]

3.1 PACIFIC SALMON TREATY

In March 1985, the United States and Canada agreed to cooperate in the management, research and enhancement of Pacific salmon stocks of mutual concern by ratifying the Pacific Salmon Treaty (PST). The PST includes several "fishing chapters" contained in Annex IV which set out the specific conservation and harvest sharing (allocation) arrangements for migratory salmon stocks subject to the Treaty. These chapters are critical to the functioning of the Treaty and are periodically renegotiated by the Parties, normally on a 10-year cycle. The bilateral Pacific Salmon Commission (PSC), established under the Pacific Salmon Treaty, consists of four Commissioners and four Alternates from each country, and is supported by several bilateral panels and technical committees. The PSC provides regulatory and policy advice as well as recommendations to the Governments of Canada and the United States (U.S.) with respect to interception salmon fisheries. Under the terms of the Treaty, the responsibility for in-season management of all species rests with the Parties to the agreement. One exception is the in-season management of Fraser River Sockeye and Pink salmon, which is specifically delegated to the Fraser River Panel with support from the Pacific Salmon Commission Secretariat staff.

Coded-wire tag (CWT) data are essential to the management of Chinook and Coho salmon stocks under the Pacific Salmon Treaty. On August 13, 1985, the U.S. and Canada entered into a Memorandum of Understanding in which "the Parties agree to maintain a coded-wire tagging and recapture program designed to provide statistically reliable data for stock assessments and fishery evaluations". Both countries recognize the importance of the coded-wire tag program to provide the data required to evaluate the effectiveness of bilateral conservation and fishing agreements.

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., for a period of 10 years, and will expire on December 31, 2028.

[1] As defined in the Atlantic Fisheries Policy Review (AFPR):
https://www.dfo-mpo.gc.ca/reports-rapports/regs/afpr-rppa/framework-cadre-eng.htm#toc6

The renewed chapters are: Chapter 1 (Transboundary Rivers), Chapter 2 (Northern British Columbia and Southeast Alaska), Chapter 3 (Chinook), Chapter 5 (Coho) and Chapter 6 (Chum). Chapter 7 (General Obligations) does not have an expiry date; however, the PSC recommended minor updates to "Attachment E" containing general provisions on salmon habitat.

Chapter 4 (Fraser River Sockeye and Pink) expired on December 31, 2019. The negotiating team, made up of Canadian and U.S. representatives on the PSC's Fraser River Panel, met regularly between November 2018 and February 2019 to discuss proposed amendments to Chapter 4. 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 was completed in February 2021. The new amendments will remain in place for 9 years, bringing Chapter 4 into alignment with the other five fishing Chapters under the PST.

In addition to direct involvement and representation in the PSC process, the Department consulted extensively with First Nations and stakeholders leading up to, and throughout, the negotiations. Moving forward, DFO will continue to schedule consultation sessions and meetings, as needed, to identify, discuss, and help mitigate potential concerns regarding the agreement. Consultations and engagement are expected to begin in 2024 leading up to the negotiations for PST chapter renewals in 2028.

Key elements from the renewed chapters, under Annex IV, are identified below:

Chapter 2 (Northern Boundary): Covers marine fisheries for Sockeye, Pink and Chum stocks in Northern B.C. and Southeast Alaska, including the Nass and Skeena rivers. The new chapter includes a joint technical review of escapement goals for Nass River and Skeena River Sockeye, new management measures in Alaska to reduce harvest impacts on Canadian Nass and Skeena Sockeye in years of low abundance, a joint technical review of the impacts of the Alaskan District 4 Pink Salmon fishery on Skeena and Nass Sockeye abundances, and a joint review of the effectiveness of the new chapter after five years (to inform a decision by the Commission as to whether further changes may be required for the balance of the regime). This chapter, along with Chapter 3 (Chinook) and Chapter 5 (Coho), governs fisheries covered in the North Coast Salmon Integrated Fisheries Management Plan.

Chapter 3 (Chinook Salmon): Provides a framework for bilateral conservation and coordination of Chinook fisheries coastwide from Oregon to Alaska. In response to conservation concerns for Chinook in both countries, several changes were made to the chapter, including: targeted harvest reductions in both Canadian and U.S. fisheries; adoption of a new metric to manage and evaluate performance in specific Canadian and U.S. individual stock-based management or "inside" fisheries (the calendar year exploitation rate); a renewed commitment (and investment) in the coastwide stock assessment program for Chinook

(including the Coded-Wire Tag program); a 10-year Catch and Escapement Indicator Improvement program to provide more robust and timely information for managing Chinook; and, enhanced fishery monitoring.

The harvest reductions are:

- For the U.S., up to a 7.5 per cent reduction in the Southeast Alaska aggregate abundance-based management or "outside, mixed-stock" fishery, as well as reductions of up to 15 per cent from 2009-2015 harvest levels for individual stocks in Washington and Oregon individual stock-based management fisheries.
- For Canada, up to a 12.5 per cent reduction in the West Coast Vancouver Island aggregate abundance-based management fishery and reductions of up to 12.5 per cent from 2009-2015 levels in Canadian individual stock-based management fisheries.

Chapter 4 (Fraser River Sockeye and Pink Salmon): The 2019 amendments are largely operational in nature and designed to ensure the long-term sustainability of Fraser River Sockeye and Pink salmon stocks while supporting an economically viable fishing industry on both sides of the Canada-U.S. border. Key adjustments to the Chapter allow for the Panel to make management decisions considering sub-components of the four Fraser River Sockeye management groups, which provides greater flexibility to address stock-specific conservation or harvest objectives, the maintenance of Canada's share of Fraser River Sockeye and Pink salmon, and the ability of the Panel to consider both the Sockeye and Pink salmon Total Allowable Catch throughout the season for best use of the fisheries resource. Other changes include new language that enables Canada to identify concerns, if they arise, regarding incidental catches of Fraser River Sockeye in Alaska and updates to how the Aboriginal Fisheries Exemption is distributed across the Sockeye management groups.

Chapter 5 (Coho Salmon, Southern BC and Washington State): Addresses two geographically-defined groupings of Coho Salmon stocks originating from British Columbia, Washington and Oregon. For northern-origin stocks (those originating from waters between Cape Caution (in north-central BC) and Cape Suckling (in southeast Alaska), the Northern Panel's Technical Committee (Coho sub-committee) presented an updated state of knowledge report to the bilateral Northern Panel in 2021. This report primarily identified the need for increased assessment programs in the North Coast Area for Coho. The updated information gained from both the state of knowledge report and ongoing assessment programs will be used to inform the Parties regarding future management actions or recommended conservation measures.

For southern-origin stocks (those originating from Treaty-area waters south of Cape Caution), changes to the chapter implemented in 2019 include the amalgamation of two southern Canadian Coho management units into a single Strait of Georgia management unit, a commitment to implement the status-based management approach for southern Canadian management units (i.e., classification of Canadian Coho management units as low, moderate or

abundant) based on the status determination methodology developed for Interior Fraser River Coho, and a commitment to address uncertainties caused by data limitations and variation in environmental conditions.

Chapter 6 (Chum Salmon, Southern BC and Washington State): Covers Chum Salmon stocks in Southern BC and Washington. The revised chapter includes new management thresholds ("breakpoints") for Canadian Fraser River Chum stocks, lower U.S. catch ceilings in years of moderate abundance for Fraser Chum and higher catch ceilings in years of high abundance, and new requirements related to stock assessment and escapement monitoring to inform decision-making.

3.2 SOUTH COAST AREA ROUND TABLES

Several salmon roundtables were created by First Nations, commercial fishers, and recreational fishers with Fisheries and Oceans Canada to promote a more streamlined, multi-interest, co-management process related to salmon harvest planning and management at a local level. Respecting the Minister of Fisheries and Oceans authority and consistent with DFO policies and the harvest guidelines in this IFMP, these local planning committees seek to provide consensus recommendations to DFO on decisions related to salmon harvest planning and management. The goal of these roundtables is to ensure fishing plans are coordinated and integrated. Harvest Roundtables are also connected to Stewardship Roundtables and local stewardship groups to address research, restoration, and enhancement in a comprehensive manner.

Other new collaborative tables with First Nations, stakeholders, and DFO that are in development in the South Coast Area include the Bute Inlet Round Table and the Quinsam/Campbell River Salmon Committee. The Bute Inlet Round Table was formed due to widespread concern for the impacts of the Southgate River landslide, and has participants from Homalco First Nation, DFO, the Province of BC, ENGO, and Industry. This group is working collaboratively to establish and implement short-term and long-term goals to support salmon and the recovery of the system. Furthermore, the Quinsam/Campbell River Salmon Committee has also been recently established as a platform where the Wei Wai Kum and We Wai Kai Nations and DFO can partner to form recommendations for sustainable assessing, enhancing, and harvesting of Quinsam and Campbell River salmon.

Area 17 Nanaimo Harvest Roundtable

Area 17 Chum fisheries are managed through a collaborative process via the Nanaimo Harvest Roundtable. Members of the Roundtable include representatives from Snuneymuxw First Nation, Federal Government, local Sport Fishing Advisory Boards and representatives for each of the commercial salmon gear Harvest Committees. The Roundtable serves as both a plenary function and a decision–making function. This format allows for improved planning of local fisheries and better conflict resolution among harvesters. The Nanaimo Harvest Roundtable has

developed an Area 17 Chum harvest plan that describes the basis of the management and assessment of the Area 17 Chum fisheries and harvest plans for each sector in marine and in-river fisheries. This plan is used to guide an in-season decision making process during which assessment results are reviewed and weekly harvest plans are determined.

Area 18 Cowichan Harvest Roundtable

Area 18 Chum fisheries are also managed through a collaborative process via the Cowichan Harvest Roundtable. Members of the Harvest Roundtable include representatives from Cowichan Tribes, Federal and Provincial Government, Provincial and local Sport Fishing Advisory Boards and representatives for each of the commercial salmon gear Harvest Committees. The Roundtable serves as both a plenary function and a decision–making function. This format allows for improved planning of local fisheries and better conflict resolution among harvesters. The Cowichan Harvest Roundtable has developed an Area 18 Chum harvest plan that describes the basis of the management and assessment of the Area 18 Chum fisheries and harvest plans for each sector in marine and in-river fisheries. This plan is used to guide an in-season decision making process during which assessment results are reviewed and weekly harvest plans are determined.

Area 23 Harvest Committee

Area 23 Sockeye fisheries are managed through a "co-management" process via the Area 23 Harvest Committee. Members of the Area 23 Harvest Committee include representatives from local First Nations, fishery advisory committees and local stewardship groups. The Area 23 Harvest Committee serves both a plenary function and a consensus decision–making function. This format allows for improved planning of local fisheries and better conflict resolution among harvesters. The Area 23 Harvest Committee has developed a detailed Area 23 Sockeye Local Integrated Fisheries Management Plan that describes the basis of the management and assessment of the Area 23 Sockeye fisheries and harvest plans for each sector. This plan is used to guide an in-season decision making process during which assessment results are reviewed and weekly harvest plans are determined.

The Area 23 Harvest Committee is a forum that includes representatives from the Tseshaht, Hupacasath and Maa-nulth First Nations, the Nuu-chah-nulth Tribal Council, the Area B and D Harvest Committee, local Sport Fishing Advisory Committees, local municipal governments, the provincial government and DFO. The Area 23 Harvest Committee is developing a Somass Chinook local integrated fishery management plan that will define the escapement targets and harvest rates under various run sizes. The Decision Guidelines in this IFMP will be updated once the detailed local plan has been completed through the Area 23 Harvest Committee.

Area 25 Harvest Committee

The Area 25 Harvest Committee is a forum that includes representatives from the Ha'oom Fisheries Society, Ehattesaht, Mowachaht/Muchalaht, and Nuchatlaht First Nations, the Area D

Harvest Committee, the local Sport Fishing Advisory Committee, the Nootka Sound Watershed Society, local municipal governments and DFO. The Area 25 Roundtable is developing a detailed local management plan for Chinook in Nootka Sound and Esperanza Inlet. The Decision Guidelines in this IFMP will be updated once the detailed local plan has been completed through the Area 25 Harvest Committee.

Area 26 Roundtable

The Ka:'yu:'k't'h'/Che:k'tles7et'h' First Nations (KCFN) are a Treaty First Nation and signatory to the Maa-nulth Treaty which came into effect in 2011. In 2014, KCFN spearheaded the establishment of the Area 26/126 Roundtable with the Area 26 lodges to develop a more collaborative approach to resource management.

Members of the Area 26/126 Roundtable include representatives from KCFN, lodges and recreational fishery interests, commercial fishery representatives and DFO. A larger table that includes Aquaculture, Forestry and other resource interests also exists for purposes beyond Fish and Fisheries management.

This Roundtable serves both a plenary function and a consensus-based decision–making function. This format allows for improved planning of local fisheries to support a number of mutual objectives including implementing the Maa-nulth Treaty's Fisheries Chapter, conservation, habitat restoration, fish stock rebuilding, and stock enhancement. The objectives of this Roundtable go far beyond fisheries and are built upon respect, community and relationship objectives that foster healthy marine and terrestrial ecosystems [ecosystem-based management (EBM)], local communities and increase sustainable and conservation based local participation in the fisheries for current and future generations.

The Area 26/126 Roundtable is developing detailed local management plans for fisheries through KCFN territories. The activities of the Roundtable include fisheries management and collaborative catch monitoring initiatives and compliance programs that respect Treaty obligations and foster EBM principals.

The committee meets numerous times throughout the year including post season, preseason and in season. Plans are reviewed annually and often in season. The Decision Guidelines in this IFMP will be updated once the A26/126 Plan has been completed through Area 26 Round Table/Harvest Committee.

3.3 SALMONID ENHANCEMENT PROGRAM

The Salmonid Enhancement Program (SEP) produces Pacific salmon at enhancement facilities, and undertakes projects that include public participation by local communities and First Nations in fisheries and watershed stewardship activities. Enhanced salmon enable economic, social and cultural harvest opportunities for commercial, recreational, and First Nations

harvesters, support vulnerable stock rebuilding, and contribute to Canada's stock assessment commitments under the Pacific Salmon Treaty with the United States. Projects with community partners include stewardship activities and the development of integrated local and area watershed plans. SEP also supports school education and public awareness projects.
With respect to projects that undertake fish culture, about 170 projects release fish annually from sites throughout British Columbia and the Yukon. Projects range in size from spawning channels releasing nearly 100 million juveniles annually, to school classroom incubators releasing fewer than one hundred juveniles. SEP enhances Chinook, Coho, Chum, Pink, and Sockeye salmon, as well as small numbers of Steelhead and Cutthroat trout. Project types include hatcheries, fishways, spawning channels, lake fertilization, and small classroom incubators. Projects are operated by DFO staff or by First Nations and community and volunteer groups through partnership with SEP.

The hatchery component of the program is delivered through two components:

- Major Operations (OPS) SEP facilities that produce fish through hatcheries and spawning channels and are operated by DFO;
- The Community Involvement Program (CIP), which includes both Community Economic Development Program (CEDP) projects that operate under contribution agreements with SEP, and volunteer-run Public Involvement Program (PIP) projects. All are operated by First Nations or public/community groups in partnership with DFO and with technical support provided by SEP. The majority of PIPs are smaller projects that focus on outreach, stewardship and educational activities, and do not produce large numbers of fish.

All fish production is subject to the *Pacific Aquaculture Regulations* (PAR) under the *Fisheries Act*. PAR licences for SEP and SEP-licensed facilities establish the maximum numbers of eggs to be collected and juveniles to be released for each enhanced system, using strategies that will produce the number of adults desired to meet specific objectives while considering species interactions, effects on existing stocks, harvest, habitat capacity, project capacity and overall salmon CU objectives.

The information available at the link below outlines production from DFO and DFO-partnered hatcheries. There are three datasets available:

- Post-Season Production from the 2021 brood year (i.e. 2022 and 2023 releases)
- Post-Season Production from the 2022 brood year (i.e. 2023 releases and numbers on hand for 2024 release)
- The draft 2024 SEP Production Plan which includes proposed targets for the 2023 brood year.

IFMP SEP Data Tables | Pacific Region | Fisheries and Oceans Canada (dfo-mpo.gc.ca)

Significant production adjustment proposals for 2024 are incorporated into the *Enhancement Information* in each Species Overview of the Section 13 Fishing Plans. In 2024, SEP will continue to modernize hatchery management and align production to meet departmental directives. This includes adjusting programming to support increased conservation efforts and harvest transformation.

3.4 Fisheries Act: Fish Stocks Provisions

Amendments to the *Fisheries Act* (Bill C-68) were passed into legislation in 2019. The *Fishery (General) Regulations* were amended on April 4, 2022 and include requirements to maintain major fish stocks at sustainable levels, and develop and implement rebuilding plans for stocks that have declined to their critical zone. The amended regulation can be found here: https://www.gazette.gc.ca/rp-pr/p2/2022/2022-04-13/html/sor-dors73-eng.html

Three major stocks of Pacific Salmon were prescribed in regulation: West Coast Vancouver Island (WCVI) Chinook, Interior Fraser Coho, and Okanagan Chinook. As per Section 6.2 (1) of the *Fisheries Act*, "if a major fish stock has declined to or below its limit reference point (LRP), the Minister shall develop a plan to rebuild the stock above that point in the affected area." Okanagan Chinook and WCVI Chinook are expected to be below their LRP and therefore subject to the fish stocks provisions and require rebuilding plans. Information on the requirements for rebuilding plans is available at: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precautionary-precaution-eng.htm

3.5 Consultation

In the Pacific Region, DFO consults with and engages First Nations and other interest groups through a wide range of processes. For salmon, the focal point for DFO's engagement with First Nations, the harvest sectors and environmental interests is around the development and implementation of the annual IFMP.

The Crown has a legal duty to consult and if appropriate, accommodate, when the Crown contemplates conduct that might adversely impact section 35 rights (established or potential) (Government of Canada and the duty to consult). In addition to the legal duty, consultation supports good governance, sound policy, and effective decision-making.

Canada is committed to implementing the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and recognizes the right of Indigenous peoples to participate in decision-making in matters that affect their rights through their own representative institutions and the need to consult and cooperate in good faith with the aim of securing their free, prior, and informed consent.

Canada is guided by the Principles respecting the Government of Canada's relationship with Indigenous peoples (justice.gc.ca) in the consultation and engagement it does with Indigenous peoples. Consultation and engagement with First Nations takes place at a number of levels and through a variety of processes. A significant amount of consultation and dialogue takes place through direct, bilateral meetings between DFO and First Nations at a local level. This can include specific engagement on the draft IFMP or other issues throughout the year. For Treaty Nations, consistent with the Cabinet Directive on the Federal Approach to Modern Treaty Implementation, DFO consults on a broad suite of fish and fishery related items, including shared stewardship arrangements, through formal processes such as Joint Fisheries Committees or Joint Fisheries Management Committees. In addition to consultations at the local level, DFO works with First Nations at the aggregate or watershed level. For information on the Fraser Salmon Management Council, see Section 0.

3.6 CANADA AND FIRST NATIONS COLLABORATIVE GOVERNANCE

3.6.1 CANADA AND FIRST NATION TREATIES AND RECONCILIATION AGREEMENTS

Collaborative governance between the Government of Canada and Indigenous Peoples can be achieved several ways. Modern treaties provide the structural parameters by which the parties (the First Nation(s), Canada, and the Province) can develop a collaborative governance process. Under each Final Agreement, a Joint Fisheries Committee (JFC) is appointed to provide guidance, make recommendations, and delegate subcommittees to review technical and operational fisheries information to support collaborative governance and treaty implementation. The JFC can also examine ways to build upon and improve the relationships and collaboration among the parties. Further information on treaties can be found under Section 10.1.1.

In addition to negotiating treaties, the Government of Canada and Indigenous peoples can also negotiate Recognition of Indigenous Rights and Self-Determination (RIRSD) agreements, to explore new ways of working together to advance the recognition of Indigenous rights and self-determination. These agreements are led by Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). DFO can also negotiate Fisheries Resources Reconciliation Agreements directly with First Nations to enhance First Nations and DFO collaborative governance and management on fisheries, marine and aquatic matters. Further information on RIRSD and Fisheries Resources Reconciliation Agreements in Section 10.1.2.2.

3.6.2 FRASER SALMON COLLABORATIVE MANAGEMENT AGREEMENT

The Fraser Salmon Collaborative Management Agreement (FSCMA; Agreement) was signed in July 2019 by Fisheries and Oceans Canada (DFO) and the Fraser Salmon Management Council (FSMC) (the Parties). The Agreement is the culmination of decades of foundational work, and sets out a collaborative governance structure between the Parties to support the collaborative management of Fraser River salmon (see Figure 3.6).

The FSMC contains 76 signatory First Nations from the Fraser watershed and marine approach areas with access to Fraser salmon. As part of Agreement implementation, the Fraser River Aboriginal Fisheries Secretariat (FRAFS) has ceased its operations, and the expectation is that much of the support provided to First Nations by FRAFS in previous years will continue to be provided through the FSMC.

While the Agreement provides a structure for discussions between the Parties regarding Fraser River salmon, it does not replace or alter DFO's obligations and commitments with respect to bilateral consultation (particularly with First Nations non-signatory to the Agreement), nor does it affect Aboriginal or Treaty rights of any Indigenous peoples.

Since the Agreement was signed in 2019, the Parties have been working to populate positions within the governance structures identified in the Agreement, to develop a work plan and undertake the work identified within their annual workplans. Work is currently underway to develop the annual work plan for 2024-2025.

More information on the FSCMA can be found at https://frasersalmon.ca/.

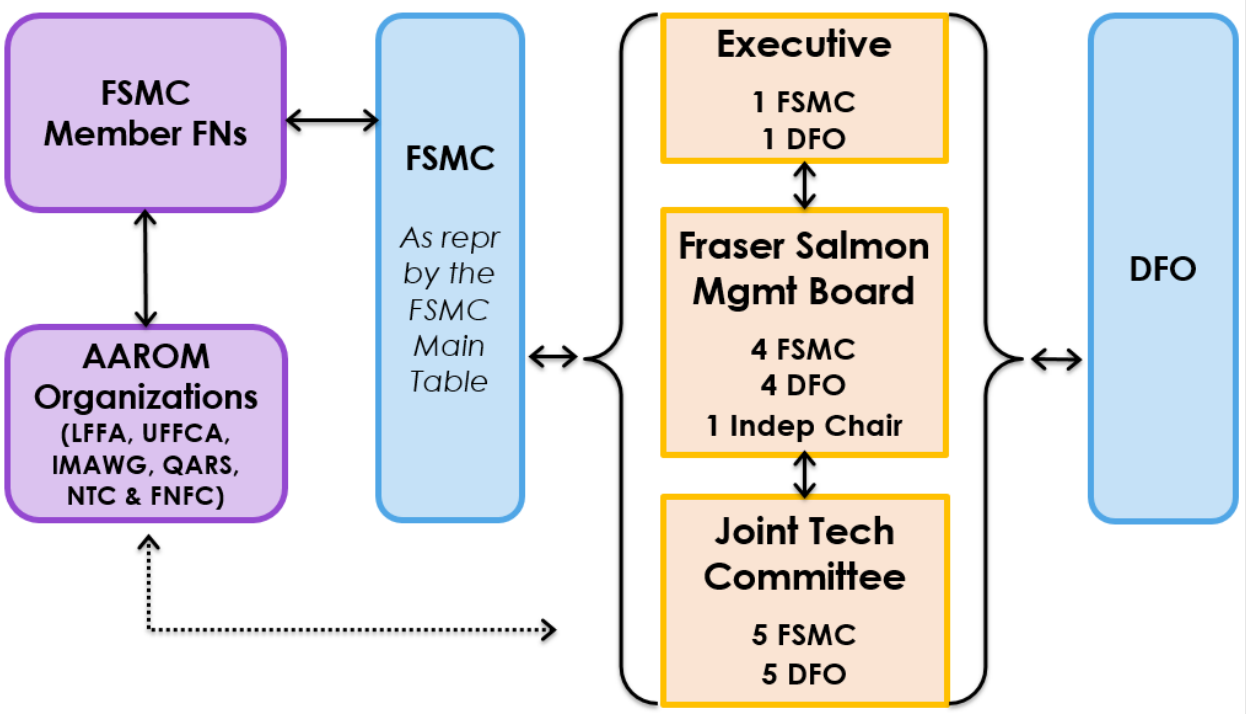

Figure 3.6-3-1: Governance structures established within the Fraser Salmon Collaborative Management Agreement (FSCMA).

3.7 Advisory Committees and Boards

3.7.1 Salmon Coordinating Committee

The First Nations Fisheries Council Salmon Coordinating Committee (SCC) facilitates dialogue between First Nations and DFO. First Nations representatives from 13 geographical areas within the Pacific Region meet with DFO resource management to discuss priority issues among BC First Nations as they relate to salmon. SCC priorities include advancing Indigenous fisheries; building First Nations capacity and fisheries governance; advising on salmon conservation and rebuilding; and the sustainability of Pacific salmon fisheries concerns.

3.7.2 Integrated Harvest Planning Committee

At a broad, Province-wide level, the Integrated Harvest Planning Committee (IHPC) was developed to bring together First Nations, commercial and recreational harvesters, and environmental interests to review and provide input on the IFMP, as well as coordinate fishing plans and (where possible) resolve potential issues among the sectors. The IHPC also meets post-season to review information regarding stocks and fisheries and implementation of the IFMP. The current IHPC advisory membership list is located in Appendix 5.

In addition to integrated dialogue through the IHPC, the Department also works directly with the commercial and recreational sectors, largely through the Commercial Salmon Advisory Board (CSAB) and Sport Fishing Advisory Board (SFAB), respectively. The Department also consults with the Pacific Marine Conservation Caucus, an umbrella group representing nine core environment groups (http://www.mccpacific.org/).

3.7.3 COMMERCIAL SALMON ADVISORY BOARD

The Commercial Salmon Advisory Board (CSAB) consists of two representatives from each Area Harvest Committee (Area A-H), as well as representatives from the Native Brotherhood of BC (2), the processing sector (2), and the UFAWU (2). The CSAB serves as the consultative body on issues that affect commercial salmon fisheries. Two representatives from each area are nominated to sit on the DFO Integrated Harvest Planning Committee. The current CSAB members list is available at: https://www.pac.dfo-mpo.gc.ca/consultation/smon/csab-ccpcs/membs-eng.html

3.7.3.1 AREA HARVEST COMMITTEES

Area Harvest Committees (AHC) consist of representatives nominated and elected by salmon licence eligibility holders. Elections are normally held every year where half of the board will be up for re-election. AHCs provide pre-season and in-season advice and recommendations on fishing related matters to DFO as appropriate to the area and gear type. Two representatives from the AHC are elected to represent the interests of the specific area and gear type on the CSAB. The AHC members list is available at: https://www.pac.dfo-mpo.gc.ca/consultation/smon/csab-ccpcs/ahc-ces-membs-eng.html

3.7.4 SPORT FISHING ADVISORY BOARD

The Sport Fishing Advisory Board has been an advisory body to Fisheries and Oceans Canada (DFO) on recreational issues since 1964. The Board's role is to provide advice and make recommendations to DFO on matters affecting tidal waters fisheries and non-tidal anadromous fisheries and in tidal waters on matters affecting all species and forms of recreational fishing. A terms of reference for this board is available at:

https://www.pac.dfo-mpo.gc.ca/consultation/smon/sfab-ccps/index-eng.html

4 ECONOMIC, SOCIAL AND CULTURAL IMPORTANCE

The intent of this section is to provide a socio-economic overview of the salmon fisheries in British Columbia using available information. In future years, information on the social and cultural context of the various fisheries can be added, where available. This summary addresses salmon in the context of the Indigenous food, social, and ceremonial fishery, the recreational fishery, and commercial fishery (harvest, processing and export activity including that generated by the Indigenous communal commercial fishery). This section does not provide measures of economic value (i.e. consumer and producer surplus), rather it focuses on activity. DFO recognizes the unique values of each of the fisheries described here. The overview provided in this profile is intended to help build a common understanding of the socio-economic dimensions of each fishery rather than compare the fisheries. Where possible this summary highlights information specific to the South Coast.

4.1 INDIGENOUS FISHERIES

Fisheries and Oceans Canada recognizes that the following section does not reflect Indigenous perspectives on the economic, social, cultural, educational and health importance of salmon fisheries and their management to First Nations, and is considering how Indigenous perspectives may be better reflected in future Integrated Fisheries Management Plans for salmon. In the interim, further information on the importance of salmon to Indigenous communities can be found in a Special Report to the Pacific Salmon Commission *The Sociocultural Significance of Pacific Salmon to Tribes and First Nations* (https://www.psc.org/news-announcements/sociocultural-significance-of-salmon-to-tribes-and-first-nations/).

Section 35(1) of the *Constitution Act*, recognizes and affirms the existing Indigenous and Treaty rights of the Indigenous Peoples in Canada, however it does not specify the nature or content of the rights that are protected. In 1990, the Supreme Court of Canada issued a landmark ruling in the Sparrow decision. This decision found that the Musqueam First Nation has an Indigenous right to fish for food, social and ceremonial (FSC) purposes. The Supreme Court found that where an Indigenous group has a right to fish for FSC purposes, it takes priority, after conservation, over other uses of the resource. The Supreme Court has also indicated the duty to consult with Indigenous Peoples when their fishing rights might be affected.

The Aboriginal Fisheries Strategy (AFS) was implemented in 1992 to address several objectives related to First Nations and their access to the resource. These included:

- To provide a framework for the management of fishing by Indigenous groups for food, social and ceremonial purposes.

- To provide Indigenous groups with opportunities and increased capacity to participate in the management of fisheries, thereby improving conservation, management and enhancement of the resource.
- To contribute to the economic self-sufficiency of Indigenous communities.
- To provide a foundation for the development of self-government agreements and treaties.

In the region in 2023-2024, there were approximately 86 AFS agreements. AFS fisheries agreements may identify the amounts of species including salmon that may be fished for FSC purposes, terms and conditions that will be included in the communal fishing licence and fisheries management arrangements. AFS continues to be one of the principal mechanisms – in addition to Treaties and reconciliation agreements - to support the development of relationships with First Nations including the consultation, planning and implementation of fisheries, and the development of capacity to undertake fisheries management, stock assessment, enhancement and habitat protection programs. Additional information on AFS implementation for FSC, including harvest target amounts for South Coast are provided in Section 0.

Fisheries chapters in modern treaties may articulate treaty fishing rights for domestic purposes that are protected under Section 35 of the *Constitution Act*, 1982. Negotiated through a side agreement, some modern treaty First Nations have been provided commercial access either through the general commercial fishery or a Harvest Agreement outside of the constitutionally protected treaty.

There are four modern treaties in British Columbia, which all have fisheries chapters: Nisga'a Final Agreement, Tsawwassen First Nation Final Agreement, Maa-nulth First Nations Final Agreement, and Tla'amin (Sliammon) Nation Final Agreement. Further information can be found in Section 1.5. For information on Tsawwassen First Nation, Maa-nulth First Nations and Tla'amin Nation fisheries please see Section 10.1.

Modern treaty Nations each develop their own unique strategic fisheries objectives. Feedback provided to-date is not exhaustive or complete, but suggests some First Nations economic priorities may include:

1. New and continued commercial licence acquisition and access to fisheries (including terminal fisheries).
2. Fulsome opportunities for community members to participate in activities in support of commercial fishing opportunities including employment, contracting, training, and education.
3. Opportunities for employment and contracts to conduct scientific monitoring, enforcement, and compliance activities.

Five Nuu-chah-nulth First Nations located on the west coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) – have an Aboriginal right to fish for any species, with the exception of Geoduck, within their court-defined fishing territories and to sell that fish. For further information please see Section 10.3.1.

In addition to modern-day treaties, there are historic treaties in British Columbia: Douglas Treaties (1850-1852) and Treaty 8 (1899).

4.1.1 ECONOMIC VALUE

In terms of Indigenous commercial harvest opportunities, the Department's general approach is that Indigenous commercial harvest opportunities are managed using the same harvest decision guidelines as the commercial fishery. Indigenous commercial harvest opportunities may be implemented with different times, areas, gears and regulations consistent with the overall management approach for the commercial fishery. The landings and value attributable to Indigenous commercial harvest are included in the values reported for the commercial sector above and this includes inland fisheries. Participation in the commercial salmon fishery provides socio-economic benefits to Indigenous communities and individuals from fishery revenues and employment-generated income.

Five Nuu-chah-nulth First Nations located on the west coast of Vancouver Island – Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) – have an Aboriginal right to fish for any species, with the exception of Geoduck, within their court-defined fishing territories and to sell that fish. For further information please see Section 10.3.1.

Indigenous participation within the Indigenous commercial salmon fishery occurs under two licence categories (A and FA). Within the category A licence eligibilities, there are full fee and reduced fee licence eligibilities. Reduced fee licence eligibilities may only be held on a vessel that is owned by an Indigenous individual and where the Indigenous individual has elected to pay a reduced licence renewal fee for the salmon licence eligibility. Since 2005, an average of 14% of commercial licences in the North Coast have been reduced-fee licences, while the coast-wide average has been 11%. Category FA licence eligibilities provide similar fishing privileges as category A licence eligibilities, however, they may not be nominated to another party and are intended to be held for the benefit of the recipient First Nations communities. Category FA licence eligibilities allow Indigenous communities to designate a vessel annually to carry out the fishing.

As of 2023, of the 254 category NAG licence eligibilities previously held in the name of the Northern Native Fishing Corporation, 204 were relinquished and are now issued as communal commercial licences held in the name of North Coast First Nations Society and 50 were retired.

Since 1994, DFO has obtained a total of 501commercial salmon fishing licence eligibilities through a voluntary relinquishment process. Once obtained by DFO, those commercial licence

eligibilities are relinquished and then issued as communal commercial (category FA) licence eligibilities and provided to support various Indigenous programs and initiatives including the Aboriginal Fisheries Strategy (AFS, see section 10.3), the Allocation Transfer Program (ATP), the Pacific Integrated Commercial Fisheries Initiative (PICFI), First Nations Inland Demonstration Fisheries projects, Economic Opportunity Fishery arrangements and treaties. 135 communal commercial salmon licence eligibilities were issued to First Nations under the AFS and ATP, 46 were issued under PICFI, 257 were used to offset First Nations demonstration fisheries projects and Economic Opportunity fishery arrangements with First Nations in the lower Fraser, Somass, Skeena and Nass Rivers, and 35 were used for treaties or other contingencies.

Tsawwassen and Maa-nulth First Nations Treaties came into effect on April 3, 2009 and April 1, 2011, respectively. Most recently, the Tla'amin Nation's Treaty came into effect on April 5, 2016. For additional information please see section 10.1.1.

4.2 RECREATIONAL FISHERY

Recreational fishing for salmon occurs to provide food for personal use, as a leisure activity, or as a combination of the two. These activities provide non-quantifiable benefits to the individual participants and contribute directly and indirectly to the economy through fishery-related expenditures. This section focuses on economic activity rather than the economic benefits to individual anglers or businesses. Catch levels in the recreational fishery are managed using area-specific openings and retention levels.

In the most recent survey of Recreational Fishing in Canada (2022), tidal water recreational fishing led to $658 million dollars (2022$) in expenditures and major purchases in British Columbia. Average total expenditure from 2020-2022 is $616 million dollars(2022$). Recreational fishing effort directed toward salmon accounted for an estimated 37% of all angler expenditures, or $243 million. Of these, $160 million was spent in Southern BC (Johnstone Strait, Georgia Strait, Barkley Sound, and West Coast Vancouver Island).

However, due to conservation related fishery management measures, the 2019 fishing season experienced significant restrictions which would have lowered participation, catches, and expenditures. In addition to these conservation related management measures, the 2020 season was also significantly impacted by travel restrictions and a downturn in the economy related to the coronavirus pandemic. Similar effects could be expected to have extended into the 2021 and 2022 seasons. Even if BC residents were less likely to be impacted by travel restrictions, it would be reasonable to expect a reduction in their angling days, distance they traveled to fish, and in their total investments and purchases related to recreational fishing. BC residents make up a majority of active anglers and days fished and are responsible for most of the expenditures generated in the sector. However, sport fishers from outside BC spend more on fishing trip packages and make up an important client base for lodges and charter operations.

In order to fish for salmon recreationally an angler must purchase either a tidal or a freshwater licence. Further, in order to keep this catch the licence must have an attached Pacific Salmon Conservation (PSF) Stamp. The number of licences and stamps that can be sold is not restricted and is one way to highlight the level of participation of angler groups in the fishery. Licence data show that the total number of licences and salmon stamps sold was relatively stable from 2001 to 2008 (Figure 4-1). Starting in 2008, there were consecutive drops in sales of licences specifically to non-residents (i.e. anglers that did not reside in BC) until 2013/14. Some of the drop was made up by increased sales to residents and the number of licences sold remained relatively steady at the lower level until 2013/14. Sharp increases in the sale of licences to both residents and non-residents in the 2014/15 season resulted in one of the largest annual licence sales in at least 14 years. Since then, annual licence sales remained relatively steady at this higher level, with a minor drop in 2019 potentially driven in part by management restrictions put in place due to conservation related fishery management measures. Total licence sales in the 2020/21 season were severely impacted due to COVID-19 with respect to travel restrictions leading to zero non-resident licences sold. However, licence sales to residents rose by 1.4% year over year on average from 2000 to 2022, though economic impacts of the pandemic likely weighed on participation generally, as can be seen in the recreational catch statistics below. The 2021/22 season saw a sharp 10% year-over-year increase in license sales to residents, and a minor recovery of license sales to non-residents. Lingering discomfort with travelling and travel restrictions, along with inflation, may be the cause for the low number of sales to non-residents.

In the 2022/23 season, licence sales to residents decreased slightly by 1.9%. This drop was more than made up for by increased sales to non-residents (459%).

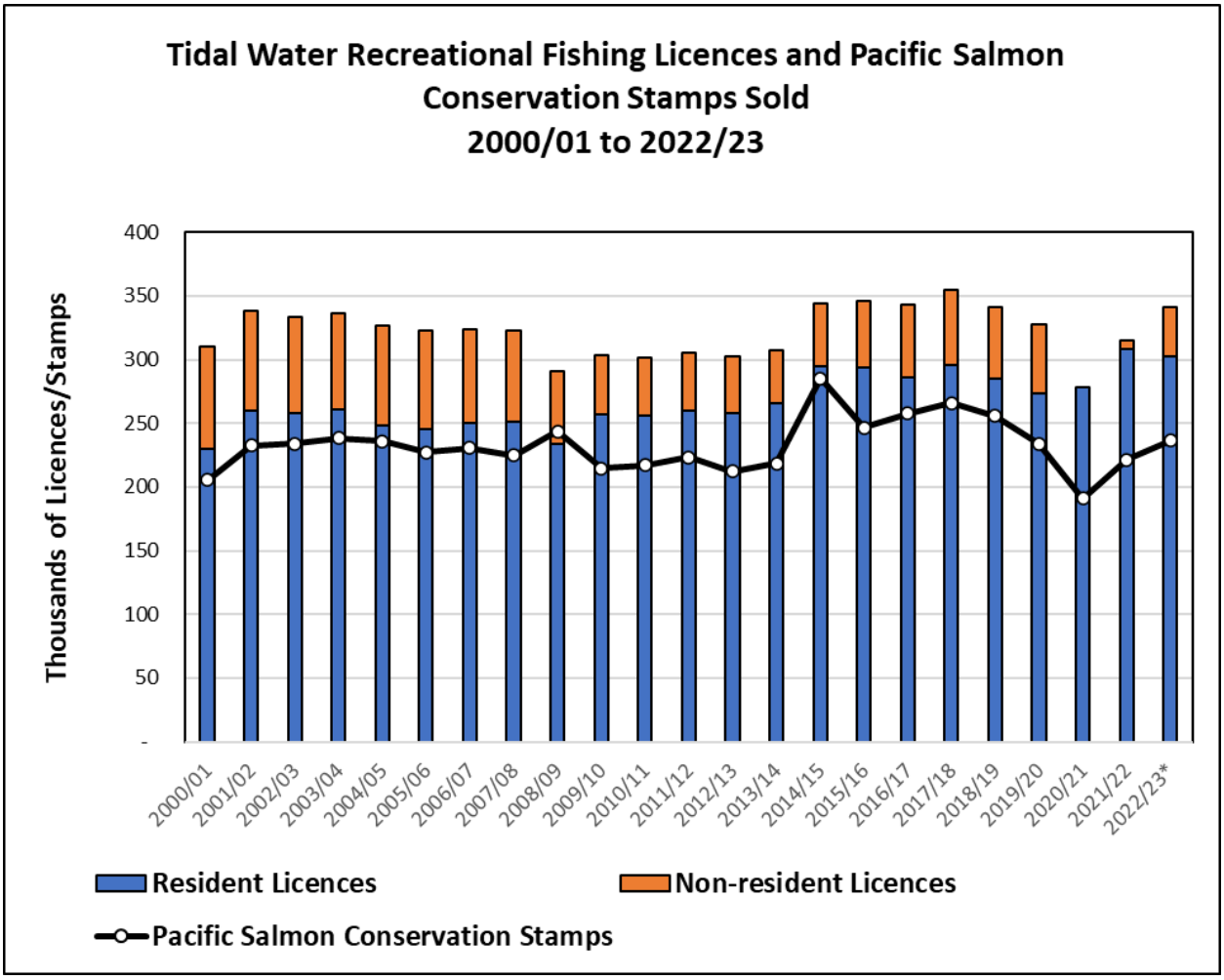

Figure 4-1: Tidal Water Recreational Fishing Licences and Pacific Salmon Conservation Stamps Sold, 2000/01 to 2022/23*

*Note: Licence sales for the 2022/23 season are preliminary and should be treated as such. Source: DFO.

The Survey of Recreational Fishing in Canada provides an estimate of individual expenditures and investment for recreational fishing. This information is used when estimating the direct and indirect contribution of recreational fishing to the economy (e.g. GDP, employment). The survey is generally administered every 5 years, but it is reasonable to expect highlighted trends to be fairly constant from year to year, barring any significant changes in fishing opportunities, like those we have seen in the last two years. Historically, the combined tidal and freshwater fisheries of BC were the second largest recreational fisheries in Canada in terms of direct and package expenditures, and third largest in terms of investments (DFO 2015). While resident anglers have the largest expenditures, recreational fishing by non-residents also contributes to the provincial economy. In 2022, non-resident direct expenditures (including fishing packages) and investments totaled $245 million . This number understates the contribution of non-resident

tidal water anglers to the overall economy, however, as it only includes expenditures directly attributable to their fishing experience[2]. Fishing opportunities in BC's tidal waters draw Canadian and international tourists to the province: of 47,269 non-resident anglers surveyed in 2010, 40% reported that they would not have come to British Columbia at all if there had been no opportunities for tidal water angling[3]. A further 19% would have shortened their stay in the province.

Recreational salmon catch fluctuates year to year, both as a consequence of user participation as well as ecological/biological factors. On average, from 2016-2019, 819 thousand pieces of salmon were caught recreationally coastwide in BC[4]. The 2020 season saw a dramatic decline, dropping 36% from the previous 4-year average to 526 thousand pieces. However, the 2021 season saw a 103% increase over 2020 levels to 1.07 million pieces. It is clear that COVID-19 travel restrictions severly impacted the recreational salmon fishing sector in 2020, but 2021 saw a resurgence that resulted in 31% more catch than the 4 year average between 2016-2019. In the 2022/23 season, catch estimates show a 8% increase over 2021 levels to 1.2 million pieces. Although catch numbers have fluctuated in recent years, the proportion of species caught has remained fairly the same. Between 2015 and 2022, more than half of the recreational catch can be attributed to Chinook (53%), followed by Coho (30%), Pink (9%), Sockeye (6%), and Chum (3%).

shows the tidal recreational expenditures for all recreational fishing species by resident and non-resident anglers from 2000 to 2022, adjusted to reflect constant 2022 dollars. Though recreational fishing continues to be important to the BC economy, the rate of growth overall has slowed: total expenditures and investments grew by nearly 15% from 2000 to 2005, but by only 1% from 2005 to 2010. From 2010 to 2015, total expenditures and investments in the tidal recreational fishing industry decreased by 26%. This slowdown is due mainly to a drop in visits (and therefore expenditures) to BC by non-resident anglers, particularly other (i.e. international) non-resident anglers whose total expenditures in BC dropped by 48% between 2005 and 2010 and dropped again by 12% between 2010 and 2015. From 2015 to 2020, total expenditures and investments in the tidal recreational fishing industry decreased by 21% due to COVID-19 travel restrictions, which resulted in there being no expenditures from international non-resident recreational fishers. With travel restrictions relaxing, total expenditures increased by 18% in 2021 and by 2% in 2022. Expenditures on fishing packages by resident anglers increased

[2] The British Columbia's Fisheries and Aquaculture Sector (BC Stats 2013) report, which calculates direct and indirect economic activity, indicates that non-resident participants in recreational tidal water fishing also spend money on, for example, shopping, cultural events and attractions (such as museums and the theatre), and sightseeing at locations other than where they go fishing.

[3] This can be further broken down into Canadian non-residents and international non-residents. Opportunities for tidal water recreational fishing are more important to international visitors: 47% of them reported they would not have come to BC had there not been tidal water fishing opportunities, while 32% of Canadian visitors would not have come.

[4] PSC Salmon Post Season Review, multiple years

considerably from 2000-2010; in real terms, it increased by 139% in that time period. However, in the following 5 years, expenditures on fishing packages by resident anglers decreased by 21%, while total expenditures by residents fell by 32%. Expenditures on fishing packages by resident anglers further decreased considerably from 2015 to 2020; in real terms, it decreased by 54% in that time period, likely also attributable to the travel restriction effects of COVID-19. With the relaxation of travel restrictions, in 2021 expenditures on fishing packages by resident anglers bounced back by 111%, nearing 2015 levels It decreased by 15% in 2022. Nonetheless, BC residents are still the primary consumers of fishing trip packages in the province.

B.C. Tidal Water Recreational Fishing Expenditures for all Species by Angler Type (2022$)				
2000				
	Direct Expenses	**Packages**	**Investments**	**Total**
Resident	$ 178,886,048	$ 28,770,554	$ 322,385,080	$ 530,041,683
CDN Non-Resident	$ 39,079,514	$ 33,476,970	$ 39,820,665	$ 112,377,149
Other non-resident	$ 84,467,475	$ 69,368,764	$ 19,942,360	$ 173,778,599
Total	$ 302,433,037	$ 131,616,288	$ 382,148,105	$ 816,197,430
2005				
	Direct Expenses	**Packages**	**Investments**	**Total**
Resident	$ 217,630,630	$ 59,457,856	$ 367,764,230	$ 644,852,716
CDN Non-Resident	$ 47,685,345	$ 55,625,451	$ 17,476,308	$ 120,787,103
Other non-resident	$ 68,516,379	$ 91,495,321	$ 11,417,166	$ 171,428,865
Total	$ 333,832,354	$ 206,578,628	$ 396,657,703	$ 937,068,685
2010				
	Direct Expenses	**Packages**	**Investments**	**Total**
Resident	$ 263,176,658	$ 68,870,066	$ 421,267,543	$ 753,314,266
CDN Non-Resident	$ 42,116,533	$ 35,233,379	$ 24,812,397	$ 102,162,309
Other non-resident	$ 43,018,488	$ 39,603,693	$ 6,682,715	$ 89,304,897
Total	$ 348,311,679	$ 143,707,138	$ 452,762,655	$ 944,781,472
2015				
	Direct Expenses	**Packages**	**Investments**	**Total**
Resident	$ 226,683,545	$ 54,286,177	$ 230,738,690	$ 511,708,413
CDN Non-Resident	$ 49,512,420	$ 41,186,438	$ 14,088,805	$ 104,787,663
Other non-resident	$ 44,447,501	$ 32,710,394	$ 1,753,568	$ 78,911,463
Total	$ 320,643,465	$ 128,183,009	$ 246,581,063	$ 695,407,538
2020				
	Direct Expenses	**Packages**	**Investments**	**Total**
Resident	$ 220,594,191	$ 25,068,878	$ 233,133,313	$ 478,796,382
CDN Non-	$ 39,905,109	$ 6,996,609	$ 20,652,832	$ 67,554,550
Other non-resident	$ -	$ -	$ -	$ -
Total	$ 260,499,300	$ 32,065,488	$ 253,786,144	$ 546,350,932
2021				
	Direct Expenses	**Packages**	**Investments**	**Total**
Resident	$ 246,825,315	$ 52,781,580	$ 216,013,576	$ 515,620,471
CDN Non-Resident	$ 57,548,204	$ 46,396,732	$ 7,410,947	$ 111,355,883
Other non-resident	$ 7,856,791	$ 9,352,983	$ 582,605	$ 17,792,379
Total	$ 312,230,310	$ 108,531,295	$ 224,007,127	$ 644,768,733
2022				
	Direct Expenses	**Packages**	**Investments**	**Total**
Resident	$ 211,873,639	$ 44,823,874	$ 155,622,105	$ 412,319,617
CDN Non-Resident	$ 66,142,286	$ 44,123,277	$ 8,801,066	$ 119,066,629
Other non-resident	$ 63,882,352	$ 59,194,188	$ 3,651,123	$ 126,727,663
Total	$ 341,898,277	$ 148,141,339	$ 168,074,294	$ 658,113,909

Figure 4.2-2: *Tidal Water Recreational Fishing Direct and Package Expenditures and Investments for all species, in constant (2022) dollars*

Source: Survey of Recreational Fishing in Canada (DFO, multiple years).
Note: Survey data until 2015 was based on the calendar year. Survey data for 2020-2022 follows the fishing season (April to March).

The past few years since 2019 can be expected to have accentuated the trend in declining expenditures by international anglers, given salmon management restrictions and especially COVID-19 travel restrictions and broader economic impacts. In 2022, salmon accounted for roughly 49% of expenditures on fishing trip packages and 37% of total expenditures overall in the tidal recreational fishing industry in British Columbia (DFO 2022) (Figure 4.2-3, below).

Additional information on the history and vision for recreational fisheries can be found in the document "Vision for Recreational Fisheries in BC": http://www.pac.dfo-mpo.gc.ca/consultation/smon/sfab-ccps/docs/rec-vision-eng.pdf

2022 North Coast Salmon Tidal Rec. Expenditures				
	Direct Expenditures	Packages	Investments	Total
Residents	$ 8,238,363	$ 7,693,388	$ 6,091,000	$ 22,022,751
Canadian non-resident	$ 7,324,195	$ 14,221,262	$ 584,734	$ 22,130,191
Other non-resident	$ 10,711,299	$ 27,572,461	$ 249,696	$ 38,533,456
Total	$ 26,273,857	$ 49,487,111	$ 6,925,430	$ 82,686,399

2022 South Coast Salmon Tidal Rec. Expenditures				
	Direct Expenditures	Packages	Investments	Total
Residents	49,679,090	8,656,972	39,746,444	98,082,506
Canadian non-resident	19,684,580	5,635,195	1,555,670	26,875,446
Other non-resident	24,801,221	8,078,455	2,156,977	35,036,652
Total	94,164,891	22,370,623	43,459,091	159,994,605

Figure 4.2-3: Tidal Water Recreational Fishing Direct and Package Expenditures and Investments for Salmon North Coast and South Coast, in constant (2022) dollars
Source: Survey of Recreational Fishing in Canada (DFO, 2022).

4.3 COMMERCIAL FISHERY

4.3.1 HARVEST SECTOR

In BC, the salmon fishery is a limited access fishery, mostly managed as a competitive fishery[5]; however, several parts of the fishery are operated under individual quotas. Since 2005, five areas using seine, troll or gill net gear have participated in demonstration fisheries with alternative implementations of individual quotas or pooling arrangements. In addition, there have been several commercial First Nations economic opportunity and demonstration fisheries. Commercially harvested salmon supports BC's seafood processing sector, much of which is ultimately exported, bringing new money into the province.

Between 2013 and 2022, salmon contributed an average of 14% of the landed value and 10% of the total volume of BC wild caught seafood (DFO Official Catch, 2013-2022). The real value, in 2022 constant dollars (2022$), ranged from a high of $148 million in 2014 to a low of $24 million in 2021. The value increased to $38.7 million in 2022 (Figure 4.3-, below).

Due to conservation related fishery management measures, the 2019 fishing season was one of the worst on record and saw salmon commercial landed value fall to roughly 25% of the previous 4-year average (2015-2018). Another decline in 2021 resulted in salmon commercial landed value falling to roughly 40% of the previous 4-year average (2017-2020). All marine commercial areas were impacted but areas E and H were most restricted with no (or virtually no) catch. Many vessels elected not to take part in the fishery. In fact, the number of active

[5] Other names for this style of fishery include derby and Olympic style fishery

vessels fell from 924 in 2018 (a high return/high participation year) to 601 in 2019, a decrease of 35%.

In 2020, there was a slight resurgence in effort in the commercial fishery, with 635 active vessels. The number remained low due to conservation related fishery management measures continuing, along with pandemic-related health and safety restrictions delaying the start of the fishing season, among other impacts. However, this number fell again in the 2021 season by roughly 40% to 379 active vessels, likely associated with the significant reduction in the number of openings for the fishery associated with Pacific salmon conservation measures, as well as continuing pandemic-related health and safety restrictions. Data for the 2022 season shows 489 active vessels, an increase of 29% from the 2021 season. This increase is expected as the 2022 season includes high Sockeye return due to it being a dominant return year for Summer timed Fraser Sockeye stocks.

There was a 91% increase in total landings (kgs) from 2021 to 2022 with landed value increasing by 62% to $39 million. This significant increase is mainly the result of 2022 being a Sockeye salmon bump year, forming 47% of the total landings and 53% of the total value. On average between 2013 and 2022, Pink salmon accounted for an average of 29% of total salmon catch. However, in 2013 and 2020, Pink made up 63% of salmon catch, contributing to relatively lower landed value totals in those years. Conservation concerns are expected to continue into future years, negatively impacting the returns to the commercial fleet, while additional closures may further reduce access in the short term.

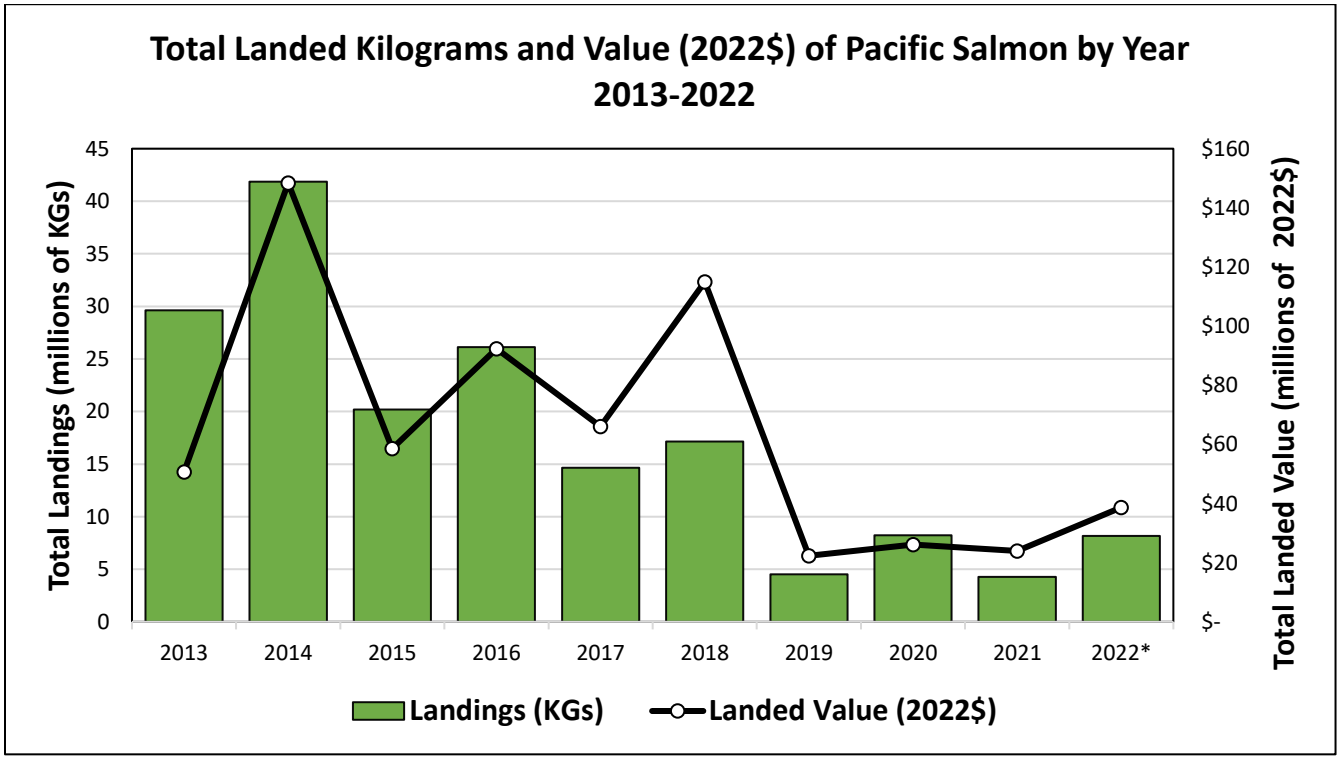

Figure 4.3-1: Total Landed Kilograms and Value (2022$) of Pacific Salmon by Year (2013-2022)

Source: DFO Official Catch matched to the best available price from sales slips.

*Estimates for 2022 are to be treated as preliminary

Note: Salmon landed value estimates may differ slightly from other sources due to varying price estimates. Prices used here are "best available" based on matching criteria using date, gear and area.

Chinook and Chum make up the majority of the landed value in most years, with the exception being years when there is a high return of Sockeye (see Figure 4.3-2).

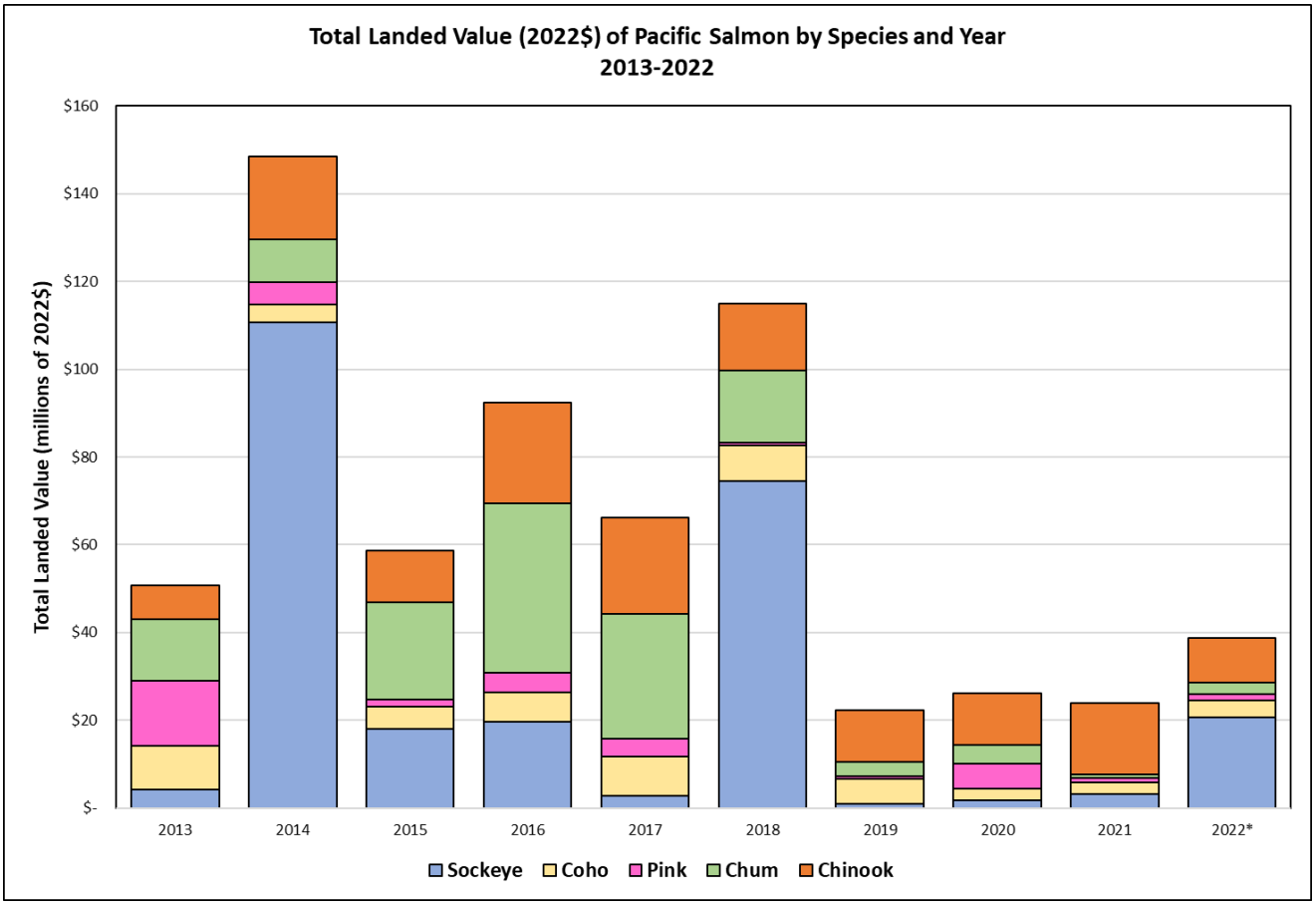

Figure 4.3.1-2 Total Landed Value (2022$) of Pacific Salmon by Species by Year (2013-2022)

Source: DFO Official Catch matched to the best available price from sales slips.

*Estimates for 2022 are to be treated as preliminary

Note: Salmon landed value estimates may differ slightly from other sources due to varying price estimates. Prices used here are "best available" based on matching criteria using date, gear and area.

Figure 4.3.-2 and Figure 4.3-3 (below) present landings (kilograms) and landed value (2022$) of Pacific Salmon by licence area from 2017-2022. For the most part, the graphs coincide with one another; higher landings result in higher landed value. However, salmon licence areas A and F show the opposite story: licence area A has higher landings each year (except for 2019, 2021) compared to licence area F, but area F has higher landed values. This is the result of the majority of catch over the period in area A being Pink Salmon (59%), which has the lowest value in terms of price per kg, and area F landing primarily Chinook (39%) and Coho (40%), which have the highest and third highest value in terms of average price per kg in the North Coast, respectively.

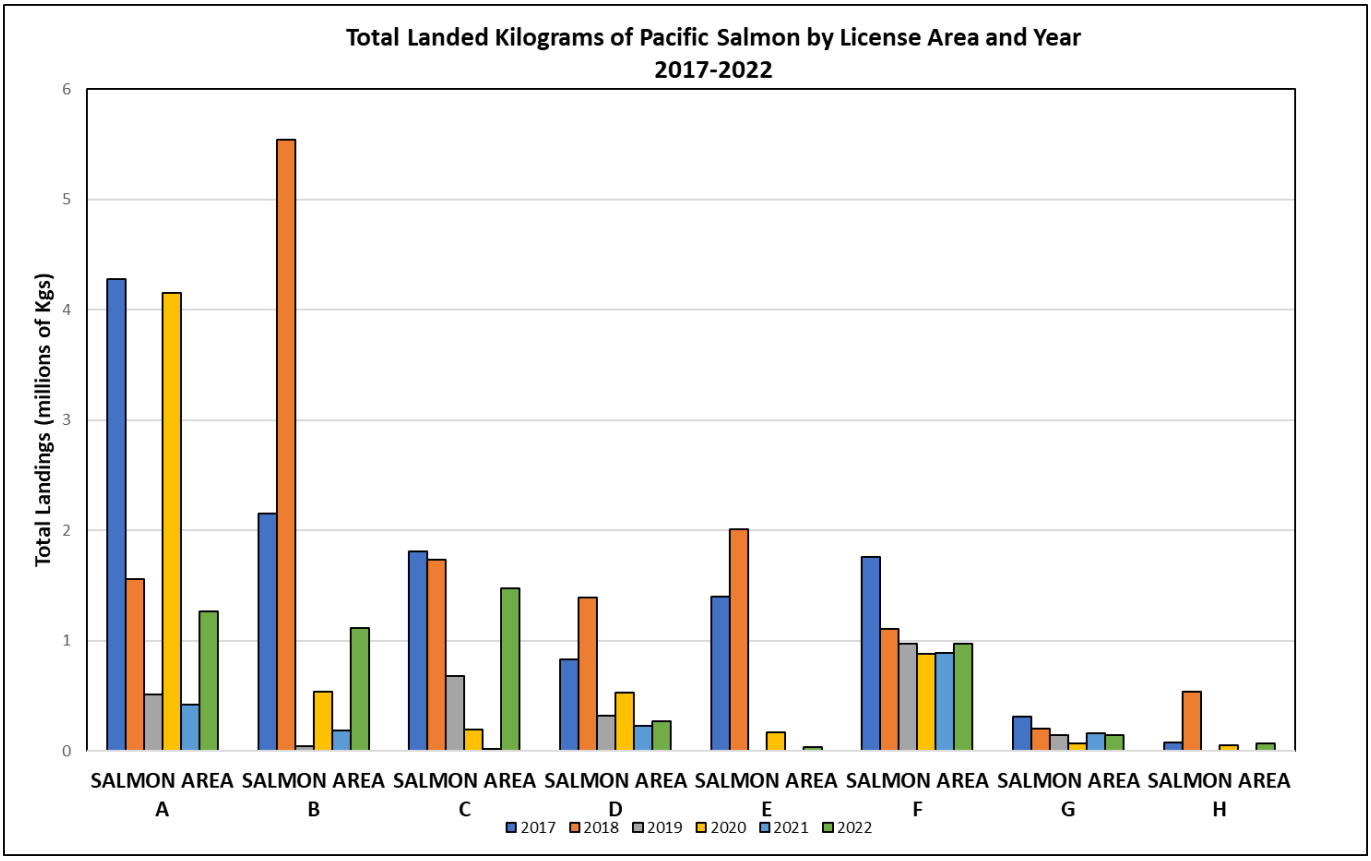

Figure 4.3-3: Total Landed Kilograms of Pacific Salmon by Licence Area by Year (2017-2022)

Source: DFO Official Catch matched to the best available price from sales slips.

*Estimates for 2022 are to be treated as preliminary

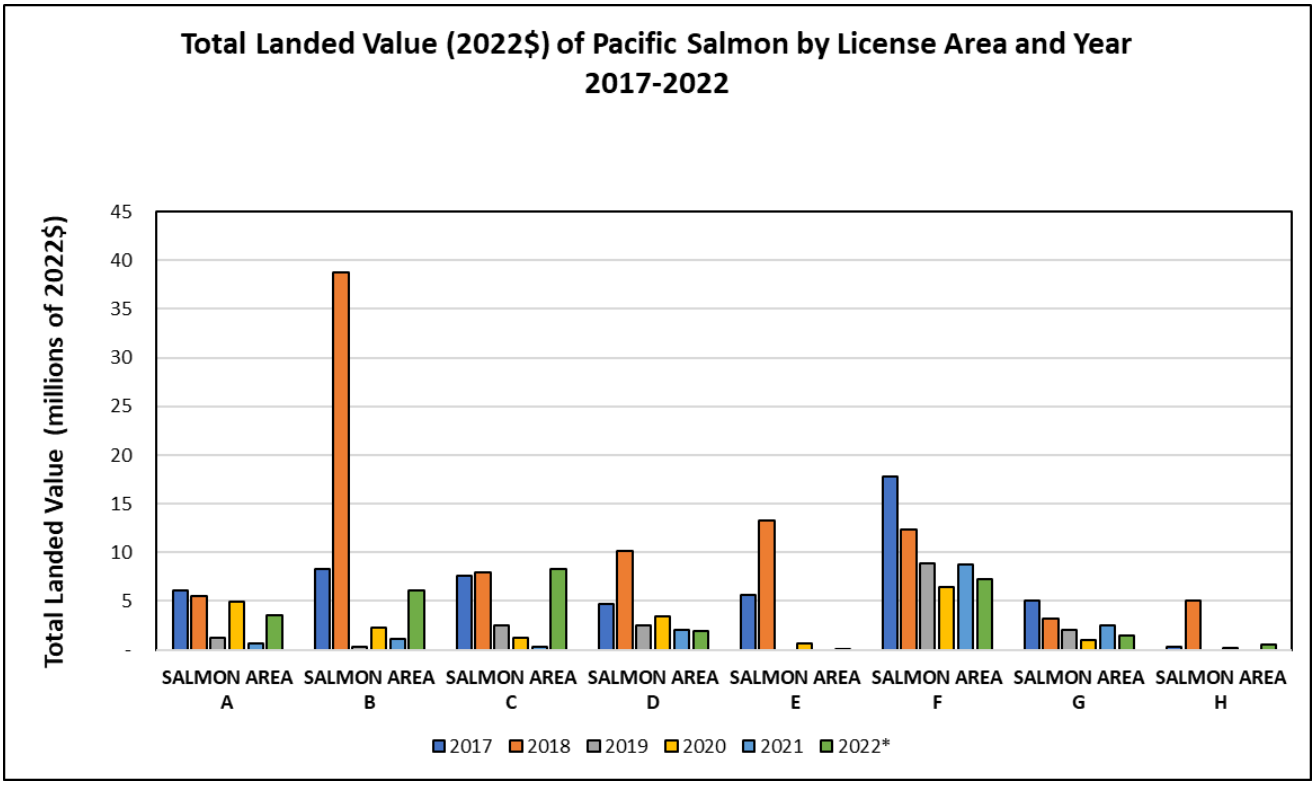

Figure 4.3-4: Total Landed Value (2022$) of Pacific Salmon by Licence Area by Year (2017-2022)

Source: DFO Official Catch matched to the best available price from sales slips.

*Estimates for 2022 are to be treated as preliminary

Between 2013 and 2022, the South Coast fishery was responsible for an average of 51% of the total volume and 52% total landed value of salmon landings, with the North Coast making up the remainder. In non- Fraser Sockeye dominant years, the North Coast catches more salmon than the South Coast, but the South Coast has secured most of the benefits of the large salmon runs in years such as 2014 and 2018. The record Fraser River Sockeye run in 2014 meant that the South Coast accounted for 71% and 78% of the landed volume and value in that year, respectively. With another Sockeye boom in 2018, the South Coast again accounted for 70% and 75% of the landed volume and value, respectively. As Sockeye spawn every four years, the 2022 season was expected to also result in a high Sockeye run. However, data for 2022 shows that the South Coast only accounted for 40% of the landed volume and value, respectively. This is due to a low Fraser River Sockeye return, as well as the majority of Sockeye salmon being caught in the North Coast.

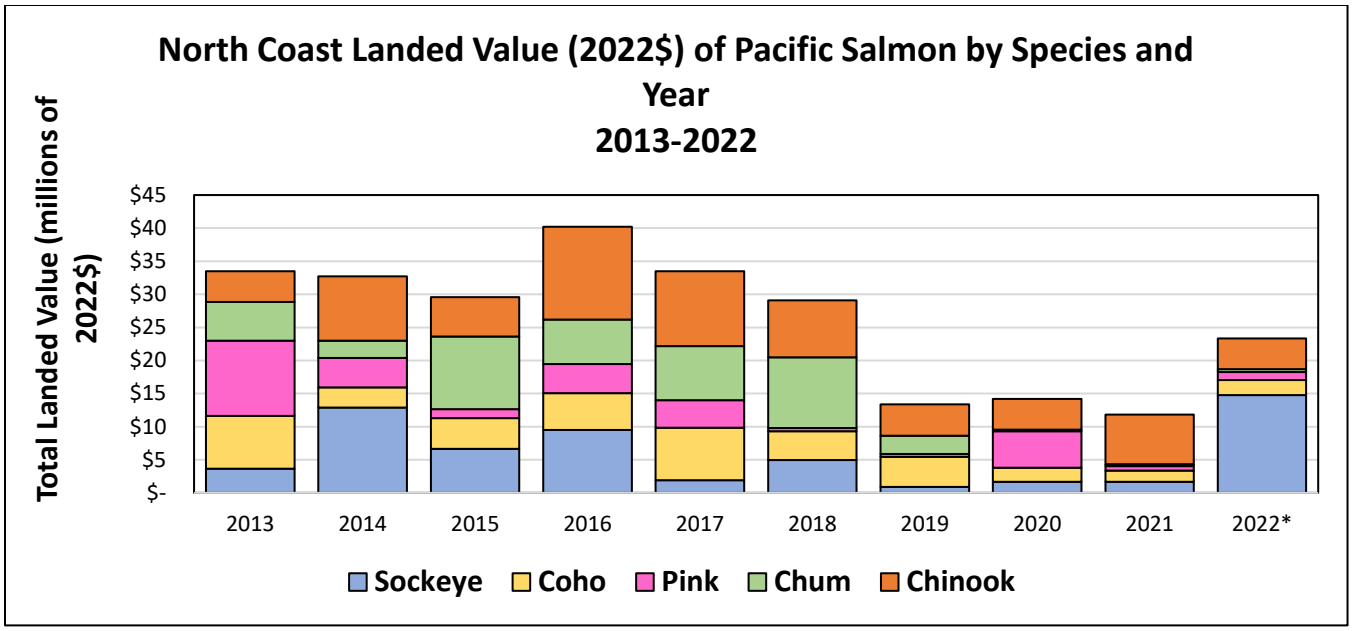

Figure 4.3-5: North Coast Salmon value by species, 2013-2022 (in 2022$)

Source: DFO Official Catch matched to best available price from sales slips.
*Estimates for 2022 are to be treated as preliminary

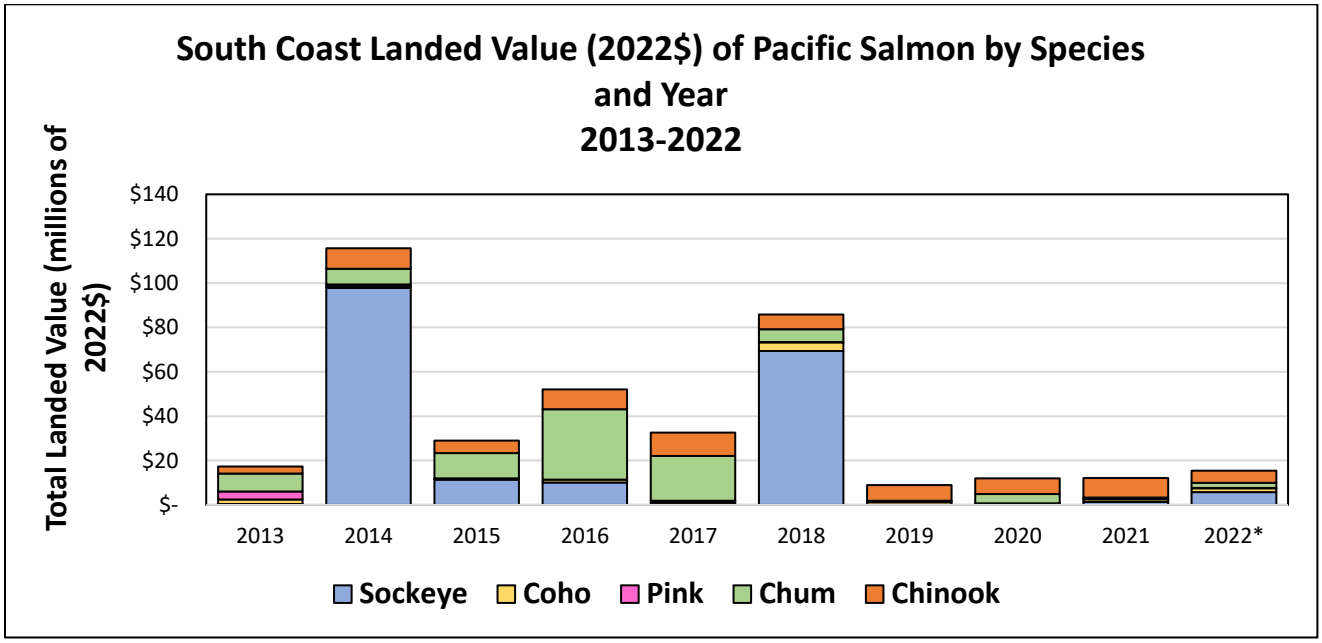

Figure 4.3-6: South Coast salmon value by species, 2013-2022 (in 2022$)

Source: DFO Official Catch matched to best available price from sales slips.

*Estimates for 2022 are to be treated as preliminary

Note: Salmon landed value estimates may differ slightly from other sources due to varying price estimates. Prices used here are "best available" based on matching criteria using date, gear and area.

Salmon licence values declined steadily from 2005 to 2010, reflecting poor returns to the fleets (Nelson, various years). Seine licences have recovered somewhat since then, while gillnet and troll licences have been steady with troll showing improvements in 2014. License values are a reflection of expected future financial returns but also of speculation. The value of a seine licence remained constant from 2016-2018 ($423K) and increased by 25% to $528K in 2019 (Castlemain, various years). However, in 2020 it decreased by 39% to $324K before recovering slightly to $386K in 2021. It again decreased by 10% in 2022 to 349K.[6]

Gillnet licence values steadily increased from 2015-2018 ($54K to $69K), but fell back to $55K in 2019 and continued to decrease year-over-year thereafter. In 2021, the average gillnet licence value was $37K, and remained the same in 2022. Troll licence values experienced a similar trend to gillnet, increasing from 2015-2018 ($125K to $199K), and falling in 2019 to $166K. It continued to fall in 2020, reaching $141K before recovering to $152K in 2021. In 2022 it fell by 9% to 138K.

The salmon fleet's financial performance is best reviewed over several years, given the fisheries significant annual swing in harvest. For the seine fishery, the percentage of revenue attributed to the diversified fleet increased from 14% to 23%, when comparing the 2018-2021 average to the 2022 year[7]. For the gillnet fishery, the percentage of revenue attributed to the diversified fleet also increased from 12% to 17% in comparing 2018-2021 average to the 2022 year. For the troll fishery, the percentage of revenue attributed to the troll diversified fleet was relatively stable, increasing from 60% to 62% when comparing the 2018-2021 average to the 2022 year. The troll fishery is more diversified than the other gear types due to loss of opportunity and the troll gear lending itself well to other fisheries, such as halibut. The cost structure of salmon fleets in BC is available through various reports (Nelson, 2009 & 2011 as well as Gislason 2011).

4.3.2 PROCESSING SECTOR

Wild salmon has consistently accounted for an average of 22% of the total wholesale value of wild caught seafood in BC (SYIR, 2014-2022).

[6] Licence valuations are in nominal terms.
[7] DFO Fleet Diversification Table Tool

The latest study on linkages between seafood harvesting and processing prepared by GS Gislason & Associates in August 2017 allows estimation of the total labour wages in salmon processing sector in 2016, by salmon species. Between 2017-2020, Sockeye accounted for most of the processing sector wages (36%), mainly due to the 2018 Sockeye bump year. In that same time period, Chum accounted for the majority of the remaining processing sector wages (31%), followed by Pink (17%), Chinook (9%) and Coho (7%). In 2021, processing sector wages were down 68% compared to the previous 4-year average due to relatively low landings across the salmon species. However, in 2022, processing sector wages increased by 150% from the previous year. Applying the Gislason & Associates (2017) estimates to 2022 DFO logbook information, processing of salmon species delivered about $4M (Sockeye), $0.9M (Pink), $0.8M (Chinook), $0.5M (Chum), and $0.4M (Coho) in processing sector labour wages in 2022 constant dollars (Figure 4.3-7:).

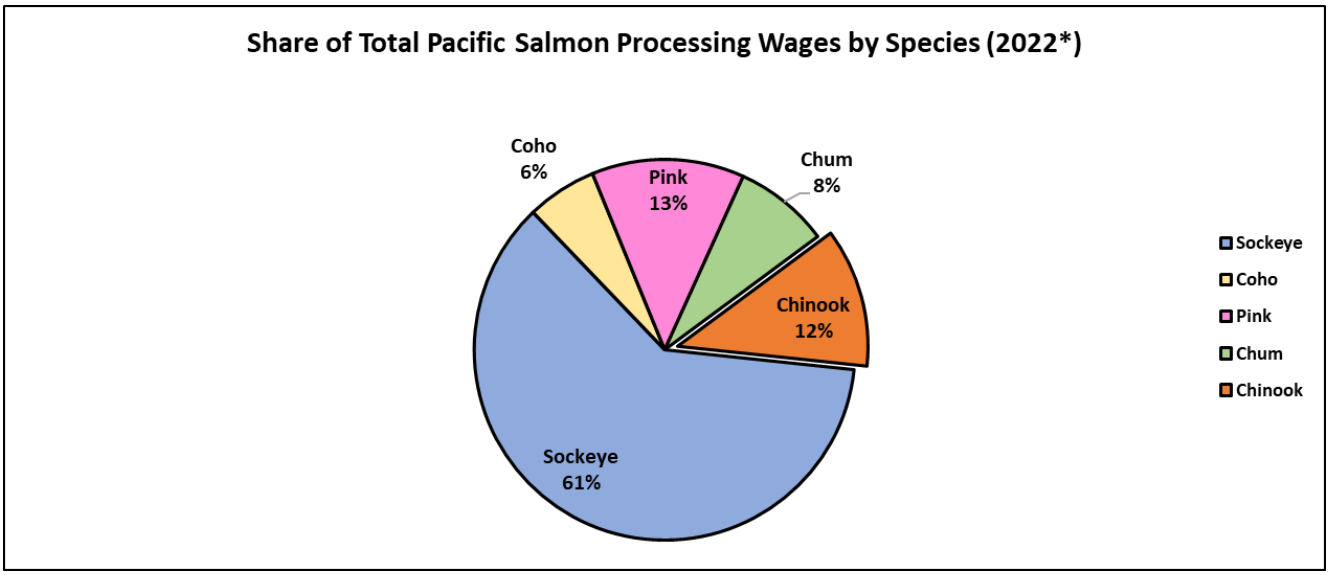

Figure 4.3-7: Share of the total value of processing sector wages in 2022 (by salmon species)

Source: GS Gislason and Associates (2017), DFO Official Catch

*Estimates for 2022 are to be treated as preliminary

Sockeye was the most processed salmon species by volume and total value of processing sector wages among all BC wild salmon in 2022. The elevated volume was due to 2022 being a Sockeye bump year. Additionally, Sockeye was estimated as the most labour intensive species in processing with a labour intensity of about 34 hours per metric tonne (MT) (GSGislason & Associates, 2017).

The GSGislason 2017 study also indicates that salmon processing is frequently pursued in a different region than the area where landings are loaded off the fishing vessels. For example,

while Chinook landings occur mostly on the North Coast, its processing happens mainly in the Lower Mainland (about 65% of all processed Chinook). Similarly, landings of Coho also happen mainly on the North Coast (80%), but its processing is pursued mainly in the Lower Mainland (74%). Pink salmon is landed mainly in the North Coast (about 60%) and is processed in the North Coast and Lower Mainland (45% and 40%, respectively). Chum landings (63%) and processing (75%) occurs mostly in Lower Mainland. Sockeye landings and processing occurs mostly on Vancouver Island (58% and 55%, respectively) (GSGislason & Associates, 2017).

4.4 EXPORT MARKET

The province of British Columbia benefits from strong seafood exports that in 2022 were valued at roughly $1.5 billion, a 4% increase when compared to 2021, and a 2% decrease over the annual average between 2018-2021.[8] This total value was realized via a combination of seafood supplied by domestic wild harvest and aquaculture (Statistics Canada EXIM Database).

Sockeye, Chinook and Chum salmon were among the most widely exported Pacific salmon species in 2022 (by volume). They constituted 38%, 27% and 19% of the total volume of Pacific salmon exports from BC, respectively. While Chinook is generally the most exported Pacific salmon, Sockeye overtakes it every few years during Sockeye bump years, such as in 2014, 2018 and 2022.

In 2022, Chum was shipped to 17 countries, with the largest proportions exported to the US and Kazakhstan (by value). In 2022, Sockeye was exported to 15 countries, with the largest proportions of exports going to the US and Japan (by value). Pink salmon was exported to 14 countries with the largest proportions exported to the US, China and Germany (by value). Chinook was shipped to 13 countries, with the largest proportions exported to the US and Japan (by value). Coho was exported to only 8 countries, with the largest proportions exported to the US and Belgium (by value).

Notwithstanding the above, salmon exports in recent years have been affected by the lower harvest levels. The annual value of all Pacific salmon exports from 2011-2018 averaged $151M annually, while the average annual value between 2019-2022 was roughly $87M, or approximately 57% of the previous 8-year average (in 2022$). Chinook made up approximately 32% of the average annual export value of Pacific salmon between 2011 and 2018, while it made up 54% of the annual value on average between 2019 and 2022 (in 2022$). Further, the proportion of total annual export value attributable to Chum went from 17% to 9% between 2011 and 2018 and between 2019 and 2022, respectively. The proportion attributable to Coho went from 6% to 7%, while Pink went from 15% to 5% and Sockeye went from 30% to 25%

[8] Statistics Canada EXIM Database; value in nominal terms.

between the two time periods, respectively. In 2022, the export value increased to roughly $96M from $79M in the previous year (see Figure 4.4-1 below).

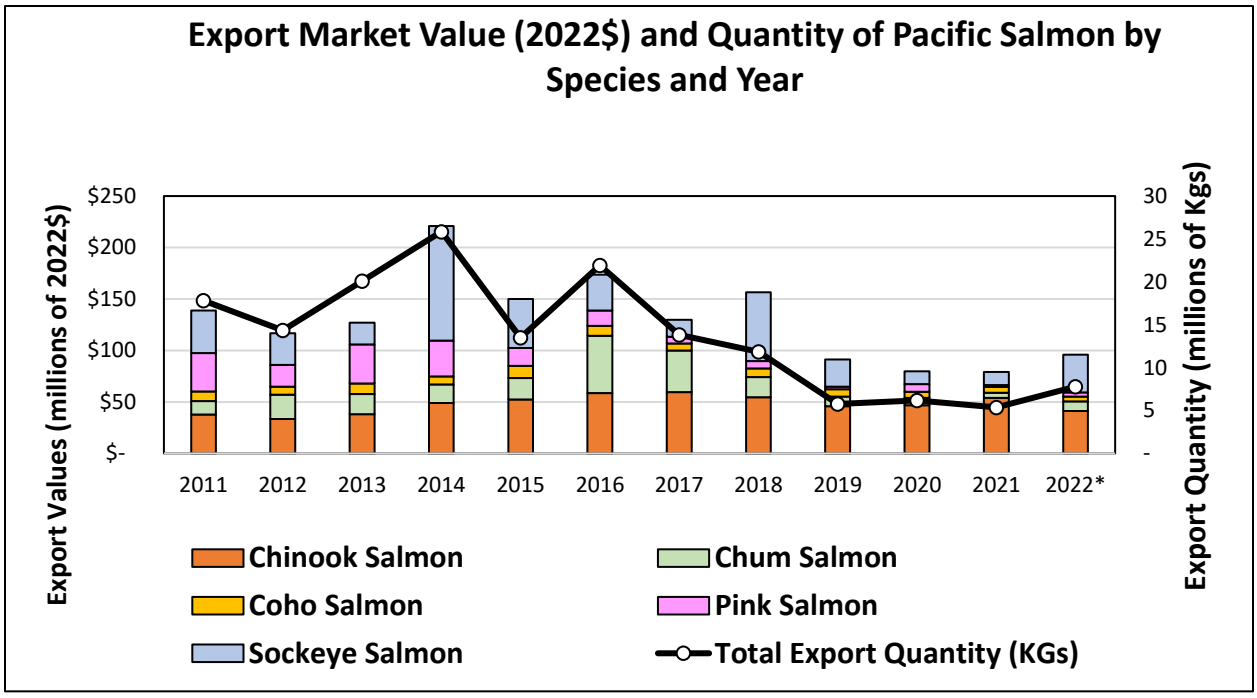

Figure 4.4-1: Total value and quantity of Pacific salmon exports (in 2022 constant dollars), 2011-2022*
Source: Statistics Canada EXIM database accessed on December 2023.
*Estimates for 2022 are to be treated as preliminary

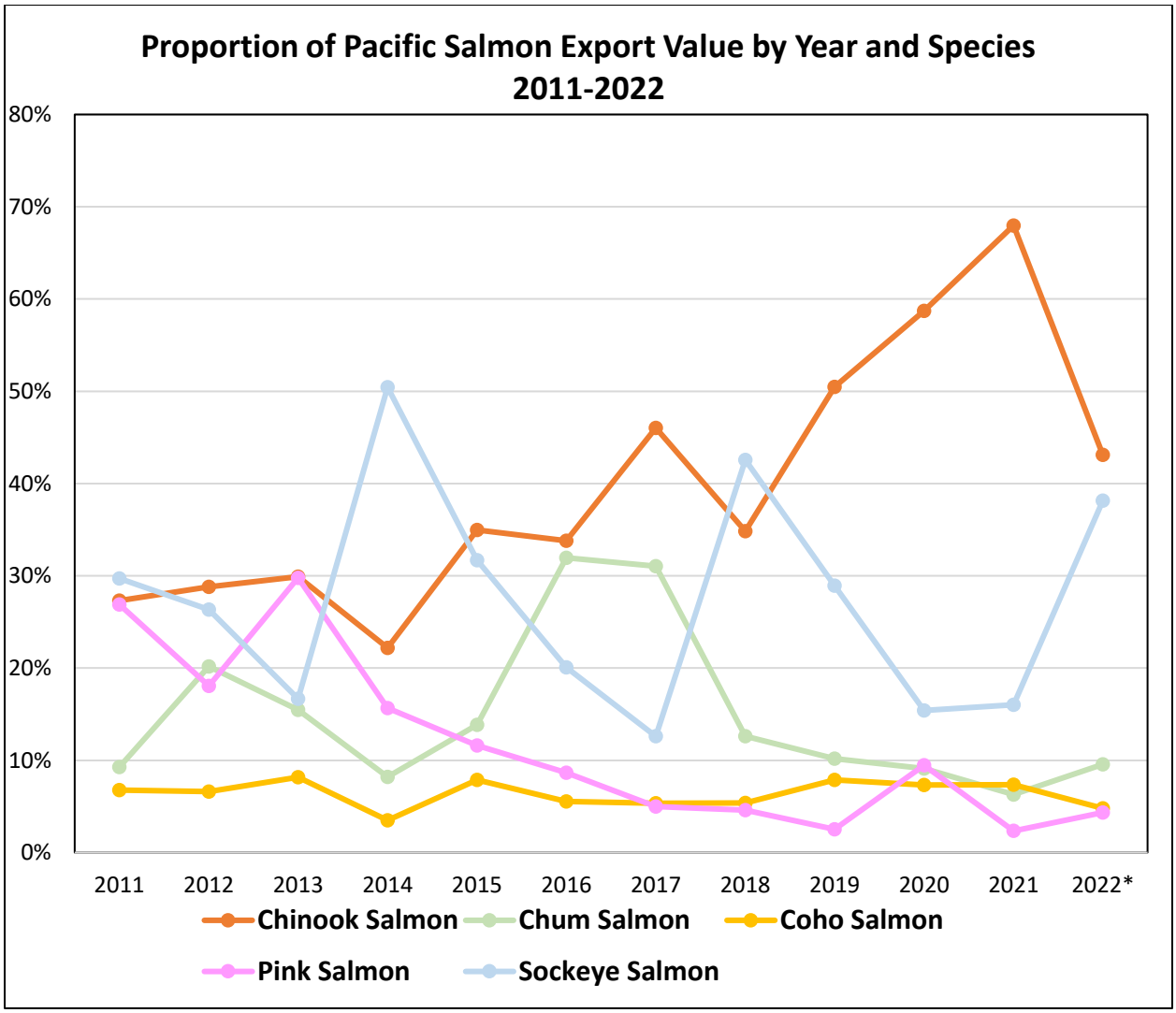

Figure 4.4-2: Proportion of Pacific salmon annual export value by species, 2011-2022*

Source: Statistics Canada EXIM database accessed in December 2023.
*Estimates for 2022 are to be treated as preliminary

Note: this total includes all exports of wild Pacific salmon and exports of all farmed Pacific salmon. There might be slight differences in total export value when comparing exports in previous versions/previous years of IFMP due to changing products definitions in EXIM data. In this data only Pacific salmon species were included.

Overall, from 2019 to 2022 , BC exported Pacific salmon to 50 countries. The US accounted for about 92% of the total export value in that period, followed by Japan (4%) . The UK and China were the next largest individual importers of BC Pacific salmon in that period (1% each). For more details, please refer to Figure 4.4- and 4.4-4 below.

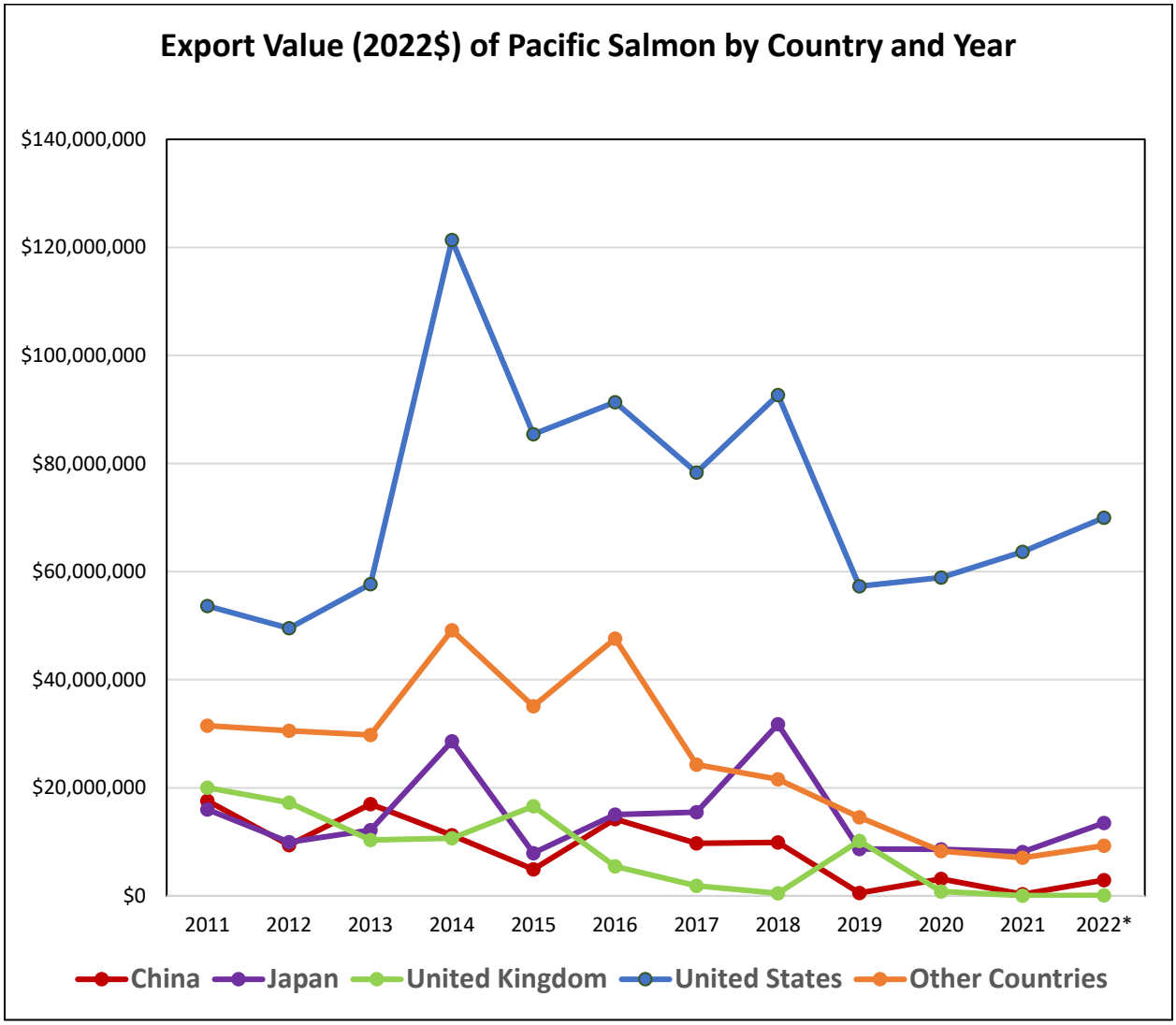

Figure 4.4-3: Total value of Pacific salmon exports from BC per main importers, 2011-2022 (in 2022$)

Source: Statistics Canada EXIM database accessed on December 2023.
*Estimates for 2022 are to be treated as preliminary

Figure 4.4- below shows the proportions of Pacific Salmon exported by value and destination country in 2022. In 2022, approximately $96M worth of Pacific salmon was exported from BC. Of the total $96M, about 73% of the total export value of Pacific salmon is attributable to the United States ($70M), 14% to Japan ($14M), 3% to China ($3M), and the remaining 10% to all other countries ($9.4M). Export value began decreasing on a year-over-year basis beginning in 2019 until 2021. It increased by 21% in 2022 to $96M.

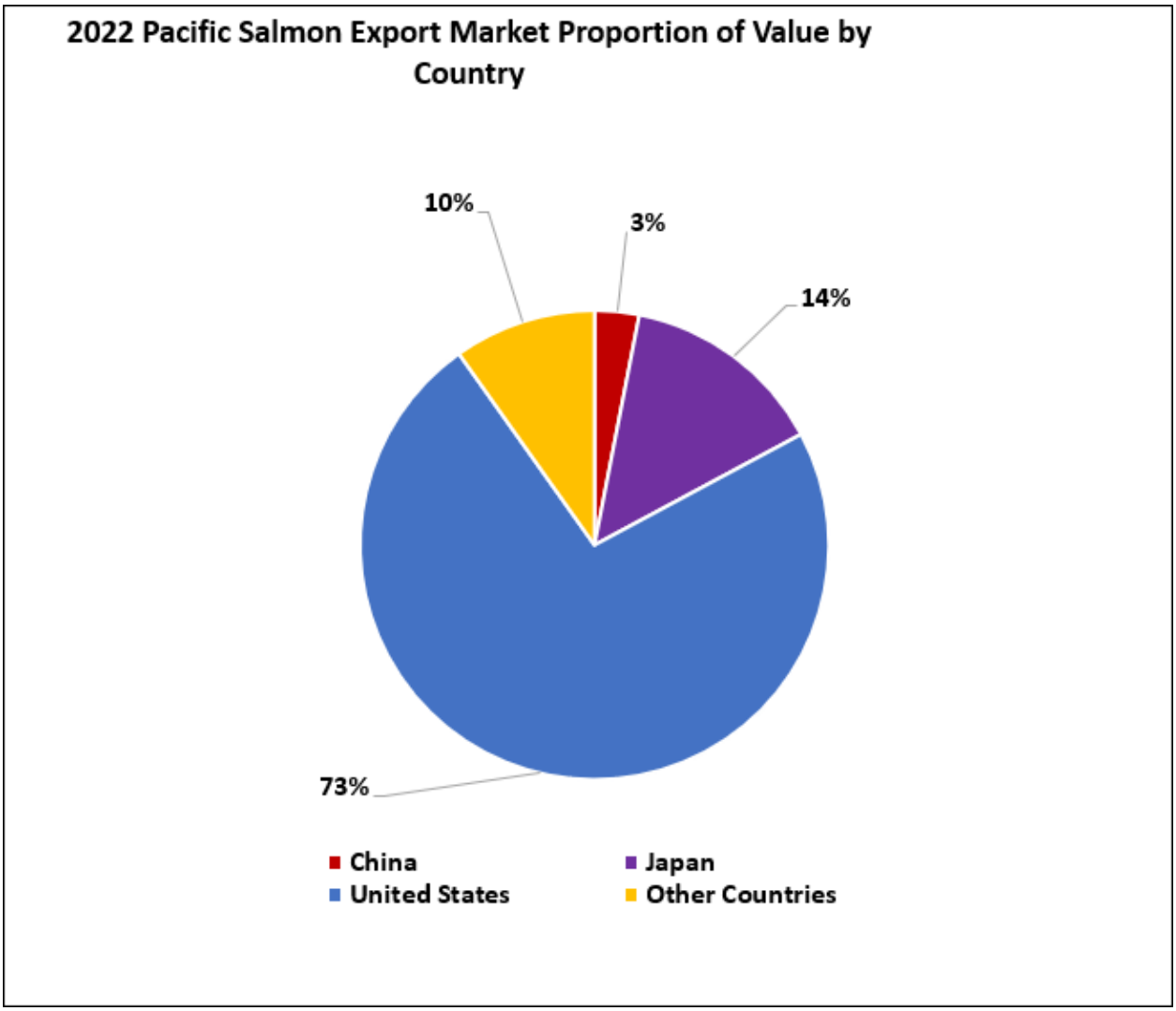

Figure 4.4-4: Proportions of total value of Pacific salmon exports from BC by main destination countries in 2022

Source: Statistics Canada EXIM database accessed in December 2023.
*Estimates for 2022 are to be treated as preliminary

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5 MANAGEMENT ISSUES

5.1 CONSERVATION

Given the importance of Pacific salmon to the culture and socio-economic fabric of Canada, conservation of these stocks is of utmost importance. To achieve this, specific actions are taken to not only ensure protection of fish stocks, but also to protect freshwater and marine habitats. Protecting a broad range of stocks is the most prudent way of maintaining biodiversity and genetic integrity.

Management of a natural resource like salmon has a number of inherent risks. Uncertain forecasting, environmental and biological variability as well as changes in harvester behavior all add risks that can threaten conservation. Accordingly, management actions will be precautionary and risks will be specifically evaluated where possible.

5.1.1 WILD SALMON POLICY

Canada's Policy for Conservation of Wild Pacific Salmon (the Wild Salmon Policy) sets out the vision regarding the importance and role of Pacific wild salmon as well as a strategy for their protection.

To communicate the work the Department is doing in support of the policy, Canada's Minister of Fisheries, and Oceans, and the Canadian Coast Guard released the *Wild Salmon Policy 2018-2022 Implementation Plan* in October 2018. This collaboratively-developed plan was consulted on broadly throughout fall 2017, and laid out nine overarching approaches to implementation and specific activities that DFO would undertake. The plan is organized under three key themes: Assessment; Maintaining and Rebuilding Stocks; and Accountability. The 2020/2021 Annual Report can be found at https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/annual-annuel/2020-2021-eng.html. In 2023, DFO also released a five-year review of the Implementation Plan (Wild salmon policy : 2018-2022 implementation plan : five-year review (publications.gc.ca)). For a copy of the *Wild Salmon Policy*, the *Wild Salmon Policy 2018-2022 Implementation Plan*, information on what we heard during consultations and response, annual reports, and other Wild Salmon Policy related materials, please see: https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/index-eng.html

5.1.2 SPECIES AT RISK ACT

The *Species at Risk Act* (SARA) came into force in 2003 "to prevent wildlife species from being extirpated or becoming extinct, and to provide for the recovery of wildlife species that are

extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened."

SARA contains several prohibitions to protect species listed on Schedule 1 of SARA. Under sections 32 and 33 of SARA, it is an offence to: 1) kill, harm, harass, capture or take an individual of a wildlife species listed as extirpated, endangered or threatened under SARA; 2) possess, collect, buy, sell or trade an individual (or any part or derivative of such an individual) of a wildlife species listed as extirpated, endangered or threatened under SARA; and 3) damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered or threatened species, or that is listed as an extirpated species if a recovery strategy has recommended its reintroduction into the wild in Canada. These prohibitions apply unless a person is authorized, by a permit, licence or other similar document issued in accordance with SARA, to engage in an activity affecting the listed species or the residences of its individuals.

Species listed as special concern are not included in these prohibitions. Section 58(1) contains provisions to prohibit the destruction of any part of the critical habitat of listed endangered or threatened species or of any listed extirpated species if a recovery strategy has recommended the reintroduction of the species in the wild in Canada. Critical habitat is the habitat necessary for the survival or recovery of a listed wildlife species and is identified to the extent possible in the recovery strategy or an action plan for the species.

For information on aquatic species listed under SARA or assessed as at risk by the Committee on the Status of Endangered Wildlife in Canada, please visit the Species at Risk Public Registry at https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html.

A species identification guide can be found here: https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/identify-identifier-eng.html

5.2 Ocean And Habitat Considerations

5.2.1 CANADA'S MARINE AND COASTAL AREAS CONSERVATION MANDATE

To protect biodiversity and meet its marine conservation targets, Canada is establishing marine protected areas and other effective area-based conservation measures (OECMs), in consultation with First Nations, other levels of government, industry, non-governmental organizations, and the public.

More information is available online for: Canada's marine conservation targets: https://www.dfo-mpo.gc.ca/oceans/conservation/index-eng.html

Canada's marine protected and conserved areas: https://www.dfo-mpo.gc.ca/oceans/conservation/areas-zones/index-eng.html

Marine refuges and fisheries management measures that qualify as OECMs: https://www.dfo-mpo.gc.ca/oceans/oecm-amcepz/index-eng.html

5.2.2 MARINE PROTECTED AND CONSERVED AREAS

Canada uses a variety of legislative tools for marine conservation, depending on the lead federal department or agency and their coastal mandates. As goals, objectives, and management plans are finalized for these initiatives, DFO's management of fisheries will be adapted as appropriate, in consultation with interested parties through initiative-specific consultations and annual Integrated Fisheries Management processes. The implementation of spatial marine conservation initiatives is informed by considerations under the Oceans Act, Fisheries Act and the Sustainable Fisheries Policy suite, and mandate commitments to the Blue Economy Strategy and Reconciliation with First Nations.

For more information on Canada's marine conservation tools: https://www.dfo-mpo.gc.ca/oceans/conservation/plan/index-eng.html
For more information see relevant legislation: Marine refuges and other measures - Fisheries Act: https://laws.justice.gc.ca/eng/acts/f-14/page-1.html
Marine Protected Areas - Oceans Act: https://laws-lois.justice.gc.ca/eng/acts/O-2.4/
National Wildlife Areas - Canada Wildlife Act: https://laws.justice.gc.ca/eng/acts/w-9/page-1.html
National Marine Conservation Areas (Reserves): National Marine Conservation Areas Act: https://laws.justice.gc.ca/eng/annualstatutes/2002_18/page-1.html

An overview map of federal marine conservation initiatives in Pacific region is provided in Figure 5.2-1, followed by a table outlining relevant details by initiative – both established and in progress. Many initiatives are types of marine protected areas (MPAs) or marine refuges (OECMs). See site-specific regulations and management plans for any restrictions on activities, or fisheries notices where applicable.

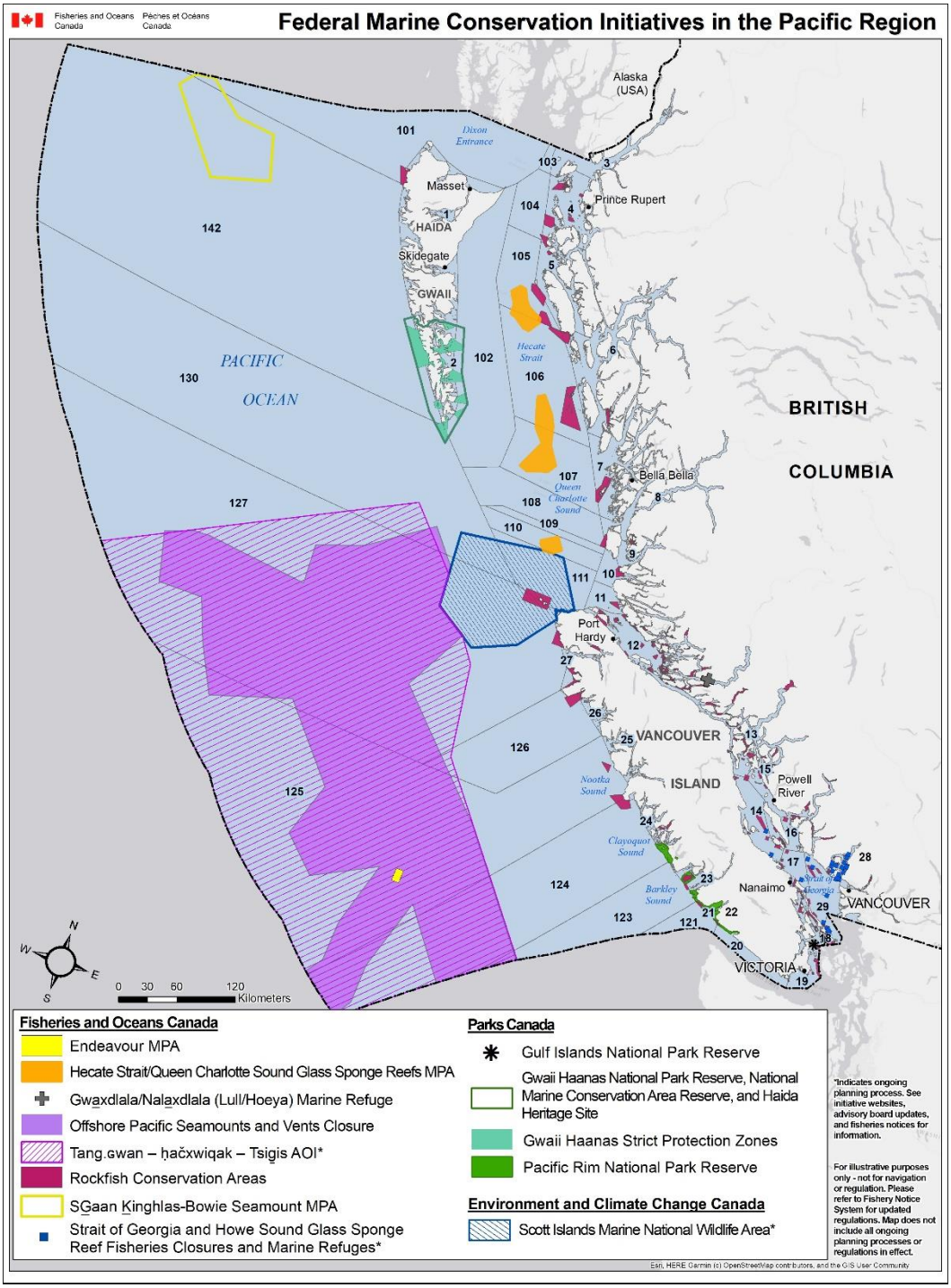


Figure 5.2-1: Pacific Fisheries Management Areas and Federal Marine Conservation Initiatives and Closures.

Table 5.2-1: Overview of Federal Marine Conservation Initiatives in DFO Pacific Region.

Name	Type	Lead	Weblinks	Contact	Fishery Considerations
Fisheries and Oceans Canada, *Ocean's Act* and *Fisheries Act*					
Endeavour Hydrothermal Vents Marine Protected Area	MPA	DFO	http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/endeavour/index-eng.html		See MPA website and regulations for more details: https://laws-lois.justice.gc.ca/eng/regulations/SOR-2003-87/ The MPA is closed to all commercial and recreational fishing activities.
SGa̲an Kínghlas-Bowie Seamount Marine Protected Area	MPA	DFO & Council of Haida Nation	http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/bowie-eng.html	Email: DFO.BowieMPA-ZPMBowie.MPO@dfo-mpo.gc.ca>	See MPA website and regulations for more details: https://laws-lois.justice.gc.ca/eng/regulations/SOR-2008-124/ The MPA is closed to all commercial fishing activities. The MPA is also closed to recreational and FSC bottom-contact fishing activities.
Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected Areas	MPA	DFO	http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/hecate-charlotte/index-eng.html	Email: DFO.HSQCSMPA-ZPMDHBRC.MPO@dfo-mpo.gc.ca>	See MPA website and regulations for more details: https://laws-lois.justice.gc.ca/eng/regulations/SOR-2017-15/index.html In the MPA there are 3 different management zone types: The entire MPA is closed to commercial bottom-contact fishing activities. Core Protection Zones (CPZ) are closed to anchoring and all fishing activities. Vertical

					Adaptative Management Zones (VAMZs) and Adaptive Management Zones (AMZs) are closed to some commercial and recreational fishing activities.
Tang.ɢwan – ḥačxwiqak – Tsigis Area of Interest & Offshore Pacific Seamounts and Vents Closure*	Area of Interest for future MPA	DFO	https://www.dfo-mpo.gc.ca/oceans/oecm-amcepz/refuges/offshore-hauturiere-eng.html.		Specific details of the Offshore Pacific Seamounts and Vents Closure (Offshore Fishery Closure) can be found in the Fishery Notice FN1241 (2017). All bottom-contact commercial and recreational fishing activities are prohibited.
Strait of Georgia and Howe Sound Glass Sponge Reef Marine Refuges*	Marine Refuges	DFO	https://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/closures-fermetures-eng.html		Specific details of the closures and restrictions on a site-by-site basis can be found in **Fisheries Notices** **FN0205** (2019), **FN0571** (2015), and **FN0039*** (2022). Prohibited commercial, recreational and Indigenous food, social and ceremonial (FSC) bottom-contact fishing activities include: prawn and crab by trap shrimp and groundfish by trawl groundfish by hook and line use of downrigger gear in recreational salmon trolling (in select sites via Condition of Licence). (Restrictions vary by site)

Rockfish Conservation Areas (RCAs)	RCAs	DFO	https://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/rca-acs/index-eng.html	DFO.RCA-ACS.MPO@dfo-mpo.gc.ca	There are 162 Rockfish Conservation Areas (RCAs) in British Columbia, covering roughly 4,350km² of the Canadian Pacific Coast. These areas are closed to a range of recreational and commercial fisheries to protect inshore rockfish and their habitat. On website, see individual RCAs by area for details.
Gwaxdlala/Nalaxdlala (Lull/Hoeya)	Marine refuge	DFO	Gwaxdlala/Nalaxdlala (Lull/Hoeya) marine refuge (dfo-mpo.gc.ca)	Email: DFO.PACFMMCT-OCMGPPAC.MPO@dfo-mpo.gc.ca	Specific details of the closures and restrictions on a site-by-site basis can be found in Fisheries Notices FN 0118 (2023). The Gwaxdlala/Nalaxdlala (Lull/Hoeya) marine refuge is closed to all fisheries (commercial, recreational and FSC fishing activities).
Lophelia Reef	Fishery Closure	DFO	<add link to Fishery Notice once published>	DFO.PACFMMCT-OCMGPPAC.MPO@dfo-mpo.gc.ca	Specific details of the closures and restrictions of this site can be found in Fisheries Notice FN #### (2024). The Lophelia Reef is closed to all bottom-contact commercial and recreational fisheries (including midwater trawl).
Parks Canada, *National Marine Conservation Areas Act*					
Gwaii Haanas National Park Reserve, National Marine	NMCAR	Parks Canada	https://www.pc.gc.ca/en/pn-np/bc/gwaiihaanas	gwaiihaanas@pc.gc.ca	Refer to **Fishery Notice FN0536 (2019)**, released June 13, 2019 for a detailed description of the Strict Protection Zones.

Conservation Area Reserve, and Haida Heritage Site					There is "no extraction or harvesting by anyone of the resources of the lands and non-tidal waters of the Archipelago for or in support of commercial enterprise" (s3.3). Contact the Gwaii Haanas administration office: 1-877-559-8818
Pacific Rim National Park Reserve	National park marine area	Parks Canada	https://www.pc.gc.ca/en/pn-np/bc/pacificrim	Pacrim.info@pc.gc.ca	Park regulations can be found at: https://laws-lois.justice.gc.ca/eng/acts/N-14.01/page-8.html#h-362395
Environment and Climate Change Canada, *Canada Wildlife Act*					
Scott Islands Marine National Wildlife Area*	mNWA	ECCC	https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas/locations/scott-islands-marine.html	DFO.ScottIslands-IlesScott_MPO@dfo-mpo.gc.ca	The Scott Islands Protected Marine Area Regulations can be found at: https://laws-lois.justice.gc.ca/eng/regulations/SOR-2018-119/index.html
**Indicates ongoing planning process. See initiative websites, advisory board updates, and fisheries notices for information.*					

5.2.3 MARINE SPATIAL PLANNING IN CANADA

Marine Spatial Planning (MSP) is a process for managing ocean spaces to achieve ecological, economic, cultural, and social objectives. It is an internationally recognized and collaborative process that brings together rightsholders, responsible ocean authorities, and stakeholders to better coordinate how we use and manage marine spaces. In general, MSP is adaptive, ecosystem based, integrated, place based, strategic/anticipatory, and participatory. In Canada, MSP does not replace regulatory responsibilities of existing authorities, rather through this collaborative process, MSP develops a shared vision, principles, and knowledge base, as well as

decision support tools, to make appropriate and evidence based decisions about ocean use and management.

For more information on marine spatial planning in Canada: https://www.dfo-mpo.gc.ca/oceans/management-gestion/msp-psm/index-eng.html

5.2.4 MARINE SPATIAL PLANNING – PACIFIC NORTH COAST

MSP in the Pacific North Coast is being undertaken in the Pacific North Coast Integrated Management Area (PNCIMA).

PNCIMA encompasses approximately 102,000 km2 of marine area and occupies approximately two-thirds of the B.C. coast. The boundary of PNCIMA was defined based on a mix of ecological considerations and administrative boundaries. Ecologically, the PNCIMA boundary represents the Northern Shelf Bioregion of the Pacific Ocean. The boundary extends from the base of the continental shelf slope in the west to the coastal watershed in the east (adjacent terrestrial watersheds are not included). North to south, PNCIMA extends from the Canada–U.S. border of Alaska to Brooks Peninsula on northwest Vancouver Island and to Quadra Island in the south.

PACIFIC NORTH COAST INTEGRATED MANAGEMENT AREA (PNCIMA)

The PNCIMA Plan (2017) is the product of a collaborative process led through an oceans governance agreement between the federal, provincial and First Nations governments, and contributed to by a diverse group of organizations, stakeholders and interested parties. The plan is high level and strategic, and provides direction on and commitment to integrated, ecosystem-based and adaptive management of marine activities and resources in the planning area.
The plan outlines a framework for ecosystem-based management (EBM) for PNCIMA that includes assumptions, principles, goals, objectives and strategies.
Five priorities are identified for short-term implementation of the plan:

- governance arrangements for implementation
- marine protected area network planning
- monitoring and adaptive management
- integrated economic opportunities
- tools to support plan implementation

The PNCIMA Plan is available online at: https://www.dfo-mpo.gc.ca/oceans/management-gestion/pncima-zgicnp-eng.html

NORTHERN SHELF BIOREGION MARINE PROTECTED AREA NETWORK PLANNING PROCESS

In February 2023, the Marine Protected Area (MPA) Network Action Plan (NAP) for the Northern Shelf Bioregion (NSB) was endorsed by the trilateral partnership of First Nations, the Province of BC, and Canada. The NAP is a key priority of the PNCIMA Plan and provides a framework for how to achieve an ecologically comprehensive, resilient and representative Network of MPAs in the NSB, and proposes the use of Indigenous, provincial, and federal conservation tools for consideration for potential new protected areas. The proposed MPA Network includes 30,493 km2 (or about 30%) of the NSB. More than half of this area (about 62%) is comprised of existing MPAs.

Currently, trilateral partners are focused on network coordination and implementation, including establishing governance and development of a network workplan that will focus on monitoring, cumulative effects, reporting and engagement on Network implementation.

More information on the MPA Network planning process is available at: http://www.mpanetwork.ca

5.2.5 MARINE SPATIAL PLANNING SOUTHERN BC

As part of the Government of Canada's MSP initiative, DFO in collaboration with the Province of BC, federal departments (Transport Canada, Natural Resources Canada, Environment and Climate Change Canada, Parks Canada and others), Indigenous groups, and stakeholders are amidst 'early planning' efforts in the Strait of Georgia and Southern Shelf bioregions (Southern BC planning area). Early Planning is focused on gathering information and setting the stage for working collaboratively.

Key deliverables for the Southern BC MSP process include the Canada Marine Planning Atlas (Pacific), and the Marine Spatial Planning Framework for the Southern BC Planning Area. The framework summarizes the work undertaken to date on the Government of Canada's MSP program in Southern BC and provides guidance on future phases of MSP in Southern BC.

More information on marine spatial planning can be found at: https://www.dfo-mpo.gc.ca/oceans/management-gestion/msp-psm/index-eng.html

5.2.6 GHOST GEAR PROGRAM

One of the biggest threats to oceans internationally is marine litter, and in particular, ghost fishing gear. Ghost gear refers to any fishing equipment or fishing-related litter that has been abandoned, lost or otherwise discarded and is some of the most harmful and deadly debris found in oceans. It is estimated that between 5% - 30% of harvestable fish stocks are impacted

by ghost gear across the world, posing a major threat to human health and livelihoods as well as to global food security. Additionally, ghost gear can cause large-scale damage to marine ecosystems through habitat disturbance and causes direct harm to the welfare and conservation of marine animals via entanglement and/or ingestion.

In support of international efforts to reduce marine litter, Canada signed the G7 Charlevoix Blueprint for Healthy Oceans, Seas and Resilient Coastal Communities. In addition to this commitment, Canada committed to the implementation of the Oceans Plastics Charter and strengthened our domestic and international commitment to addressing marine litter by signing on to the Global Ghost Gear Initiative.

These commitments were further strengthened in the Canadian Council of Ministers of the Environment's Canada-Wide Action Plan on Zero Plastic Waste Phase 2 and DFO's recent Minister's Mandate Letters (2021 and 2022), emphasizing the importance of this work to Canadians.

For more information on the Ghost Gear program, visit: https://www.dfo-mpo.gc.ca/fisheries-peches/management-gestion/ghostgear-equipementfantome/index-eng.html

5.2.6.1 CONDITIONS OF LICENCE TO REPORT LOST AND RETRIEVED GEAR

All commercial harvesters must report their lost and subsequently retrieved fishing gear. While the Department is taking a stewardship approach to ghost gear and working with harvesters to reduce the effects of ghost fishing, the inclusion of the reporting requirement in conditions of licence means that not reporting lost and/or retrieved gear is now a chargeable offence.

Lost gear can be reported through the online Fishing Gear Reporting System, available at: https://www.dfo-mpo.gc.ca/fisheries-peches/commercial-commerciale/reporting-declaration-eng.html

To learn more about the DFO Ghost Gear Fund, go to: https://www.dfo-mpo.gc.ca/fisheries-peches/management-gestion/ghostgear-equipementfantome/program-programme/projects-projets-eng.html

5.3 CONSERVATION OF SPECIES THAT MAY BE AFFECTED BY SALMON FISHERIES

5.3.1 ROCKFISH

2024/2025: The management objective for inshore rockfish species (which include Yelloweye, Quillback, Copper, China, and Tiger) is to continue conservation strategies that will ensure

stock rebuilding over time. **These inshore rockfish species are currently non-retention in the commercial salmon troll fisheries.**

In 2002, an inshore rockfish conservation strategy was established with initial measures introduced for recreational and commercial fisheries. The strategy addresses four areas under the fisheries management and stock assessment regime:

a) Protect a part of inshore rockfish populations from harvest through the use of rockfish conservation areas.

b) Collect information on total fishery mortalities through improved catch monitoring programs.

c) Reduce harvests to levels that are less than the estimates of natural mortality (i.e. less than two percent).

d) Improve the ability to assess the status of inshore rockfish populations and monitor changes in abundance.

5.3.1.1 ROCKFISH CONSERVATION AREAS

There are 162 Rockfish Conservation Areas (RCAs) in British Columbia, covering roughly 4,350 km^2 of the Canadian Pacific Coast. These areas are closed to a range of recreational and commercial fisheries to protect inshore rockfish and their habitat.

Canada uses a variety of legislative tools for marine conservation, depending on the lead federal department or agency and their coastal mandates. As goals, objectives, and management plans are finalized for these initiatives, DFO's management of fisheries will be adapted as appropriate, in consultation with interested parties through initiative-specific consultations and annual Integrated Fisheries Management processes. The implementation of spatial marine conservation initiatives is informed by considerations under the *Oceans Act*, *Fisheries Act* and the Sustainable Fisheries Policy suite, and mandate commitments to the Blue Economy Strategy and Reconciliation with First Nations.

For more information on Canada's marine conservation tools: https://www.dfo-mpo.gc.ca/oceans/conservation/plan/index-eng.html

For more information see relevant legislation:

Marine refuges and other measures - *Fisheries Act*: https://laws.justice.gc.ca/eng/acts/f-14/page-1.html

Marine Protected Areas - *Oceans Act*: https://laws-lois.justice.gc.ca/eng/acts/O-2.4/

National Wildlife Areas - *Canada Wildlife Act*: https://laws.justice.gc.ca/eng/acts/w-9/page-1.html

National Marine Conservation Areas (Reserves): *National Marine Conservation Areas Act*: https://laws.justice.gc.ca/eng/annualstatutes/2002_18/page-1.html

5.3.1.2 ROCKFISH REBUILDING PLANS

2024/25: A rebuilding plan remains in effect for the Inside stock of Yelloweye Rockfish. Rebuilding plans are no longer required for Bocaccio and the Outside stock of Yelloweye Rockfish with both stocks being managed under the Groundfish Integrated Fisheries Management Plan (IFMP) as of February 21, 2024. Refer to Appendix 9 of the Groundfish IFMP for more information.

YELLOWEYE ROCKFISH (INSIDE STOCK)

Fisheries and Oceans Canada (DFO) has developed "A Fisheries Decision-Making Framework Incorporating the Precautionary Approach" (PA Policy) under the auspices of the Sustainable Fisheries Framework. It outlines the departmental methodology for applying the precautionary approach (PA) to Canadian fisheries. A key component of the PA Policy requires that when a stock has declined to or below a limit reference point (LRP), a rebuilding plan must be in place with the aim of having a high probability of the stock growing above the LRP within a reasonable timeframe.

In addition, under section 6.2 of the Fish Stocks provisions (FSP) in the amended *Fisheries Act* (2019), rebuilding plans must be developed and implemented for prescribed major fish stocks that have declined to or below their LRP. This legislated requirement is supported by section 70 of the Fishery (General) Regulations (FGR), which set out the required contents of those rebuilding plans and establish a timeline for each rebuilding plan's development.

The purpose of a rebuilding plan is to identify the main rebuilding objectives for any species below its LRP (i.e., in the "critical zone" of the PA Policy), as well as the management measures that will be used to achieve these objectives. The plan provides a common understanding of the basic "rules" for rebuilding the stock. At the time of prescription, the Inside stock of Yelloweye Rockfish was estimated to be above its LRP with a high probability and thus is subject to 6.1 of the Fisheries Act and regulatory requirements.

The objectives and measures outlined in the Inside Yelloweye Rockfish rebuilding plan are applicable until the stock has reached its rebuilding target. Once the stock is determined to be at the target, the stock(s) will be managed through the standard Integrated Fisheries Management Plan (IFMP) or other fishery management process in order to fulfil the requirements of the FSP. Management measures outlined in this rebuilding plan are mandatory, and may be modified or further measures added if they fail to result in stock rebuilding.

More information on the Rebuilding Plan for the Inside Yelloweye Rockfish stock is available in Appendix 9 of the Groundfish IFMP, which will be linked in the final salmon IFMP once available.

5.3.2 MARINE MAMMALS

In order to address conservation concerns with marine mammals, it is important that measures are taken to reduce the harm to and mortality of marine mammals resulting from primary threats they face, including those that may be associated with fishing activity, as well as to improve data collection and quality of any interactions. As such, commercial fishing licenses have been amended to include a Condition of Licence for Marine Mammals that specify mitigation measures and reporting requirements. This includes mandatory reporting of all interactions with marine mammals, prohibition to disturb marine mammals, requirement for minimum approach distances to marine mammals as set out under the *Marine Mammal Regulations* (see Section 5.6), prohibition of encirclement of marine mammals in purse seine fisheries, and prohibition (in policy) against the lethal removal of nuisance seals to protect fishing equipment.

5.3.3 TURTLE AND BASKING SHARK INCIDENT AND SIGHTINGS REPORTS

5.3.3.1 INCIDENT REPORTING

Marine Mammal Incident Reporting Hotline

DFO is responsible for assisting marine mammals and sea turtles in distress. If your vessel strikes a whale, or if you observe an entangled, sick, injured, distressed, or dead marine mammal in BC waters, please contact the BC Marine Mammal Response Network Incident Reporting Hotline immediately:

1-800-465-4336 OR VHF CHANNEL 16
What to report:

- Your name and contact information
- Date and time of incident
- Location: Latitude/Longitude coordinates, landmarks
- Species
- Animal alive/dead (animal condition)
- Nature of injury and supporting details (if possible)
- Pictures/Video taken

Best practices to reduce entanglement and reporting an incident: https://www.pac.dfo-mpo.gc.ca/fm-gp/mammals-mammiferes/whales-baleines/docs/entanglements-empetrements-pub-eng.html

5.3.3.2 SIGHTING REPORTING

Fisheries and Oceans Canada appreciates your assistance in tracking the sightings of live cetaceans (whales, dolphins and porpoises), sea turtles and basking sharks. While there are many whale species found in Pacific Canadian waters, sightings of basking sharks and leatherback sea turtles are infrequent. The collection of sighting data is useful to scientists in determining population size and species distribution, and aids in recovery efforts under the *Species at Risk Act* (SARA).

To report whale or turtle sightings, contact the Ocean Wise Sightings Network:

Toll free: 1.866.I.SAW.ONE (1-866-472-9663)

Email: sightings@ocean.org

Website: https://ocean.org/action/send-a-sighting-save-a-whale/

App: WhaleReport

To report basking shark sightings, contact the Basking Shark Sightings Network:

Toll free: 1-877-50-SHARK (1-877-507-4275)

Email: sharks@dfo-mpo.gc.ca

Website: www.pac.dfo-mpo.gc.ca/SharkSightings

Guides to distinguish between pinnipeds, emphasizing differences between Steller and California Sea Lions can be found here: https://wildwhales.org/wp-content/uploads/2020/08/BCCSN_IDGuide_Pinniped_email.pdf and between Sea and

River Otters: https://wildwhales.org/wp-content/uploads/2020/05/BCCSN_IDGuide_Otters_vertical_4.pdf

5.3.4 SEABIRDS

Environment and Climate Change Canada (ECCC) is looking for your help to measure gill net fishing's impact on local seabird populations.

Populations of a number of seabird species around the world have declined in recent years; seabird bycatch is a part of the reason.

Seabird bycatch has been reported in all types of fisheries in BC and in fisheries in Alaska and Washington State. However, the number of local seabirds getting entangled in gill nets as a result of the BC salmon gill net fishery is not well known.

ECCC wants to know how, when and where gill net fishing may impact local seabirds and to find ways to reduce impacts. ECCC, with Fisheries and Oceans Canada, fishermen, First Nations, non-government organizations, and other coastal communities, have a program to answer these questions. Without this information, it will be difficult to determine if there is a significant impact. Should impacts be determined this information helps support solutions that benefit both the fishery and healthy bird populations.

To help us, we would like to be informed about any dead birds found or reported in gill nets and/or found floating dead on fishing grounds. Please report all incidents to our 24-hour reporting line: 1-866-431-BIRD (2473).

For additional information, please contact:

Laurie Wilson
Wildlife Biologist, Environment and Climate Change Canada
Canadian Wildlife Service, Delta, BC
Telephone: (604) 862-8817
Email: laurie.wilson@ec.gc.ca

5.3.5 SHARKS

Out of the fourteen shark species in Canadian Pacific waters, three species are listed under SARA. The Basking Shark *(Cetorinus maximus)* is listed as Endangered, and the Bluntnose Sixgill Shark *(Hexanchus griseus)* and Tope Shark *(Galeorhinus galeus)* are listed as species of Special Concern. In Canadian waters, the primary threats to shark species have been identified as bycatch and entanglement.

In order to address the conservation concerns with shark species, it is important that measures are taken to reduce the mortality of sharks resulting from these primary threats. As such, commercial fishing licences have been amended to include a Condition of Licence for Basking Sharks that specify mitigation measures in accordance with SARA permit requirements. Additionally, a Code of Conduct for Shark Encounters and Code of Conduct for Basking Shark Encounters have been developed to reduce the mortality of Basking Shark, Bluntnose Sixgill Shark, Tope Shark, and other Canadian Pacific shark species resulting from entanglement and bycatch in commercial and recreational fisheries, and aquaculture. These guidelines include

boat handling procedures during visual encounters with Basking Sharks and best practices for handling Canadian Pacific shark species during entanglement encounters.

These documents have been posted online and can be found at the following URL links:
Code of conduct for sharks: https://www.dfo-mpo.gc.ca/species-especes/publications/sharks/coc/coc-sharks/index-eng.html
Code of conduct for Basking Sharks: https://www.dfo-mpo.gc.ca/species-especes/publications/sharks/coc/coc-basking/index-eng.html

5.3.6 SARA LISTED AND COSEWIC ASSESSED SPECIES

In the Pacific Region, the following SARA-listed species may be encountered by salmon fisheries:

5.3.6.1 SARA LISTED SPECIES

BIRDS

- Ancient Murrelet – Special Concern
- Marbled Murrelet – Threatened
- Black-footed Albatross – Special Concern
- Short-tailed Albatross – Threatened
- Pink-footed Shearwater – Endangered
- Cassin Auklet – Special Concern

FISH

- Basking Shark, Pacific population – Endangered
- Bluntnose Sixgill Shark – Special Concern
- Bull Trout - South Coast population – Special Concern
- Green Sturgeon – Special Concern
- Longspine Thornyhead – Special Concern
- Rougheye Rockfish Types I & II – Special Concern
- Tope Shark – Special Concern
- White Sturgeon – Upper Columbia River population – Endangered

- White Sturgeon – Upper Fraser River population – Endangered
- White Sturgeon – Nechako River Population – Endangered
- White Sturgeon – Upper Kootenay River population – Endangered
- Yelloweye Rockfish, Pacific Ocean inside waters and outside waters populations – Special Concern (re-assessed by COSEWIC as Threatened in 2020)

MAMMALS

- Blue Whale, Pacific population – Endangered
- Fin Whale, Pacific population – Threatened (re-assessed by COSEWIC as special concern in 2019)
- Grey Whale – Eastern North Pacific Population – Special Concern (reassessed and split into two populations by COSEWIC in 2017: Northern Pacific Migratory, assessed as Not at Risk, and Pacific Coast Feeding Group, assessed as Endangered)
- Harbour Porpoise, Pacific Ocean population – Special Concern
- Humpback Whale, North Pacific population – Special Concern
- Killer Whale, Northeast Pacific – northern resident population – Threatened
- Killer Whale, Northeast Pacific – southern resident population – Endangered
- Killer Whale, Northeast Pacific – offshore population – Threatened
- Killer Whale, Northeast Pacific – transient population – Threatened
- North Pacific Right Whale – Endangered
- Sea Otter – Special Concern
- Sei Whale, Pacific population – Endangered
- Steller Sea Lion – Special Concern

REPTILES

- Leatherback Sea Turtle – Endangered

5.3.6.2 COSEWIC ASSESSED SPECIES

Marine or anadromous species assessed by COSEWIC that are currently under consideration for listing under SARA include:

FISH

- Bocaccio – assessed as Endangered
- Darkblotched Rockfish – assessed as Special Concern
- Eulachon – Fraser River Designatable Unit (DU) – assessed as Endangered
- Eulachon – Central Pacific Coast DU – assessed as Endangered
- Eulachon – Nass/Skeena Rivers DU – assessed as Special Concern
- North Pacific Spiny Dogfish – assessed as Special Concern
- Salmon, Chinook (Okanagan population) – assessed as Endangered; engagement and consultation completed in 2023
- Salmon, Coho (Interior Fraser population) – assessed as Threatened; DFO management scenarios in development
- Salmon, Sockeye (Sakinaw population) – assessed as Endangered; engagement and consultation completed in 2023
- Salmon, Sockeye (19 Fraser River DUs) – assessed as Endangered (10DUs), Threatened (2 DUs), Special Concern (7 DUs); DFO management scenarios in development
- Salmon, Chinook (21 Southern BC DUs) - assessed as Endangered (12 DUs), Threatened (7 DUs), Special Concern (2 DU); DFO management scenarios in development
- Steelhead, Interior Fraser (Chilcotin & Thompson populations [2 DUs]) – assessed as Endangered (2 DUs); DFO and BC coordinating updated science information
- Quillback Rockfish – assessed as Threatened
- White Sturgeon- Lower Fraser River DU - assessed as Threatened
- White Sturgeon – Mid-Fraser Nationally Significant Population – assessed as Endangered as part of the Upper Fraser DU

MAMMALS

- Northern Fur Seal – assessed as Threatened
- Grey Whale, Pacific Coast Feeding Group population – assessed as Endangered (this population represents a portion of the currently listed Special Concern Eastern North Pacific Grey Whale population)

- Grey Whale, Western Pacific population – assessed as Endangered

5.4 KILLER WHALE

5.4.1 RESIDENT KILLER WHALE

Two distinct populations of Resident Killer Whales, known as the Northern and Southern Residents, occupy the waters off the west coast of British Columbia. These two populations have overlapping ranges but are acoustically, genetically, and culturally distinct from each other. Since 2003, the Northern and Southern Resident Killer Whales have been listed in Schedule 1 of the *Species at Risk Act* (SARA), as threatened and endangered respectively. The "Recovery Strategy for the Northern and Southern Resident Killer Whales (*Orcinus orca*) in Canada" was finalized and published on the Species at Risk Public Registry in 2008, amended in 2011 to clarify critical habitat attributes, and amended in 2018 to include two additional areas protected under the SARA Critical Habitat Order.

The principal threats identified in the recovery strategy for Northern Resident Killer Whales (NRKW) and Southern Resident Killer Whales (SRKW) include: reduced prey availability, environmental contaminants, and physical and acoustic disturbance. An additional emerging threat, vessel strikes, was identified during a science-based review of recovery actions for SRKW.

The Action Plan identifies 98 recovery measures to support recovery of Resident Killer Whales. These measures were developed to support recovery and to address the three primary threats to the population – including prey availability.

Relevant Key Threats:

Reduced Prey Availability

Northern and Southern Resident Killer Whales are dietary specialists and feed primarily on salmon. The seasonal distribution and movement patterns of Resident Killer Whales are strongly associated with the availability of their preferred prey, Chinook salmon (*Oncorhynchus tshawytscha*), and secondarily, Chum salmon (*O. keta*). Trends in the mortality rates of Southern and Northern Resident Killer Whales are also both strongly related to fluctuations in the abundance of Chinook Salmon. Key foraging areas for SRKW were identified in SRKW critical habitat using best available science to inform salmon fishery management measures to support Chinook Salmon prey availability for SRKW. In 2021 and 2023, DFO Science-led analyses of

SRKW behaviour confirmed Haro Strait as a foraging area and identified foraging as the dominant behaviour in the waters surrounding Swiftsure Bank and Juan de Fuca Strait[9,10].

DFO and other researchers continue to advance new scientific information and analyses to address the three principal threats to RKW, including prey availability.

Physical and Acoustic Disturbance:

All cetaceans, including Resident Killer Whales, have been subjected to increasing amounts of disturbance from vessels and anthropogenic noise in recent years. This includes chronic noise from shipping, and acute noise from industrial activities such as dredging, pile driving, and construction, as well as seismic testing, military sonar, and vessel use of low and mid-frequency sonars and high frequency echosounders. Killer whales use echolocation to detect prey, to communicate and to acquire information about their environment. Underwater noise can interfere with all these activities in critically important ways, such as disrupting communication, reducing the distance over which social groups can detect each other, masking echolocation and hence reducing the distance over which the animals can detect their prey, potentially displacing them from preferred feeding habitats, displacing prey, impairing hearing, either temporarily or permanently and in extreme cases causing death. While Resident Killer Whales travel in high vessel traffic areas such as Johnstone Strait and the Strait of Georgia, they must also coexist with both commercial and recreational sports fishing boats specifically targeting salmon in 'hot spots' that are also feeding areas for Killer Whales. Conflict for space may force Killer Whales to alter their foraging behaviour in order to successfully capture prey or to avoid collision or entanglement.

5.4.2 SOUTHERN RESIDENT KILLER WHALE MANAGEMENT MEASURES TO ADDRESS REDUCED PREY AVAILABILITY, AND PHYSICAL AND ACOUSTIC DISTURBANCE

The Government of Canada is taking important steps to protect and recover the Southern Resident Killer Whale population, in keeping with direction provided in *Species at Risk Act* (SARA) recovery documents. In May 2018, the Minister of Fisheries, Oceans and the Canadian Coast Guard and Minister of Environment and Climate Change determined the Southern Resident Killer Whale population faces imminent threats to its survival and recovery. Since 2018, the Government of Canada, with input from the Indigenous and Multi-Stakeholder Advisory Group and Technical Working Groups and consultation with Indigenous groups,

[9] DFO. 2021. Identification of areas for mitigation of vessel-related threats to survival and recovery for Southern Resident Killer Whales. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/025

[10] Stredulinsky, E., et al. 2023. Delineating important killer whale foraging areas using a spatiotemporal logistic model. Global Ecology and Conservation.

stakeholders, and the public, has implemented a number of measures aimed at increasing prey availability for Southern Resident Killer Whales – particularly Chinook Salmon—and reducing threats related to physical and acoustic disturbance with a focus in key foraging areas within Southern Resident Killer Whale critical habitat. These measures include fishing closures, Interim Sanctuary Zones (i.e., no-go zones), Speed Restricted Zones, vessel avoidance distances and a number of voluntary measures in the presence of killer whales.

For the 2024 fishing season, the Department is working with Indigenous groups and stakeholders to inform potential changes for 2024. The Department intends for actions for the 2024 season be implemented to coincide with the return of Southern Resident Killer Whales in typically greater numbers to Canadian Pacific waters. For up-to-date information regarding the Southern Resident Killer Whale management measures, please visit: https://www.canada.ca/southern-resident-killer-whales.

The Government of Canada is asking vessel operators to respect the following voluntary measures year-round and in all Canadian Pacific waters:

- Stop fishing (do not haul gear) within 1,000 metres of killer whales and let them pass;
- Reduce speed to less than 7 knots when within 1,000 metres of the nearest killer whale;
- When safe to do so, turn off echo sounders and fish finders; and
- Place engine in neutral idle and allow animals to pass if your vessel is not in compliance with the approach distance regulations.

For more information on the best ways to help whales while on the water, when on both sides of the border, please visit: bewhalewise.org.

For more information regarding the Southern Resident Killer Whale management measures to support recovery, please contact the Marine Mammal Team (DFO.SRKW-ERS.MPO@dfo-mpo.gc.ca) or visit www.pac.dfo-mpo.gc.ca/southern-resident-killer-whale

5.4.3 DEPREDATION BY KILLER WHALE

Depredation (the removal of fish from fishing gear) by killer whales and sperm whales has been reported by groundfish longline, salmon troll, and recreational harvesters in British Columbia.

Depredation is a learned behaviour that can spread throughout whale social groups and, once established, is impossible to eliminate. It is critical that harvesters do not encourage this learning by allowing whales to associate obtaining fish with fishing activity; encouraging this behaviour will quickly lead to significant losses for harvesters. Depredation in fisheries can also lead to increased likelihood of entanglement or injury to marine mammals.

The most important approach to prevent this from spreading is by NOT feeding whales directly or indirectly and not hauling gear in the vicinity of killer whales. It is prohibited to approach marine mammals to feed or attempt to feed them under s. 7 of the *Marine Mammal Regulations*. Typically killer whales pass quickly through an area allowing fishing to resume. It is also recommended that you advise other fish harvesters in the area if you encounter depredation. Additional tips on avoiding depredation events can be found in the DFO Marine Mammal Bulletin #2: Depredation by whales (dfo-mpo.gc.ca)

A useful depredation handout can be found at the Ocean Wise website: https://wildwhales.org/wp-content/uploads/2020/06/Research_DepredationHandout_Commercial_proof5_link_final.pdf

If you experience depredation by whales, please report the incident by email Mammals.Marine@dfo-mpo.gc.ca, or by calling 1-800-465-4336 or by reporting accidental contact through the marine mammal interaction form: Fish-Harvester-Form-Eng.pdf (dfo-mpo.gc.ca). Reporting all incidents will assist DFO and fish harvesters in understanding this problem and help in developing strategies to avoid it.

5.5 U.S. Marine Mammal Protection Act Fish and Fish Product Import Provisions

In 2016, the U.S. published new regulations (80 FR 54390) pursuant to the Marine Mammal Protection Act (MMPA) which focus on the reduction of marine mammal bycatch in foreign commercial fishing operations. Under these regulations, harvesting nations intending to continue to export fish and fish products to the U.S. after January 1, 2026, had to apply to the U.S. National Oceanic and Atmospheric Administration (NOAA) for a comparability finding for each of its commercial fisheries listed in the 2020 U.S. List of Foreign Fisheries. Harvesting nations must demonstrate: 1) the prohibition of intentional mortality or serious injury of marine mammals in the course of commercial fishing operations; and 2) the implementation of a regulatory program comparable in effectiveness to the U.S., including mandatory reporting of marine mammal bycatch, monitoring programs and management/mitigation measures where appropriate.

Depending on information provided, foreign commercial fisheries that export fish and fish products to the United States can be classified as either “export” or “exempt” based on the frequency and likelihood of incidental mortality and serious injury of marine mammals. On October 8, 2020, the 2020 U.S. List of Foreign Fisheries was published on the NOAA public registry. For the Pacific Region, all Salmon Gillnet fisheries are classified as *Export* (LOFF pg.97),

all Salmon Trolling Line fisheries are classified as *Exempt* (LOFF pg.31), and all Salmon Purse Seine fisheries are classified as *Exempt* (LOFF pg.48).

On November 17, 2023, the U.S. published their decision to extend the exemption period of the implementation of the import provisions by an additional two years, to December 31, 2025. NOAA continues to review and evaluate comparability finding applications towards making its final determinations. NOAA will notify harvesting nations in advance of the publication in the event that a fishery is denied a comparability finding. These comparability findings are important because they ensure that foreign nations' bycatch programs meet U.S. standards as a condition to allow import of the fish and fish products from these fisheries.

DFO will continue to share information about the U.S. Marine Mammal Protection Act Fish and Fish Product Import Provisions and the process for ensuring continued access to US markets. Further information can be found on the NOAA website, or by contacting the Regional Fisheries Coordinator or the DFO Marine Mammal Unit (MMU) Mammals.Marine@dfo-mpo.gc.ca.

5.6 MARINE MAMMAL REGULATIONS

The *Marine Mammal Regulations* provide direction on conservation and protection of marine mammals, provide guidance for recovery of at-risk species under the *Species at Risk Act*, and set out provisions related to reducing human disturbance of marine mammals (e.g., viewing of marine mammals) and mandatory reporting requirements in the case there is accidental contact with a marine mammal and a vessel or fishing gear. These regulations were amended in 2018 and specify mandatory requirements to reduce disturbance of marine mammals.

As per section 7(2) of the *Marine Mammal Regulations*, disturbance is defined as a number of human actions, including:

- Feeding, swimming or interacting with a marine mammal;
- Moving a marine mammal (or enticing/causing them to move);
- Separating a marine mammal from its group or going between them and a calf;
- Trapping a marine mammal or its group between a vessel and the shore, or between a vessel and other vessels; and
- Tagging or marking a marine mammal.

Boats are required to maintain a minimum approach distance of 100 metres for whales, dolphins or porpoises, 200 metres when whales, dolphins or porpoises are in a resting position or with a calf, and 200 metres from all Killer Whales in Pacific Canadian waters except when in southern BC coastal waters which requires a 400m minimum approach distance to all killer

whales in support of Southern Resident Killer Whale recovery. Please visit the Southern Resident Killer Whale management measures website for more information on the management measures: https://www.canada.ca/southern-resident-killer-whales.

Any operator of a vessel or fishing gear involved in accidental contact with a marine mammal must notify DFO of the incident, as per section 39 of the *Marine Mammal Regulations.* Incident reporting includes:

- Reporting an injured, stranded, entangled or dead marine mammal to the BC Marine Mammal Response Network (Observe, Record, Report): 1-800-465-4336
- Reporting as bycatch in a logbook
- Reporting accidental contact through the marine mammal interaction form
- Depredation reporting to DFO by email at Mammals.Marine@dfo-mpo.gc.ca, by calling 1-800-465-4336 or reporting accidental contact through the marine mammal interaction form.

Please note, incidents involving abuse or harassment of a marine mammal should be reported as a fisheries violation, while injured, stranded, entangled or dead marine mammals should be reported to the BC Marine Mammal Response Network to enable a response if appropriate.

For more information on safe boating behaviour around whales, please visit: Watching Marine Mammals and Be Whale Wise, or by contacting the DFO Marine Mammal Unit (MMU) (Mammals.Marine@dfo-mpo.gc.ca).

5.7 AQUACULTURE MANAGEMENT

REGULATORY REGIME:

In December 2010 the *Pacific Aquaculture Regulations* (PAR) came into effect, giving DFO the authority to govern the management and regulation of aquaculture activities at marine finfish, shellfish, freshwater/land-based and enhancement facilities. The *Aquaculture Activities Regulations* (AAR), which came into force in 2015, further clarify conditions under which aquaculture operators may treat their fish for disease and parasites, as well as deposit organic matter.

DFO also administers the provisions of the *Fishery (General) Regulations* (FGRs) including sections 54 to 57 for licencing introductions and transfers of fish. These provisions include requirements relating to disease. All aquaculture operators must be authorized under the FGRs to bring fish onto the farm site, whether it is on land or in the marine environment. After fish are introduced to the farm site, fish health is addressed through conditions of licence under the PARs throughout the rearing process. The Framework on the Transfer of Live Fish developed in

2019 provides further guidance related to licencing under the FGRs. This is nested under the Framework for Aquaculture Risk Management.

The Province of British Columbia continues to have authority over land tenures and workplace safety related to aquaculture in BC. New applications, amendments and related referrals are coordinated through FrontCounter BC. More information is available on the BC Government's website: http://www.frontcounterbc.gov.bc.ca. DFO approves and issues aquaculture licences.

As part of adaptive management, DFO Aquaculture Management continues to refine management approaches. The marine finfish aquaculture conditions were amended in March 2020 to improve sea lice management, and further updates were made when licences were reissued in June 2022. In spring 2023, DFO also updated marine finfish aquaculture conditions to address how incidental bycatch, such as herring, is managed and reported while conducting sea lice treatments. DFO Aquaculture Management is also exploring an Area-based Aquaculture Management approach, with a goal of managing aquaculture in a way that ensures environmental, social, and economic factors are considered.

In response to 2019 mandate commitments, DFO is developing a responsible plan to transition from open net-pen salmon farming in coastal British Columbia waters by 2025. A commitment towards introducing Canada's first-ever Aquaculture Act is temporarily on hold while DFO focuses on the transition plan.

DFO requires comprehensive environmental monitoring to be undertaken by the marine finfish industry, and the department also conducts additional monitoring, audits, and investigations (where warranted) to verify information submitted by licence holders and to obtain samples for analysis. Public reporting is undertaken to ensure the transparency and accountability aquaculture management in BC. Associated reporting can be found on this DFO web page: http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/index-eng.html.

There are multiple units within the BC Aquaculture Regulatory Program dedicated to aquaculture compliance, which monitor the activities of industry on an ongoing basis. The Program provides oversight and works to ensure the orderly management of the industry, including planning and licensing, linkages with national and regional policy, and consultation and communications. Contact information for staff with responsibilities related to aquaculture management within DFO can be found in the Department Contacts section of this plan.

INTEGRATED MANAGEMENT OF AQUACULTURE PLANS:

Integrated Management of Aquaculture Plans (IMAPs) provide an overview of each aquaculture sector and associated management and regulation. IMAPs are available on the DFO

website: Aquaculture regulations and compliance | Pacific Region | Fisheries and Oceans Canada (dfo-mpo.gc.ca).

IMAPs complement IFMPs and the two are reviewed periodically to ensure consistency of management approaches.

For more information on IMAPs, please contact: mailto:IMAPS@dfo-mpo.gc.ca DFO.PACAquacultureEngagement-EngagementdelaquaculturePAC.MPO@dfo-mpo.gc.ca.

5.8 Fishing Vessel Safety

Commercial fishing is recognized as a very dangerous activity. Concerns over fishing related injuries and deaths have prompted DFO to proactively work with Transport Canada and WorkSafe B.C. to ensure coordinated approaches to improving fish harvester safety. See Appendix 2: Fishing Vessel Safety for more information.

5.9 Catch Monitoring

Beginning in 2024/25, the Department intends to work with commercial harvesters to develop implementation plans, and test approaches for implementing an interim minimum standard of independent verification of landed catch and at-sea releases by the 2025/26 season. The Department is seeking feedback on the interim commercial minimum standard (Section 12.6), while longer term comprehensive monitoring plans will be developed through consultation in subsequent years.

DFO released the national *Fishery Monitoring Policy* in 2019, replacing the regional *Strategic Framework for Fisheries Monitoring and Catch Reporting* in the Pacific Fisheries (2012). The national policy seeks to provide dependable, timely and accessible fishery information through application of a common set of steps used to establish fishery monitoring requirements across fisheries. Available at: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fishery-monitoring-surveillance-des-peches-eng.htm

The 2012 Pacific *Strategic Framework for Fisheries Monitoring and Catch Reporting* is available at: https://www.pac.dfo-mpo.gc.ca/fm-gp/docs/framework-monitoring-cadre-surveillance-eng.html

To ensure consistent national application, further guidance is provided through the *Introduction to the Procedural Steps of Implementing the Fishery Monitoring Policy*, available at: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fmp-implementation-psp-mise-en-oeuvre-eng.htm

5.9.1 ENHANCED MONITORING, REPORTING AND SAMPLING REQUIREMENTS FOR SALMON BYCATCH IN THE OPTION A TRAWL FISHERY

An enhanced monitoring and sampling program for salmon bycatch has been in effect for the Pacific Region groundfish trawl fishery since September 26, 2022 to improve the accuracy of estimates of salmon catch by species and assess potential impacts on Chinook salmon stocks of concern. A summary of salmon bycatch information including catches from 2022 is available online: https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41221618.pdf.

Monitoring requirements and management measures for Pacific salmon bycatch in the groundfish trawl fishery are subject to change over time in response to available information and consistent with a precautionary approach to fisheries management and protection of salmon stocks of concern. Refer to Appendix 8 of the Groundfish IFMP and fishery notices for more information and in-season updates.

6 FISHERY MANAGEMENT OBJECTIVES FOR STOCKS OF CONCERN

Section 6 outlines fishery management objectives for those salmon stocks of concern in Southern BC whose status affects management of fisheries throughout the region. This section is not intended to provide a complete listing of all Southern BC salmon stocks of concern. Stock status and management measures implemented to protect stocks of concern not covered in Section 6 will be outlined in the species specific portions of Section 13.

6.1 LOWER STRAIT OF GEORGIA CHINOOK

In 2021, the objective for Lower Strait of Georgia (LGS) Chinook was to continue rebuilding through a comprehensive set of fishery, hatchery, and habitat related actions. In 2022, the focus has shifted from the Cowichan fall run population which has shown signs of recovery to summer run populations in the Nanaimo and Puntledge watersheds.

Adult fall returns to the Puntledge River were below the 12 year average at 5,676. Little Qualicum and Nanaimo River (fall run) saw returns that were near the 12 year averages at 4,644 and 4,069 although these estimates still require AUC expansion. Returns to the Englishman River were slightly above the 4 and 12 year averages at 1,140. Escapement to Big Qualicum was the highest on record with 17,441 adults returning in fall 2023. Higher than average fall returns to southern systems in LGS suggest marine survival may be improving for both hatchery and wild fish. However, summer Chinook returns were below average for Puntledge at 200 and Nanaimo River at 350 (12 year averages 720 and 740, respectively). The summer run Chinook in these systems (Designatable Unit 20) were assessed as Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2020. A Recovery Potential Assessment (RPA) is underway to provide science advice to inform the listing decision and recovery planning for East Vancouver Island Summer Chinook under the *Species at Risk Act* (SARA).

LGS Chinook are harvested by First Nations in terminal areas, in commercial mixed stock troll fisheries (West Coast of Vancouver Island) and in recreational fisheries (West Coast of Vancouver Island, Strait of Juan de Fuca, Strait of Georgia and Johnstone Strait). Fishery restrictions introduced in recent years include PST reductions to the WCVI troll total allowable catch, restrictions in Victoria recreational fisheries, spot closures in the Strait of Georgia, and terminal area recreational closures from Nanaimo to Saanich. In light of proposed management actions to protect SRKW and Fraser Chinook, reductions to recreational catches are expected to occur throughout the Strait of Georgia. These reductions, in combination with average to above average escapements, provided an opportunity to review both spot and terminal area closures;

spot closures in the Northern Strait of Georgia were not in effect in 2021 due to the significant overlap with management measures directed at Fraser bound Chinook. A management framework that considers abundance levels, triggers, and associated fishery management measures (including potential changes to terminal area closures) is being developed consistent with the Southern BC Chinook strategic planning and the Wild Salmon Policy. Other measures underway are alternative hatchery-release strategies, based on recent work that showed large in-river, post-release mortalities, and a comprehensive watershed based recovery initiative involving partners such as First Nations, NGOs and local governments.

6.2 WEST COAST OF VANCOUVER ISLAND (WCVI) CHINOOK

The objective for West Coast of Vancouver Island (WCVI) Chinook is to manage Canadian ocean fisheries (specified below) to an exploitation rate of 10%. Within the 10% exploitation rate objective, the northern troll fishery will be managed to a WCVI Chinook exploitation rate of 3.2%.

For the past two decades, WCVI wild Chinook have experienced poor marine survival rates and low spawner levels. In 2020, COSEWIC assessed the status of the South WCVI and Nootka and Kyuquot WCVI designatable units as Threatened, while the Northwest Vancouver Island (WVI + WQCI) WCVI designatable unit was assessed as data deficient. WCVI wild Chinook continue to be stocks of concern.

Management actions will continue to be required consistent with the exploitation rate objective. Fisheries that this limit applies to are the northern troll, Haida Gwaii recreational, WCVI troll and WCVI recreational. The exploitation rate is estimated by Coded Wire Tag (CWT) data gathered from these fisheries. The exploitation rate limit includes Chinook caught and kept, as well as an estimate of fishing related mortalities.

In order to meet this objective for WCVI Chinook, the key management measure for the Area G WCVI troll fishery is restricting the open areas to offshore portions only during the summer period. Specifically, there will be a 5-nautical-mile inside boundary in Southwest Vancouver Island (Areas 123 to 126) and a 2-nautical-mile boundary in Northwest Vancouver Island (Areas 126-4 and 127) during the period when WCVI Chinook return to the West Coast of the island.

As a result of concerns for WCVI Chinook that emerged in the mid-late 1990s, a suite of management measures were implemented on the WCVI intended to protect wild WCVI Chinook from recreational fishing pressure. These management measures fluctuated yearly with levels and areas of restriction. In 2000, a recreational fishery "Chinook management corridor" extending one nautical mile offshore from the surfline was put in place along the West Coast of Vancouver Island in order to reduce the exploitation rate on adult female Chinook that migrate along the coastline back to their natal WCVI streams. The surfline is defined in

Schedule 1 of the *Pacific Fishery Management Area Regulations*, 2007. From 2006 to 2015 the suite of management measures remained relatively stable with very few local changes.

Chinook corridor management measures were revised in 2016 and adjusted from size limit management within the corridor to a network of open areas and finfish closures. Additional terminal Chinook non-retention areas were included to protect local stocks, and areas of increased recreational access were provided where hatchery stock composition was considered highest.

These objectives will be informed by the development of a Rebuilding Plan for WCVI Chinook that is currently underway and is scheduled for completion in 2025. Science advice provided as part of Rebuilding Plan development will also inform the listing decision for the two Threatened designatable units of WCVI Chinook under *SARA*.

6.3 FRASER SPRING 4_2 CHINOOK

For 2024, the objective for Fraser River Spring 4_2 Chinook is to manage Canadian fisheries in a highly precautionary manner to allow as many fish to pass through to the spawning grounds as possible.

Minimal levels of fishery mortalities are required for Spring 4_2, Spring 5_2, and Summer 5_2 Chinook given their poor stock status, extremely poor productivity and expectations for continued declines in spawner abundance. Any fishery mortalities will jeopardize survival and recovery unless productivity improves.

Actual fishery impacts may vary due to a range of factors, including: annual variability in Chinook distribution and run timing; distribution of fishing effort; and, uncertainties in the assessment data. Fishery impacts are not intended to be a management target, but may include incidental Chinook mortalities in Fraser River Chinook and Sockeye test fisheries, Chinook retention or bycatch retention in First Nation FSC fisheries, release mortalities, and incidental mortalities during Chinook-directed fisheries in mixed stock fisheries.

Post-season preliminary fishery mortalities based on the Nicola coded-wire tag (CWT) indicator are provided in Section 9.1.3, along with the post-season catch and escapement information for 2023.

In the 2024 preliminary Salmon Outlook, the Spring 4_2 Chinook MU has been classified as a stock of concern and anticipated to return below average. In assessments from 2018 and 2020, COSEWIC assessed the status of both DUs within this MU as endangered. Expectations are for continued depressed abundance due to low parental escapements in 2020, ongoing unfavorable marine and freshwater survival conditions, and low productivity. The reconstructed parental brood year (2020) escapement for the 2024 return was approximately 8,900 spawners.

Science advice to inform the *SARA* listing decision and recovery planning for DUs of Fraser Spring 4_2 Chinook has been published in Recovery Potential Assessments (RPAs) that are publicly available through the Canadian Science Advisory Secretariat website. Part 1 of the RPA evaluates threats to recovery and survival of populations of Fraser Chinook (https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_023-eng.html). Part 2 evaluates population trajectories, recovery targets and mitigation options (https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_030-eng.html).

Fraser Spring 4_2 Chinook have historically been encountered in Fraser River First Nations gill net fisheries, Fraser River and tributary recreational fisheries, marine troll fisheries (e.g. WCVI and North Coast), and recreational fisheries in Southern BC.

For further information on the management of Fraser Spring 4_2 Chinook refer to the Southern Chinook ISBM fishery Section 13.1.2.

6.4 FRASER SPRING 5_2 AND SUMMER 5_2 CHINOOK

For 2024, the objective for Fraser River Spring 5_2 and Summer 5_2 Chinook is to manage Canadian fisheries in a highly precautionary manner to allow as many fish to pass through to the spawning grounds as possible.

In 2019-2022, this approach reduced overall Canadian fishery mortalities on these populations to low levels averaging approximately 4.9% (Spring 5_2) and 13.1% (Summer 5_2). The 2023 fishery mortality data is not yet available.

The 2023 post-season escapement information will be provided in the final IFMP.

Minimal levels of fishery mortalities are required for Spring 4_2, Spring 5_2, and Summer 5_2 Chinook given their poor stock status, extremely low productivity and expectations for continued declines in spawner abundance. Any fishery mortalities will jeopardize survival and recovery unless productivity improves. Actual fishing impacts may vary due to a range of factors, including: annual variability in Chinook distribution and run timing; distribution of fishing effort; and, uncertainties in the assessment data. Fishery impacts are not intended to be a management target, but may include incidental Chinook mortalities in Fraser River Chinook and Sockeye test fisheries, Chinook retention or bycatch retention in First Nation FSC fisheries, release mortalities, and incidental mortalities during Chinook-directed fisheries in mixed stock fisheries.

The Fraser Salmon Management Board (FSMB) recommends the continuation of precautionary fishery restrictions to provide a high degree of protection to at-risk Fraser stream-type Chinook management units (Spring 4_2, Spring 5_2, and Summer 5_2). For Summer 5_2 Chinook, the FSMB recommends the continuation of precautionary fishery restrictions in

Canadian fisheries to maintain very low fishery mortalities in the range of 10% to 14% to allow as many fish to pass through to the spawning grounds as possible. For more details see Section 13.1.5.1.

In the 2024 preliminary Salmon Outlook, Spring 5_2 and Summer 5_2 Chinook stocks have been classified as stocks of concern and anticipated to return below average. COSEWIC has assessed the status of seven DUs as Endangered, three DUs as Threatened, and one DU as Special Concern within the Spring 5_2 and Summer 5_2 MUs. None of the DUs were assessed as Not At Risk. Expectations for 2024 are for continued low abundance related to depressed parental escapements, continuing unfavorable marine and freshwater survival conditions, and low productivity. For the return in 2024, the reconstructed parental brood year (2019) escapement was approximately 14,000 spawners. This value represents the escapement from a run reconstruction analysis that is conducted annually. That analysis uses the indicator stock escapement estimates and other data to generate an estimate of the total escapement of all Fraser Chinook Salmon (including those streams that are not monitored regularly). Many stocks within the Spring and Summer 5_2 MUs migrate above the Big Bar landslide. Five-year-old Chinook returning in 2024 are the first to return of the dominant brood year (i.e., 2019) that were affected by the Big Bar landslide. In 2019, as a result of migration challenges, a total of approximately 17,200 5_2 Chinook were estimated as Big Bar-related mortalities. Additionally, four-year-old Spring 5_2 Chinook from the 2020 brood year returning in 2024 were affected by the slide. Approximately 5,100 fish died en route to the spawning grounds.

Science advice to inform the *SARA* listing decision and recovery planning for DUs of Fraser Spring 5_2 and Summer 5_2 Chinook has been published in Recovery Potential Assessments that are publicly available through the Canadian Science Advisory Secretariat website. Part 1 of the Recovery Potential Assessment evaluates threats to recovery and survival of populations of Fraser Chinook (https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_023-eng.html). Part 2 evaluates population trajectories, recovery targets and mitigation options (https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_030-eng.html).

For further information on the management of Fraser Spring 5_2 and Summer 5_2 Chinook refer to the Southern Chinook ISBM fishery Section 13.1.5 in Section 13 Southern Chinook Salmon Fishing Plan.

6.5 FRASER FALL 4_1 (HARRISON CHINOOK)

The biologically-based escapement goal for Harrison Chinook is 75,100 Chinook.

The Pacific Salmon Treaty specifies that for individual stock-based management (ISBM) fisheries, U.S. and Canada shall manage these to limit the total adult equivalent mortality for stocks listed in Chapter 3 Attachment I of the Treaty that are not meeting agreed biologically-

based management objectives, or that do not have agreed management objectives, to no more than the limits identified in Attachment I. Attachment I identifies a biologically-based management objective of 75,100 Chinook (i.e., escapement goal) for Harrison River Chinook and a Canadian ISBM Calendar Year Exploitation Rate (CYER) limit of 95% of the 2009-2015 average if the stock is not meeting biologically-based management objectives. The PST also indicates the CYER metric shall be used to monitor the total mortality in ISBM fisheries beginning with the 2019 to 2021 catch years with an obligation to identify stocks that achieved less than 85% of the point estimate (or lower end range) of the management objective for three consecutive years beginning in 2019.

The biologically-based escapement goal was not met for 2019-2021, however, the 2022 estimates was above the escapement goal. Preliminary escapement estimates suggest the 2023 return was above the escapement goal as well. The final estimates will be available in the final IFMP. Under the Pacific Salmon Treaty Chapter Three, in response to not meeting the escapement goal for three consecutive years, Canada is obligated to reduce the ISBM CYER on this stock to below the running three-year average from years that meet the specific inclusion criteria. The preliminary average ISBM CYER estimate for Harrison Chinook (2020-2022) was 12%. An updated estimate will be available once the 2024 Exploitation Rate Analysis (ERA) is completed by the CTC, and the 2023 preliminary CYER will be available in the final IFMP. Additional information on this analysis can be found in the CTC's 2023 ERA report. No additional management actions are planned at this time, given the ISBM CYER was low in 2022 (4.7%) and the escapement goal was met in 2022 and 2023. Ongoing actions in place aimed at achieving Summer 5_2 objectives may provide additional protection to co-migrating Harrison Chinook and further reduce exploitation rates in 2024.

Harrison Chinook were assessed as Threatened by COSEWIC in 2018. Science advice to inform the *SARA* listing decision and recovery planning for Harrison Chinook was published in Recovery Potential Assessments that are publicly available through the Canadian Science Advisory Secretariat website. Part 1 of the Recovery Potential Assessment evaluates threats to recovery and survival of populations of Fraser Chinook (https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_023-eng.html). Part 2 evaluates population trajectories, recovery targets and mitigation options (https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_030-eng.html).

For further information on the management of Harrison Chinook refer to the Southern Chinook ISBM fishery Section 13.1.5.

6.6 INTERIOR FRASER RIVER COHO

The objective for Interior Fraser River Coho (including Thompson River Coho) is to manage Canadian fisheries in a highly precautionary manner. In 2024, there has been interest from various groups to explore increasing the exploitation rate on Interior Fraser River Coho while remaining under the 10% Canadian fishery mortality cap permitted under the PST. The priority for this potential increase is FSC access, particularly for nations whose ability to catch Coho for FSC is currently restricted.

Assessments of Interior Fraser River (IFR) Coho Salmon stocks in the mid-1990s revealed that alarming declines in spawning populations were occurring in many spawning sites. Low marine survival rates in combination with excessive fishery impacts were identified as key factors in this decline. Beginning in 1997, DFO implemented a number of fishery management measures to reduce the harvest impacts on these stocks, with more severe measures being implemented beginning in 1998. In most years since that time, Canadian fisheries impacting these stocks have been curtailed to limit the exploitation rate to 3-5% or less, with an additional 10% permitted in U.S. fisheries (as per the Pacific Salmon Treaty management regime).

Due to generally low fisheries impacts and a small increase in average survival, achievement of escapement abundance and distribution-based recovery objectives, as laid out in the Conservation Strategy for Coho Salmon, *Oncorhynchus kisutch*, Interior Fraser River Populations, October 2006 (https://waves-vagues.dfo-mpo.gc.ca/Library/329140.pdf), has occurred since 2018. However, due to the persistence of relatively low (<3.0%) smolt-to-adult survival, the IFR Coho are still in a 'low' productivity regime. Current productivity is still well below that of the relatively high productivity period of 1978-1993.

Another important consideration is the poor forecasting ability for IFR Coho. In recent years, there has been weak correspondence between brood-year escapements and subsequent adult returns; therefore, one (or a small number) of strong brood years should not be considered predictive of future strength in returns.

As outlined in Chapter 5 of the Pacific Salmon Treaty (PST), allowable exploitation rates (ERs) for Canada and the U.S. are identified based on the status of Coho Management Units (MUs). Canada is responsible for determining the status level for Canadian MUs and setting the corresponding ER caps for both parties. In 2018, based on the results of the science advice and recommendations from a domestic consultation process, Canada updated the PST management approach based on the status of the IFR Coho MU using an integration of smolt–to-adult survival rates (with breakpoints at 3% and 6%) and spawner abundance. Under this approach, ER caps will be set at 20%, 30% and 45% for Low, Moderate and Abundant status, respectively. Canada will be required to confirm the status of IFR Coho MU in March of each year.

Additional background information as well as a summary report from domestic consultations may be found here: http://www.pac.dfo-mpo.gc.ca/consultation/smon/pst-coho-tsp/index-eng.html

Table 6-1: Pacific Salmon Treaty Low, Moderate and Abundant status determination criteria and exploitation rate caps for the Interior Fraser River Coho Management Unit.

	Low	Moderate	Abundant
Survival	S <= 0.03	Three consecutive years 0.03 < S <= 0.06	Three consecutive years S > 0.06
		AND	AND
Escapement	Monitored in CUs and subpopulations but no thresholds	Three consecutive years: • Half of subpopulations in each CU > 1000; or • Aggregate MU escapement objective (e.g., 27,000)	Three consecutive years: • All IFR Coho subpopulations in each CU > 1000; or • Aggregate MU escapement objective (e.g., revised 40,000)
ER cap (US/Can)	**0.20** (0.10/0.10)	**0.30** (0.12/0.18)	**0.45** (0.15/0.30)

In addition, Canada or the U.S. may choose to manage to a lower ER based on domestic fisheries management considerations, as has been done domestically for IFR Coho in previous years (domestically this has been an ER cap of 3% to 5%). First Nations and other interest groups have expressed an interest to explore increasing this ER while remaining under the existing 10% cap. Domestic management decisions will be discussed through the annual process to develop the Southern Salmon IFMP.

Details on management measure considerations can be found in Section 13.3.2.

Management measures to protect IFR Coho will be applied from May to September when these populations are expected to be encountered in Southern BC waters. These measures are also expected to limit impacts on other Coho populations in Southern BC, including Lower Fraser River Coho and Strait of Georgia Coho populations.

Management measures may be considered for fisheries in the following areas and times to limit overall impacts on Interior Fraser Coho consistent with annual management objectives:

- West Coast Vancouver Island (WCVI) troll (commercial and First Nations[11]) and recreational fisheries in offshore areas from late May until early September,
- Commercial net and recreational fisheries in the Juan de Fuca Strait from June until early October,
- Commercial, recreational and First Nations fisheries in Johnstone and Queen Charlotte Straits from early June until mid-September,
- Commercial, recreational and First Nations fisheries in the Strait of Georgia from June until early October,
- Commercial, recreational and First Nations fisheries both off the mouth of, and in, the Fraser River from early September until mid-October, and
- Commercial, recreational and First Nations fisheries in the Fraser River upstream of Sawmill Creek from mid- to late September until late October.

For planning purposes, IFR Coho fishing mortality is estimated pre-season using a series of models that integrate assumptions about anticipated Coho encounters, fishing effort levels, an estimate of the proportion of IFR Coho stocks within the total encounters based on past data, and an average release mortality rate. A post-season estimate of exploitation rate is developed from the same models but using any actual information on encounter rates and fishing effort collected during the fishing season. These models are expected to undergo further review by CSAS, but this work is not yet complete.

6.7 CULTUS LAKE SOCKEYE

Cultus Lake Sockeye will be managed within the constraints of the exploitation rate identified for the Late Run aggregate. The maximum allowable exploitation rate for Cultus Lake Sockeye will be the greater of a) the low abundance exploitation rate (LAER) identified for Late Run Sockeye, or b) the exploitation rate that is consistent with continued rebuilding of the population based on in-season information on returns and potential numbers of effective spawners. The variable, abundance-based exploitation rate on Cultus Lake Sockeye is intended to allow for fisheries on more abundant co-migrating stocks or species to occur while allowing for the abundance of the Cultus population to increase. For Late Run Sockeye, management will be based on an abundance-based Total Allowable Mortality

[11] Five Nations have proposed the retention of wild Coho for sale in the offshore of WCVI before September 15 (currently only hatchery marked) with CWT/DNA sampling.

(TAM) and the low abundance exploitation rate (LAER) as outlined in the Fraser Sockeye escapement plan; see Section 13.5.6.2.1.

The recovery objectives as outlined in the National Conservation Strategy for Cultus Lake Sockeye Salmon (*Oncorhynchus nerka*) (Cultus Lake Sockeye Recovery Team, 2009) are as follows:

Objective 1

Ensure the genetic integrity of the population by exceeding a four-year arithmetic mean of 1,000 successful adult spawners with no fewer than 500 successful adult spawners on any one cycle.

Objective 2

Ensure growth of the successful adult spawner population for each generation (that is, across four years relative to the previous four years), and on each cycle (relative to its brood year) for not less than three out of four consecutive years.

Objective 3

Rebuild the population to the level of abundance at which it can be de-listed (i.e., designated Not at Risk) by COSEWIC.

Objective 4

Over the long term, rebuild the population to a level of abundance (beyond that of Objective 3) that will support ecosystem function and sustainable use.

Objective 1 secures genetic variability, Objective 2 ensures the population is growing, and Objective 3 achieves de-listing by COSEWIC – the change in designation from *Endangered* to *Not at Risk*. Once the population is de-listed, conservation objectives should be consistent with (i.e., not less than) those specified for other Sockeye populations. Objective 4 proposes candidate benchmarks that correspond to our current understanding of the dynamics of Cultus Sockeye.

The full conservation strategy is online at:
http://publications.gc.ca/collections/collection_2010/mpo-dfo/Fs97-6-2846-eng.pdf.

Alternate recovery objectives were developed in the recent Cultus Lake Recovery Potential Assessment (RPA) (https://waves-vagues.dfo-mpo.gc.ca/Library/40876147.pdf). The RPA identified the main threats to the stock include: lake eutrophication, adult mortality associated with change in migration timing, fisheries interceptions, and climatically-mediated variability and change in freshwater habitat conditions. The Department may include evaluation of these recovery objectives in future IFMPs but have not yet been assessed. However, it is unlikely that the RPA recovery objectives are likely to be met in 2024.

Cultus Lake Sockeye is a component of the Late Run Fraser River Sockeye aggregate, which is typically harvested in southern BC waters in August and September.

The returns of Sockeye Salmon to Cultus Lake have been particularly low relative to historic averages. To work toward rebuilding this population, Late Run Sockeye fishery management actions were implemented to reduce fishery exploitation levels on this stock. Enhancement measures have included fry and smolt releases as well as a captive brood program. The captive brood program reared fish from brood years 2000 to 2009, at which time the program was phased out – the last progeny of captive brood fish were released in October 2014. A hatchery supplementation program continues. Total juvenile releases have been reduced to approximately 30% of levels achieved during the captive breeding program years. Additionally, the current conditions in Cultus Lake have not improved, and as such, attempts will be made to continue broodstock collection. Freshwater mitigation measures in the past have included but are not limited to: predator control (removal of adult Northern Pikeminnow from Cultus Lake), removal of Eurasian watermilfoil and various research activities that include spawning habitat quality assessments, limnology and fry surveys, and contaminant assessment. An overview on the recovery activities and the status of Cultus Lake Sockeye to 2009 can be found in the Status of Cultus Lake Sockeye Salmon (Bradford et al., 2010), available online at:

All Canadian fisheries that could harvest Cultus Lake Sockeye will be impacted by the need to limit exploitation on this stock. This includes:

- Closures in all fisheries with the possibility of impacting Cultus or Late Run fish when harvest limits for this stock group have been reached.
- Restrictions to First Nations fisheries in Queen Charlotte Sound and Johnstone Strait, Strait of Georgia, Strait of Juan de Fuca, West Coast of Vancouver Island and the lower Fraser River downstream of the Vedder River. However, where surpluses are identified, first priority will be accorded to First Nations for opportunities to harvest fish for FSC purposes.
- Restrictions to recreational salmon fisheries in southern BC will include Sockeye non-retention in specific locations when Cultus Lake Sockeye are present and allowable harvest limits have been reached. This may include salmon fishing closures in isolated areas to reduce interceptions during spawning migrations
- Closures to commercial salmon fisheries in southern BC when Late Run Sockeye are present, or expected to be present, in the area as it will not likely be possible to identify the run size of Cultus Lake Sockeye in-season due to relatively low abundance of Cultus Lake Sockeye compared to other co-migrating Sockeye stocks.

These closures will come into effect when allowable harvest limits for this stock group have been reached. Fisheries directed at other stocks or species of salmon will be subject to Late Run/Cultus constraints.

Recovery Potential Assessments for Fraser Sockeye, including for Cultus Lake Sockeye, are publicly available through the Canadian Science Advisory Secretariat website (http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_011-eng.html).

Several lines of research have been undertaken to increase our understanding of the impacts of human activities on the Cultus Lake ecosystem and to monitor the status of Cultus Lake Sockeye Salmon.

The release target for the enhancement program will focus on the 50,000 smolt (spring) release into Sweltzer Creek near the outlet of Cultus Lake for 2024. Alternate fry programs targeting 25,000 fed fry (summer) into the Lake, 150,000 fed fry (winter) into the Lake will take place only if conservation enhancement rearing capacity is available. Within the Fraser River upstream of the Fraser/Vedder confluence, recreational and First Nations fisheries for Fraser Sockeye during Cultus migration timing will be managed based on Late Run constraints as Cultus Lake Sockeye have exited the Fraser River.

For harvest constraints on the Late Run Sockeye stock group aggregate, refer to Fraser Sockeye section of Section 13 - Southern Sockeye Salmon Fishing Plan (13.5).

6.8 SAKINAW LAKE SOCKEYE

The objective for Sakinaw Lake Sockeye is to stop their decline and re-establish a self-sustaining, naturally-spawning population.

Sakinaw Sockeye were first assessed as Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in an emergency assessment in 2002. This designation has been confirmed by several subsequent assessments, the latest being in 2016 due to continued threats from overfishing, development around the lake, and low marine survival. Sakinaw Sockeye is currently under consideration for inclusion on Schedule 1 of the *Species at Risk Act* (SARA).

Following the previous emergency assessments of Sakinaw Lake Sockeye Salmon, the Governor in Council decided not to add Sakinaw Lake Sockeye Salmon to the List of Wildlife Species at Risk set out in Schedule 1 of SARA. Although Sakinaw Lake Sockeye Salmon was not listed, a recovery team was engaged to establish recovery goals and actions for Sakinaw Lake Sockeye Salmon. An immediate recovery goal was to stop the decline of the Sakinaw Lake Sockeye Salmon population and re-establish a self-sustaining, naturally-spawning population. This objective will not be achieved until spawner abundance relative to previous brood years

increases for at least three out of four consecutive years and there are no fewer than 500 natural spawners annually.

To maximize chances of achieving this objective, a captive brood stock program designed to maintain genetic integrity and minimize inbreeding was initiated in 2001. The captive brood program involves variable release strategies, which not only encompass varying releases by age/size, but also explores the option of different release locations. Achieving this objective also meant that mortality, including fishing mortality, needed to be minimized, as much as practicable.

Sakinaw Lake is located on the Sechelt Peninsula in the Strait of Georgia. Migration timing data on Sakinaw Lake Sockeye is limited. Current data suggests Sakinaw Lake Sockeye have a prolonged migration period commencing in Johnstone Strait in late May to July and arriving at the entrance of Sakinaw Lake in the northern Strait of Georgia in July and August. Given this timing pattern, Sakinaw Lake Sockeye are most vulnerable to harvest directed at Fraser River Sockeye stocks in July extending into mid-August.

Most fisheries that have the potential to intercept Sakinaw Lake Sockeye will continue to be delayed until the last week of July or mid-August to ensure a significant portion of the return has passed through major fisheries in Johnstone Strait and the northern Strait of Georgia. The current fishery management measures include:

- First Nations FSC fisheries in Johnstone Strait will be restricted to gill net and troll only until July 25 and until August 15 in the northern Strait of Georgia.
- Recreational fisheries in Queen Charlotte Strait, Johnstone Strait, and northern Strait of Georgia will be closed to Sockeye retention until July 25. In addition, there will be Sockeye non-retention restrictions in Area 16 until August 15 at which time Sockeye retention opportunities are expected to be available in Sabine Channel.
- Commercial fisheries in Queen Charlotte Strait and Johnstone Strait will be closed until July 25 and in the northern Strait of Georgia (including Sabine Channel) until August 15.
- The waters near the mouth of Sakinaw Creek in Area 16 will be closed to all fishing all season.

Recovery planning efforts to rebuild this stock will continue to be supported. In addition to harvest related measures, there will be continued efforts made to study and improve habitat, investigate impacts of predation (seals, otters, and lamprey), and undertake enhancement. Eggs are incubated in nearby hatchery facilities and the resulting fry are adipose clipped and released in the lake. The captive brood program will continue as a form of insurance to reduce the possibility of extirpation.

In 2023, 121 adult Sockeye returned to Sakinaw Lake from 169,190 smolts that left in 2021. Marine survival continues to be extremely low; for the 2021 ocean entry year, the smolt-to-adult survival was 0.07% for hatchery origin fish while too few natural-origin smolts were present in 2021 to generate an estimate. Returns from an experimental release of Sakinaw smolts at Big Qualicum were approximately five times higher at 0.42% suggesting a localized survival bottleneck may exist.

Expectations for 2024 include a poor return considering smolt production in 2022 was below average at 68,036 (10 year average is 114k). If marine survival is near the 4-year average for the 2022 ocean entry year, 69 adults are forecast to return in 2024 (further details can be found in section 9.1.8).

6.9 NIMPKISH SOCKEYE

The objective is to minimize the impact of Canadian fisheries during periods of low abundance.

The Nimpkish River has generally experienced low Sockeye escapements since the early 1990s similar to other Central Coast Sockeye stocks (Smith and Rivers Inlet) likely attributed to declines in marine survival. Returns from 2010-2016 showed improvement over previous years, with above average escapement each year. In 2017, the return (30,029) fell below the average, but abundances in 2018 (83,796), and 2019 (60,418) were again improved, but both years demonstrated declines relative to the parental brood years. In 2020, estimated escapement (~24,749) to the Nimpkish was well below average. In 2021 and 2022, high flows limited our ability to enumerate the full run-timing . In 2023, escapement was below average (22,527) The escapement target for Nimpkish Sockeye is currently under review, but the optimum based on lake capacity and fertilization ranges from 260,000-290,000.

Nimpkish Sockeye are encountered in Queen Charlotte Strait and Queen Charlotte Sound typically during June and July. In order to protect this stock, time and area closures may be implemented for First Nations, commercial, and recreational fisheries in the approach waters to the Nimpkish River (including the river). Other than test fisheries, marine waters north of Lewis Point on Vancouver Island (Subareas 11-1, 11-2 and 12-5 to 12-19) are scheduled to be closed to Sockeye retention in all fisheries until late July. However, marine waters north of Lewis Point may open to Sockeye retention in marine FSC fisheries prior to late July if in-season abundance of Nimpkish Sockeye is higher than expected and no other weak stock constraints exist. If in-season abundance permits, some First Nations FSC harvest may also occur within the Nimpkish River.

The Department is continuing to work in partnership with the Namgis First Nation on an in-season assessment program in the lower river and some FSC harvest may occur in response to returning abundance.

At this time, no directed commercial or recreational fisheries are anticipated for Nimpkish Sockeye.

6.10 INTERIOR FRASER RIVER STEELHEAD

Spawning escapement of Interior Fraser River (Thompson and Chilcotin) Steelhead has been on a downward trend for many years, with recent years' escapements reaching the lowest on record. Threats to Interior Fraser River (IFR) Steelhead include changes in the marine environment, fishing mortality (both targeted and incidental), degradation of freshwater and marine habitats, predation, and competition. In February 2018, COSEWIC assessed the Thompson and Chilcotin Designatable Units (DUs) as *Endangered* under an Emergency Assessment. The subsequent SARA Listing Process was concluded on July 11, 2019, when the Minister of Fisheries announced that Cabinet had decided not to list these populations under the *Species at Risk Act*, opting instead to implement measures to recover these stocks through existing regulatory mechanisms under the *Fisheries Act*. In conjunction with the Province of British Columbia, the Minister announced the development of a conservation action plan for Thompson and Chilcotin Steelhead Trout to:

- reduce mortality and increase survival of Thompson and Chilcotin Steelhead returning to rivers to spawn;
- improve freshwater conditions through habitat protection and restoration; and,
- increase science and monitoring activities.

The COSEWIC recently re-assessed Steelhead Trout (Thompson and Chilcotin DUs) and confirmed the status as *Endangered* in the October 2021 annual report. This assessment has initiated a new SARA Listing Process that is being undertaken by DFO to provide advice to the Governor in Council on whether to list these populations under SARA. DFO is working with the Province of BC on how to jointly approach the new listing process.

2024 Fisheries Management Measures to Support Recovery of Steelhead

In the coming year, DFO will protect IFR Steelhead from incidental fishing mortality occurring in salmon fisheries using the window closure approach implemented since 2019, with additional restrictions applied to set gill net fisheries in the Fraser River. Moving window closures will apply to most salmon fisheries located along the migratory route of Thompson and

Chilcotin River Steelhead, including southern BC marine waters and the Fraser River mainstem downstream of Thompson and Chilcotin River Steelhead spawning areas.

- The closure window for commercial gill net and seine fisheries (including purse seine, beach seine, and shallow seine gear) is 42 days, while commercial troll fisheries will be closed for 27 days. Following the closure window, set gill net gear will be further restricted to operate during daylight hours only, while attended by a harvester at all times.
- Recreational salmon fisheries within the Fraser River mainstem (including areas immediately off the Fraser River mouth), are closed for a moving window period of 42 days.
- First Nations' Food, Social, and Ceremonial (FSC) salmon fisheries occurring within the Fraser River mainstem downstream of Thompson and Chilcotin River Steelhead spawning areas are closed for a 27-day moving window. Following the closure window, set gill net gear will be further restricted to operate during daylight hours only, while attended by a harvester at all times.
- Marine recreational and marine FSC salmon fisheries remain open with a requirement for Steelhead release.
- Any salmon fisheries occurring in terminal areas that are not considered to overlap with the migratory pathway of Thompson and Chilcotin Steelhead will not be subject to these closures.

Details of closure dates and areas that will be implemented in 2024 are outlined in Appendix 9, and details are provided for all affected fisheries in Section 13. Appendix 9 also contains a list of terminal fishing areas that are proposed to be exempt from the moving window closures in 2023, as they are not considered to be within the probable migratory route for returning IFR River Steelhead.

The responsibility for conservation and recovery of IFR Steelhead is shared with the Province of British Columbia. The Government of Canada and the Province of British Columbia are committed to working collaboratively to address threats, reduce fish mortality, and promote growth for these populations. In 2023, the Province of British Columbia will continue to implement measures to limit impacts of provincially managed recreational trout fisheries on Thompson and Chilcotin Steelhead. Additional actions to be taken by the Province to support recovery of these populations are being developed in conjunction with DFO, as part of the Joint Steelhead Action Plan.

6.11 NIMPKISH CHUM

Objective: To rebuild this Chum Salmon population from the serious declines encountered in recent years through an evaluation of limiting factors and the development of a recovery plan.

The Nimpkish River has seen a steady decline in abundance of Chum since 1996. Initial observations indicated the decline perpetuated through that 4-year brood cycle (2000, 2004) and in more recent years other cycle lines have been affected. Currently DFO, in collaboration with 'Namgis First Nation, are developing a recovery plan for this population. This will include an assessment of limiting factors/threats associated with this population and an evaluation of various gaps in our understanding of the productivity of this stock. Ongoing supplementation through enhancement activities is a major component of this recovery.

Based on the late migration timing of Nimpkish Chum (peak in river by mid to late November), it is assumed that the impact from Inner South Coast Fall Chum fisheries would very low on any remnant natal population. Transfers from the Puntledge River are earlier timed, but unlikely to be intercepted in mixed-stock fisheries as the terminal and approach areas for the Nimpkish River are closed.

At this time, no directed commercial or recreational fisheries are anticipated for Nimpkish Chum.

7 GENERAL DECISION GUIDELINES, ACCESS AND ALLOCATION

The Minister can — for reasons of conservation or for any other valid reasons — modify access, allocations, and sharing arrangements as outlined in this IFMP in accordance with the powers granted pursuant to the *Fisheries Act*.

7.1 ACCESS AND ALLOCATION OBJECTIVES

7.1.1 INTERNATIONAL OBJECTIVES

The objective is to manage Canadian treaty fisheries to ensure that obligations within the Pacific Salmon Treaty (PST) are achieved. As of January 1, 2019, treaty fisheries were managed in accordance with new amendments under the PST, which were being provisionally applied until the treaty formally entered into force as of May 3, 2019.

Details can be found at the Pacific Salmon Commission (PSC) website at: https://www.psc.org/.

Review of the performance of the PST provisions occurs annually at two bilateral meetings of the Southern and Fraser Panels of the PSC and those results are published post-season.

7.1.2 DOMESTIC ALLOCATION OBJECTIVES

The objective is to manage fisheries in a manner that is consistent with the constitutional protection provided to existing Aboriginal and treaty rights and An Allocation Policy for Pacific Salmon.

An Allocation Policy for Pacific Salmon can be found online at: https://waves-vagues.dfo-mpo.gc.ca/Library/240366.pdf

An Allocation Policy for Pacific Salmon sets out principals for allocation between the recreational and commercial sectors and also identifies sharing arrangements for commercial fisheries. An explanation of some of the features of Allocation planning is set out in Section 7.1.2.

An update on the review of the Salmon Allocation Policy can be found in Section 1.6.1.

7.2 ALLOCATION GUIDELINES

Allocation decisions are made in accordance with *An Allocation Policy for Pacific Salmon*: https://waves-vagues.dfo-mpo.gc.ca/Library/240366.pdf

An update on the review of the Salmon Allocation Policy can be found in Section 1.6.1.

Table 7-1: Allocation guidelines

	Low Abundance		High Abundance		
First Nations FSC	Non-retention / closed	Bycatch Retention	Directed	Directed	Directed
Recreational	Non-retention / closed	Non-retention	Bycatch Retention	Directed	Directed
Commercial	Non-retention / closed	Non-retention	Bycatch Retention	Bycatch Retention	Directed

NOTE: This table describes conceptually how First Nations, recreational and commercial fisheries might be undertaken across a range of returns. It does not imply that specific management actions for all stocks exactly follow these guidelines, but rather is an attempt to depict the broad approach.

The allocation guidelines above refer to target stocks. The application of *An Allocation Policy for Pacific Salmon* on non-target stocks is case specific. The inadvertent harvest of different species is referred to as *bycatch*. The inadvertent harvest of stocks of concern within the same species (i.e. Cultus Lake Sockeye when harvesting Summer Run Sockeye) is referred to as *incidental harvest*. Both *bycatch* and *incidental harvest* are factored into the calculation of exploitation rates on various stocks, and therefore, fishing plans are designed to be consistent with existing policies and to keep exploitation rates on stocks of concern within the limits described in the fishery management objectives.

The Department does not allocate bycatch or portions of the acceptable exploitation rate on stocks of concern. The Department considers a number of fishing plan options and attempts to address a range of objectives including minimizing bycatch and incidental catch.

7.2.1 FIRST NATIONS – FOOD, SOCIAL, AND CEREMONIAL (FSC) AND TREATY DOMESTIC HARVEST

An Allocation Policy for Pacific Salmon provides that after requirements for conservation, the first priority in salmon allocation is to treaty rights for harvest opportunities for domestic purposes (consistent with Treaty Final Agreements) and for FSC for harvest opportunities (under communal FSC licences issued to First Nations). The Department has announced plans to review *An Allocation Policy for Pacific Salmon*; further details can be found in Section 1.6.1. The Department remains committed to respecting First Nations' Aboriginal right to fish for food,

social and ceremonial (FSC) purposes, or domestic purposes under Treaty which has priority – after conservation – over other uses of the resource.

While these opportunities will be provided on a priority basis, it does not necessarily mean that fishery targets for First Nations will be fully achieved before other fisheries can proceed. For example, many First Nations conduct their FSC fisheries in terminal areas while other fisheries are undertaken in marine or approach areas. The general guideline is that fishing plans must adequately provide for the First Nations' FSC and/or domestic Treaty harvests that will occur further along the migration route over a reasonable range of potential run sizes.

7.2.2 RIGHT-BASED SALE ACCESS

Five Nuu-chah-nulth First Nations located on the west coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) – have an Aboriginal right to fish for any species, with the exception of Geoduck, within their fishing territories and to sell that fish. For more information, please see Section 10.3.1.

Within the 2018 BC Supreme Court Ahousaht decision, the application of *An Allocation Policy for Pacific Salmon* (SAP) was found to be an unjustified infringement of the five Nuu-chah-nulth Nations' (Ahousaht, Ehattesaht/Chinekint, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht) Aboriginal rights to fish and sell fish insofar as it accorded priority to the recreational fishery over the Five Nations' right-based sale fishery for Chinook and Coho salmon. To the extent that the SAP applies to the Five Nations in the manner declared an unjustifiable infringement by the Court, the SAP is of no force and effect in its application to the Five Nations' exercise of their Aboriginal right to fish and sell fish. Rather than designing a process limited to addressing the Court's findings in Ahousaht, DFO has initiated a comprehensive process to review and replace the SAP (1999).

DFO has responded to the court decision through the development of a Multi-species Fishery Management Plan (FMP) for the Five Nations, which addresses the right to sell fish. Rather than designing a process limited to addressing the Court's findings in Ahousaht, DFO has initiated a comprehensive process to review and replace the SAP (1999).

The 2023/24 FMP may be obtained online at: https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41096605.pdf

In-season changes or announcements of specific fishery management measures including openings, closures and other relevant information will be provided by Fishery Notice.

7.2.3 TEST FISHERIES

DFO uses a range of methodologies to determine in-season stock abundance and composition. Test fisheries play an essential role in providing information to support in-season abundance estimation, driving determination of TACs and ensuring that conservation objectives are met in fisheries management. From 2007 to 2012, $58 million (Larocque Relief Funding) was provided to support the test fishery programs. In 2012, an amendment to the *Fisheries Act* granted the Minister the authority to allocate fish for financing purposes. To implement this authority, DFO adopted a two-track approach.

Track one included a transition where feasible for existing projects previously funded by Larocque relief funding to the new use-of-fish authority for a period starting April 1, 2013, pending completion of Track two.

Track two included the development of a national policy framework to provide a standardized, rigorous, and transparent process for all existing and new project evaluations and approvals. The draft National Policy for Allocating Fish for Financing Purposes has been implemented since 2013 and the Policy has recently been finalized.

Table 7- outlines the potential southern BC salmon test fisheries for 2024. These include: Fraser Panel projects for Fraser River Sockeye and Pink, Albion Chinook/Chum gill net, Johnstone Strait Chum seine, and Barkley Sound Sockeye/Chinook seine. For 2024, a final Fraser Sockeye and Pink test fishing plan will be confirmed by the Fraser River Panel prior to the start of the season.

Test fisheries and dates in this table may change pre-season. Actual test fishing dates may change in-season based on assessments of abundance and return timing.

While an objective of the use-of-fish arrangements is for fish revenues to address program costs, in a number of cases since 2013, low salmon stock abundance has curtailed test fish revenues, and alternative funding arrangements to support programs have been pursued.

Table 7-2 Potential 2024 Test Fisheries*

Test Fisheries, Southern B.C. Salmon	**Proposed Proponent**	**Test Fishery Purpose**	**Proposed dates[a]**		**Advisory process[b]**
			Start	End	
Area 20 GN	PSC Secretariat	Fraser Sockeye	12-Jul	13-Aug	Fraser Panel (primary) FN Fr. Forum[c]/IHPC

Area 20 SN	PSC Secretariat	Fraser Sockeye and Pink	25-Jul	8-Sep	Fraser Panel (primary) FN Fr. Forum[c]/IHPC
Cottonwood GN	PSC Secretariat	Fraser Sockeye	12-Jul	15-Sep	Fraser Panel (primary) FN Fr. Forum[c]/IHPC
Whonnock GN	PSC Secretariat	Fraser Sockeye	26-Jun	28 Sep	Fraser Panel (primary) FN Fr. Forum[c]/IHPC
Area 12 SN	A-Tlegay/ Namgis	Fraser Sockeye and Pink	24-Jul	7-Sep	Fraser Panel (primary) FN Fr. Forum[c]/IHPC
Area 13 SN	A-Tlegay/ Namgis	Fraser Sockeye and Pink	26-Jul	3 Sep	Fraser Panel (primary) FN Fr. Forum[c]/IHPC
Area 12 GN (Round Island)	A-Tlegay/ Namgis	Fraser Sockeye	10-Jul	11-Aug	Fraser Panel (primary) FN Fr. Forum[c]/IHPC
Area 12 SN	A-Tlegay/ Namgis	Chum	16-Sep	31-Oct	FN Fr. Forum[c]/IHPC
Qualark	PSC and Test Fisher	Fraser Sockeye and Pink	02-Jul	04-Oct	Fraser Panel (primary) FN Fr. Forum[c]/IHPC
Albion GN	3-way transitional[e]	Fraser Chinook/ Chum	21-Apr	23-Nov	FN Fr. Forum[c]/IHPC
Barkley Sound SN	Hupacasath/ Tseshaht	Somass Sockeye/ Chinook	May	Oct-31	A23 Round Table (primary)/IHPC
Skeena GN		All Salmon	10-Jun	26-Sep	IHPC

[*] For 2024, a final Fraser Sockeye and Pink test fishing plan will be confirmed by the Fraser River Panel prior to the start of the season. Test fisheries and dates in this table may change.

[a] All dates subject to change based on in-season factors. In-season information from initial TFs important to determining timing of subsequent TFs.
[b] Advisory process(es) where detailed discussion of test fisheries occurs. This does not preclude discussion and input happening through other processes.
[c] FN Fr. Forum = First Nations Forum on Conservation and Harvest Planning
[d] Dates reflect a "potential window of operation", not a start and end date.

[e] 3-way arrangement between proponent, DFO and test fisherman

Salmon Test Fisheries - Pacific Region Webpage:

https://www.pac.dfo-mpo.gc.ca/pacific-smon-pacifique/science/research-recherche/testfishery-pechedessai-eng.html

DFO will work in close collaboration with resource users to ensure that the fisheries data collections necessary to set TACs and ensure conservation will continue to be undertaken.

7.2.4 RECREATIONAL FISHERIES

Recreational fisheries are managed to maintain opportunity wherever stock status allows and to allow fisheries to be managed in a predictable manner, where possible. Under *An Allocation Policy for Pacific Salmon*, after FSC, Treaty domestic and Five Nations sale fisheries, the recreational sector has priority to directed fisheries for Chinook and Coho salmon. For Sockeye, Pink, and Chum salmon, the policy states that recreational harvesters be provided predictable and stable fishing opportunities. Recreational harvest of Sockeye, Pink, and Chum will be limited to a maximum of 5% of the combined recreational and commercial harvest of each species on a coast-wide basis averaged over a rolling five-year period.

If stock abundance information suggests that conservation objectives cannot be attained, closures or non-retention regulations will generally be applied. In some cases, recreational fisheries with a non-retention restriction in place may remain open provided the recreational fishery is not directed on any stocks of concern, nor is the impact on any stocks of concern significant in accordance with the *Selective Fishing Policy*.

Prior to a directed commercial fishery on specific Chinook and Coho stocks, the fishing plan will provide for full daily and possession limits for the recreational sector on those stocks. Decision guidelines may also identify considerations for changing the area of the fishery, modifying dates, or changing daily limits.

7.2.5 COMMERCIAL FISHERIES

Commercial fisheries are managed to optimize the economic performance of the fisheries, to provide certainty to participate where possible and to optimize harvest opportunities. However, stocks of concern will continue to constrain opportunities in many fisheries.

An Allocation Policy for Pacific Salmon provides for a commercial harvest of Sockeye, Pink, and Chum of at least 95% of the combined recreational and commercial harvest of each species on a coast-wide basis over time. Commercial harvest of Chinook and Coho salmon will occur when abundance permits and First Nations and recreational priorities are considered to have been addressed.

Please see Section 13 – Species Specific Salmon Fishing Plans for the commercial allocation plan with shares by species, fleet, and fishery production area. The ability to achieve allocations is often limited by conservation constraints and other factors. Low impact fisheries (limited number of vessels) often occur prior to those having a higher impact (full fleet), particularly at low run sizes, at the start of the run when run sizes are uncertain or when stocks of concern have peaked but continue to migrate through an area. Appendix 6 provides further information on updates to commercial sharing arrangements.

When one commercial gear type is unlikely to achieve its allocation, the usual approach will be that the same gear type, but in a different area, will be provided opportunities to harvest the uncaught balance.

Allocation targets are not catch targets for each sector. While the Department will usually plan and implement fisheries to harvest fish in accordance with allocation targets, opportunities may be provided that are different from the allocation targets. For example, in the case of Late Run Fraser River Sockeye, the Department may choose to close marine fisheries (seine, gill net, and troll) and open river fisheries (gill net) to take advantage of a low abundance of Cultus or Late Run Sockeye and a significantly larger run size of Summer Run Sockeye.

7.2.6 FIRST NATIONS ECONOMIC OPPORTUNITY AND CSAF AND INLAND DEMONSTRATION FISHERIES

The Allocation Transfer Program (ATP) facilitates the voluntary retirement of commercial licences and the issuance of licences to eligible First Nation groups in a manner that does not add to the existing fishing effort on the resource, thereby providing First Nation groups with employment, income, and increasing participation in commercial fisheries as part of relationship-building with the Department. First Nations' economic opportunities are managed under the same allocation guidelines as commercial fisheries under *An Allocation Policy for Pacific Salmon.*

Since 1994–95, when the ATP was first launched and including PICFI starting in 2007, 506 commercial licences have been relinquished for First Nation groups. For a more detailed description of First Nations' commercial fishing opportunities please refer to Section 13 — Species Specific Salmon Fishing Plans.

7.2.7 EXCESS SALMON TO SPAWNING REQUIREMENTS FISHERIES

Salmon fisheries are managed with the objective of reaching escapement targets or harvesting a certain proportion of the run. Uncertain forecasts, unanticipated differences of in-season run size estimates, and mixed-stock concerns can result in escapement to terminal areas that are in

excess of their required habitat or hatchery spawning capacity. In these cases, Excess Salmon to Spawning Requirements (ESSR) fisheries may occur.

The Department will attempt, wherever practical, to eliminate or minimize ESSRs by harvesting in the FSC and domestic use, recreational, and commercial fisheries. It is not the intention of the Department to establish new ESSR fisheries to displace existing fisheries.

First priority will be to use identified surpluses to meet outstanding FSC and domestic requirements, which cannot be met through approved FSC and domestic use fisheries. This may be done under a communal licence. As a second priority, the local band or Tribal Council may be offered the opportunity to harvest all or part of the surplus under an ESSR licence, which authorizes the sale of the surplus.

7.3 GENERAL DECISION GUIDELINES

The following comprehensive decision guidelines outline management responses that will be invoked under a range of in-season circumstances, and the general rationale to be applied in making management decisions.

Decision guidelines are meant to capture general management approaches with the intention of working towards multi-year management plans.

Specific fishing plans are described in Section 13 — Species Specific Salmon Fishing Plans.

7.3.1 PRE-SEASON PLANNING

Development of decision guidelines is part of the pre-season planning process. Development is guided by relevant departmental policies, scientific advice, consultation with First Nations, commercial and recreational harvesters, and other interests, and the experience of fishery managers and stock assessment staff.

Pre-season decisions include the development of escapement targets, exploitation rate limits, sector allocations, and enforcement objectives.

7.3.2 IN-SEASON DECISIONS

In-season decision points vary from fishery to fishery depending on type, availability, and quality of in-season information; and the established advisory, consultation, and decision-making processes. Decisions include opening and closing of fisheries, level of effort deemed acceptable, gear type restrictions, deployment of special projects, etc.

Where possible, in-season decisions will be consistent with guidelines established pre-season; however, the implementation and applicability of decision guidelines and pre-season plans can

be influenced in-season by a number of factors. These include unanticipated differences between pre-season forecasts and in-season run size estimates, unexpected differences in the strength and timing of co-migrating stocks, unusual migratory conditions, and the availability and timeliness of in-season information.

7.3.3 SELECTIVE FISHERIES

Selective fishing is defined as the ability to avoid non-target fish, invertebrates, seabirds, and marine mammals or — if encountered — to release them alive and unharmed (see *Policy for Selective Fishing in Canada's Pacific Fisheries*). Selective fishing technology and practices will be adopted where appropriate in all fisheries in the Pacific Region and there will be attempts to continually improve harvesting gear and related practices.

7.3.4 RELEASE MORTALITY RATES USED TO ASSESS FRIM

The salmon conservation and fisheries management measures in this IFMP are based on many considerations, including estimates of the mortality rates of salmon that are released from the various types of fishing gear that are used in commercial, recreational, and First Nations fisheries. Release mortality rates can vary substantially and depend on many factors, including the location of the fishery, the unique characteristics of each type of fishing gear and method, and the species of salmon that is captured and released. In April 2001 DFO announced revisions to the release mortality rates that had been used by DFO in previous years. The mortality rates applied by DFO to each gear type and fishery prior to 2001, and the revised rates announced by DFO in 2001 with some more recent revisions are summarized in Table 7-3. The revised rates reflected the results of additional research on release mortality rates that were available at that time. DFO has generally continued to use these release mortality rates each year in the development of annual fishing plans including this salmon IFMP.

DFO will review the release mortality rates currently used for salmon fisheries in Canadian waters and update Table 7-3 as new information becomes available. Since 2001 additional research has been conducted on release mortality rates of salmon, and additional fishing methods and gear types have been implemented (e.g. beach seining, recreational catch, and release study for Fraser Sockeye salmon) in some salmon fisheries. The pre-2001 release mortality rates are included for historical comparison indicating which fisheries rates have changed. The 2001 release mortality rates currently applied by DFO for salmon fisheries, in some cases, are not the same as the rates that are currently applied by the bi-lateral Chinook Technical Committee under the Pacific Salmon Treaty. The results from the DFO review of mortality rates will be used to inform any additional revisions to the release mortality rates that are required to address these issues in the development of salmon IFMPs in future years.

For post-season assessments of Chinook salmon, DFO uses the exploitation rates developed by the Pacific salmon Commission Chinook Technical Committee, which employs the mortality rates reported by the PSC (2007).

Table 7-3: Release Mortality Rates

Fishery	Pre 2001 Release Mortality Rates (for historical comparison)	Post 2001-Release Mortality Rates
First Nations Fisheries	Note: When using the same gear and methods noted below the same mortality rates were applied.	Various – Depending on gear used and fishery Gill net – 60% same as commercial below Beach seine – 5% for Sockeye and Coho in-river Fraser Modified Shallow Seine- 10% for Sockeye and Coho in-river Fraser Tooth Tangle net – 3.5″ mesh is 10% Sockeye and 15% Coho Fishwheel - 5% for Sockeye and Coho in-river Fraser
Recreational **troll gear – Sockeye, Coho, Pink and Chum**	10%	10% except 3% for Sockeye in-river Fraser
Recreational **Troll gear – Chinook**	15%	15%
Recreational mooching gear – Coho and Chinook	10% for Coho; 15% for Chinook	10% for Coho in South Coast areas; 15% for Chinook in all areas
Commercial gill net (South Coast)	60% to 70%	60% with provision for rates as low as 40% where selective techniques warrant
Commercial seine – South Coast **(Areas 11 to 29)**	15% to 25%	25% Johnstone Strait; 50%* Area 20 – Coho; 25% all areas for Sockeye
Commercial troll – All Areas	26%	10% Sockeye, 15% Coho and Chinook

Fishery	Pre 2001 Release Mortality Rates (for historical comparison)	Post 2001-Release Mortality Rates
Commercial tooth tangle net 3.5" mesh	n/a	10% Sockeye, 15% Coho

*Work by researchers from Carleton University, the University of British Columbia, and the Area B Harvest Committee in 2012 and 2013 to re-evaluated the release mortality rates for Coho caught using purse seine gear in Area 20. Results indicate that short-term release mortality. Release mortality rates are were less than the current 70% estimate used by DFO. For the 2023 fishery, the Department will use a 50% release mortality rate estimate for planning purposes subject to at-sea-observer coverage to assess Coho encounter rates and fish condition during any commercial fishery openings.

8 COMPLIANCE PLAN

8.1 COMPLIANCE AND ENFORCEMENT OBJECTIVES

CONSERVATION AND PROTECTION PROGRAM DESCRIPTION

Conservation and Protection (C&P) is mandated to protect fisheries, waterways, aquatic ecosystems and resources from unlawful exploitation and interference. Fishery officers provide compliance promotion and enforcement services in support of legislation, regulations and management measures implemented to achieve the conservation and sustainable use of Canada's aquatic resources, the protection of species at risk, fish habitat and oceans.

In carrying out activities associated with the compliance and enforcement of Pacific salmon fisheries, outlined in this management plan, C&P will utilize intelligence-led and principle-based approaches and practices consistent with the *Three Pillars of the C&P National Compliance Framework* and the *DFO Compliance Model*:

I. Voluntary **compliance promotion** through education, stewardship and stakeholder engagement;

II. Intelligence-led **monitoring, control and surveillance** activities;

III. Management of **major cases /special investigations** in relation to complex compliance issues.

8.2 REGIONAL COMPLIANCE PROGRAM DELIVERY

C&P utilizes a broad scope of activities to deliver compliance and enforcement services within Pacific Region salmon fisheries. The main activities of C&P include:

Prioritizing compliance and enforcement measures that support DFO management objectives which aim to sustain the salmon stocks and fisheries;

Prioritizing achieving growth indicators for enforcement and compliance activities set out by PSSI;

Developing and maintaining positive relationships with First Nations communities, recreational groups and commercial interests through dialogue, education and shared stewardship;

Ensuring the development and supporting of a professional fishery officer complement that is skilled, well-equipped, well-informed, safe and effective;

Ensuring that salmon fisheries participants are aware of their obligations to comply with the various Acts, Regulations and licence conditions.

Inspecting fishers, vessels, vehicles, totes and containers, fish processors, cold storage facilities, restaurants and retail outlets to verify compliant product and compliance with Federal and Provincial Acts and Regulations.

Collecting and analyzing required samples for inspection or investigative purposes

Conducting high-profile fishery officer presence during patrols by vehicle, vessel and aircraft to detect and deter violations;

Maintaining a violation reporting 24-hour hotline to facilitate the reporting of violations;

Supporting traceability initiatives within the salmon fishery for enhanced accountability, e.g., monitoring and verifying salmon catches and offloads to ensure accurate and timely catch reporting and accounting, including coverage of dual-fishing opportunities;

Collecting and utilizing intelligence to identify and target repeat and more serious offenders for enforcement effort, including laundering and illegal sales of salmon;

Use of enhanced surveillance techniques, technology and covert surveillance techniques as a means to detect violations and gather evidence in salmon fisheries-of-concern;

Responding to the most serious habitat violations identified by the DFO Fish and Fish Habitat Protection Program;

Continue to utilize restorative justice forums to reduce harm to fisheries, species-at-risk, and fisheries habitat.

8.3 CONSULTATION

Education, information and shared stewardship activities are the foundation for achieving voluntary compliance. C&P fishery officers regularly participate in consultations with resource users and the general public. C&P participates in all levels of the advisory process and is committed to including local fishery officers to provide users and the community-at-large with specific information related to compliance and enforcement perspectives. C&P will continue to meet with individual First Nations at the local level through the First Nations Liaison Program and with First Nations planning committee meetings where many First Nations gather.

8.4 COMPLIANCE STRATEGY

Salmon fishery compliance and enforcement continues to be a significant priority for C&P. Concurrent to the salmon season, compliance and enforcement attention may be required to address violations related to fisheries habitat, shellfish harvest in contaminated areas, Whale initiative/response and the protection of species at risk. In order to balance multiple program demands, C&P applies a risk-based integrated work planning process at the Regional and Area levels. This process identifies priorities so that resources are allocated to the areas of greatest need.

9 PERFORMANCE/EVALUATION CRITERIA

This section is intended to outline measurable indicators to determine whether or not those management issues outlined in IFMP are being addressed. These indicators may include those specifically developed for the IFMP, as well as from existing evaluation processes.

Potential performance indicators will be required for assessing conservation and fishery sustainability, WSP objectives, domestic and international objectives, First Nations, commercial and recreational objectives, allocation objectives, enhancement objectives, and other indicators of interest.

The Department intends to work collaboratively with First Nations and stakeholders to review existing and/or develop new performance indicators that should be included as part of the performance/evaluation criteria.

The results of the previous year's annual review follow below:

9.1 2023/2024 POST-SEASON REVIEW FOR STOCKS OF CONCERN

NOTE: The objectives shown in **bold** below is the wording from the previous year's Integrated Fisheries Management Plan.

9.1.1 LOWER STRAIT OF GEORGIA CHINOOK

2023/2024: The objective for Lower Strait of Georgia (LGS) Chinook in 2023 was to continue a shifted focus from the Cowichan fall run population, which has shown signs of recovery, to summer run populations in the Nanaimo and Puntledge watersheds.

The Cowichan River is the primary indicator of marine survival and exploitation for the LGS fall Chinook.

In 2023, Chinook returns to the Cowichan River were well above target, continuing the upward trend since the low point in 2009, see Section 6 for more information. The preliminary estimated return was 35,323 (all ages) including 424 collected for Cowichan River Hatchery brood. Approximately 37% of the natural spawners (11,439 of 31,294) were estimated to be age 2+ ('jacks') while age 3 fish represented 34% of the adult return although final aging data is still in prep. Hatchery production present in the adult return was estimated at 3.5% using adipose clip rates from video collected at the fence and Skutz Falls. With an estimate of 19,855 adult natural spawners, this is the eighth consecutive year since 1997 that the total adult natural spawner abundance was above the S_{msy}. This level of return is in the WSP Green zone. The upper WSP abundance benchmark (S_{msy}: spawners at maximum sustained yield) is 6,500 adults and the

lower benchmark (S_{gen}: spawners required to get to S_{msy} within 1 cycle) is approximately 1,300 Chinook.

For the Cowichan indicator stock, the most recent 5 year (2016-2020) average total fishery mortality (CYER) is 46.4% (range 17.8%-72.4%) including an average of 37.1 (range 14.8%-55.1%) in Canadian ocean fisheries. Coded wire tags from Cowichan Chinook are regularly recovered from rivers other than the Cowichan.

The escapement estimate for Nanaimo River fall run Chinook return in 2023 based on snorkel observations was 2,287 adults before the AUC expansion. Observer efficiency, distribution and residence time appeared to be affected by abnormally low fall flows once again. A high rate of pre-spawn mortality occurred in 2016 due to ich but was not observed in the last six years. In addition, 350 summer run Chinook were observed returning to the river, including 346 adults (63 broodstock) and 4 jacks. Summer run returns to the Puntledge River were similarly low at 200, including 183 adults and 17 jacks.

9.1.2 WEST COAST OF VANCOUVER ISLAND (WCVI) CHINOOK

2023/2024: The objective for West Coast of Vancouver Island (WCVI) Chinook was to manage Canadian ocean fisheries (specified below) to an exploitation rate of 10%. The objective for North Coast Chinook was to manage in accordance with the allocation policy, and to manage the northern troll fishery to a WCVI Chinook exploitation rate of 3.2%.

Management actions continued in 2023 for WCVI Chinook. Exploitation rates are determined post-season from Coded Wire Tag (CWT) data gathered from these fisheries. The exploitation rate limit includes Chinook kept, as well as an estimate of fishing related mortalities of released fish.

The time and area management actions for the WCVI troll fishery are designed to maintain negligible impact on returning natural WCVI Chinook stocks. The WCVI troll fishery was restricted to 5 nautical miles offshore in PFMA's 123-126 and 2 nautical miles offshore in Area 127 during the time when WCVI stocks are returning to their natal streams.

Changes to the management of the recreational fishery within the 1 nautical mile management corridor were implemented in 2016 and have continued since, changing from size limit management to a network of open or closed areas. In more terminal inshore areas, conservation measures included a combination of maximum size limits, Chinook non-retention areas and finfish closures depending on the level of concern for local stocks. Fraser Chinook conservation measures in 2023 will have likely reduced harvest pressure in non-terminal interception areas.

2022 WCVI Chinook exploitation rates estimated by CWT are as follows: Northern troll fishery —— 2.2%, Haida Gwaii recreational fishery – 2.0%, WCVI Troll fishery – 0.7%, and the WCVI

recreational fishery – 3.0% for a total of 7.9%. 2023 WCVI Chinook exploitation rate estimates will be available in the final IFMP.

9.1.3 FRASER RIVER SPRING 4_2 CHINOOK

2023/2024: For 2023 the objective for Fraser River Spring 4_2 Chinook was to manage Canadian fisheries in a highly precautionary manner to allow as many fish to pass through to the spawning grounds as possible.

Specific fishery management actions are implemented annually to protect the Spring 4_2 Chinook management unit. The evaluation of these actions is based, in part, on the exploitation rate analysis provided by fishery for CTC indicator stocks. This annual analysis uses coded-wire tag (CWT) recoveries from indicator stocks to represent the impacts on all stocks within the management unit. The CWT indicator stock for the Spring 4_2 management unit is Nicola River. The preliminary 2023 mortality table for the Nicola River indicator stock will be available in the final IFMP.

The post-season terminal run size estimate (based on outputs from the Fraser River Run Reconstruction model) for 2023 will be available in the final IFMP. The 2023 CTC index of spawning escapement will be available in the final IFMP. This value represents the escapement to a subset of the total number of populations, which are surveyed annually to provide a reliable index of the escapement for use by the Chinook Technical Committee of the Pacific Salmon Commission.

9.1.4 FRASER SPRING 5_2 AND SUMMER 5_2 CHINOOK

2023/2024: For 2023, the objective for Fraser River Spring 5_2 and Summer 5_2 Chinook was to manage Canadian fisheries in a highly precautionary manner to allow as many fish to pass through to the spawning grounds as possible.

The abundance of Spring and Summer 5_2 Chinook returning to the Fraser River is estimated in-season based on Chinook catch observed in the Albion test fishery. In 2023, updates of the predicted return were released in-season for information purposes only, as management measures were not planned to be updated in-season based on a zoned management approach given conservation concerns for Fraser River Spring and Summer 5_2 Chinook.

The post-season terminal run size estimate (based on outputs from the Fraser River Run Reconstruction model) for 2023 will be available in the final IFMP.

The 2023 CTC index of spawning escapement, will be available in the final IFMP. This value represents the escapement to a subset of the total number of populations, which are surveyed

annually to provide a reliable index of the escapement for use by the Chinook Technical Committee of the Pacific Salmon Commission.

For 2019-2022, fishery mortality indices for these populations were developed based on the Fraser River Run reconstruction and application of genetic stock identification (DNA) to marine catch and release data. Information for the 2023 fishery is not yet available. Estimates of CWT-based exploitation rates are not available for these populations as there are no current CWT indicators for these management units.

The Department will be engaging with the Fraser Salmon Management Council to develop a technical process to review Chinook mortalities from the 2023 season in the fall of 2024. Outcomes from this work will be used to inform future management actions. Information on Chinook mortalities from the 2023 season will be provided at the 2024 post-season review.

9.1.5 HARRISON RIVER CHINOOK

2023/2024: The biologically-based escapement goal for Harrison Chinook is 75,100 Chinook.

The 2023 Harrison (natural) escapement estimate will be available in the final IFMP.

9.1.6 INTERIOR FRASER RIVER COHO

2023/2024: The objective for Interior Fraser River Coho (including Thompson River Coho) was to manage Canadian fisheries in a highly precautionary manner with fisheries management measures similar to those in place prior to 2014. This approach is expected to achieve an overall Canadian exploitation rate within the 3% to 5% range.

The preliminary natural origin spawning escapement estimate of Interior Fraser River Coho salmon for 2023 will be available in the final IFMP. The pre-season recruitment forecast for 2023 was estimated at 87,100 Coho with an 80% forecast range of 74,500-130,500. The preliminary 3-year geometric mean spawner abundance for 2021-2023 may exceeded the long-term conservation objective of 40,000 Interior Fraser River Coho, as 2021 and 2022 exceeded the objective. In relation to the Pacific Salmon Treaty reference points for Interior Fraser River Coho, the escapement portion of the moderate aggregate MU goal was met in each of 2020-2022 but not the survival portion. IFR Coho smolt-to-adult survival was above 3% for the first year in 2021 (3.2%) but the 2022 survival was estimated at 1.7%, which will result in the MU remaining in Low status for 2024 as three consecutive years of >3% are required. The preliminary 2023 survival estimate will be available in the final IFMP.

9.1.7 CULTUS LAKE SOCKEYE

2023/2024: For 2023, early planning and development of the IFMP through the consultation process identified a high likelihood that the short-term minimum recovery objectives (1 and 2) for Cultus Lake Sockeye would not be met, due to the low pre-season forecast range and environmental factors. At run sizes for the entire range of the forecast level, the maximum allowable exploitation rate for Cultus Lake Sockeye would be limited to the low abundance exploitation rate (LAER) of 10% and equal to the ER for the Late Run aggregate. The exploitation rate on Cultus Lake Sockeye was intended to allow for fisheries on more abundant co-migrating stocks and species while planning fisheries to minimize impacts on Cultus Lake Sockeye.

The Department consulted pre-season with First Nations and stakeholders on an updated management approach for Late Run and Cultus Lake Sockeye in 2023. Given the predicted low return of Late Run Sockeye, managing up to the LAER of 10% was anticipated to promote conservation while still providing flexibility for fishing opportunities for First Nations, commercial and recreational fishers if returns were sufficient. In addition, Science provided preliminary advice regarding the status of Cultus Lake and the lake's inability to support production of wild Sockeye. Based on the in-season returns, the Department decided to manage well below the LAER in order to help as many Cultus Sockeye reach the spawning grounds as possible and provide the best opportunity to reach brood targets.

Brood targets were defined by Science in conjunction with SEP. For the migration period, SEP attempted to retain the required number of adults to meet genetic integrity requirements while also allowing some Sockeye to migrate into the lake to spawn naturally.

The preliminary 2023 post-season exploitation rate estimate for Cultus Lake Sockeye is less than 2.0%. This estimate may change dependent on post-season run size assessment evaluations. The preliminary escapement to the Sweltzer fence of 1,241 Cultus Lake Sockeye includes 132 through the fence plus an additional 31 retained for enhancement. The escapement to the fence was approximately 123% of the brood year escapement of 132 (including brood stock).

9.1.8 SAKINAW LAKE SOCKEYE

2023/2024: The objective for Sakinaw Lake Sockeye was to stop their decline and re-establish a self-sustaining, naturally-spawning population.

Less than two adult Sockeye returned to Sakinaw Lake, each year, over a four year period (2006-2009). Captive brood-based fry have been released to enhance Sakinaw Lake Sockeye since 2007. These second generation captive brood fish from Rosewall Hatchery were able to find the historical spawning beaches which had been cleaned and cleared of small debris in preparation

for their arrival. Recent year escapements, hatchery fry releases, and the number of smolts counted out of the lake are highlighted in Table 9-. The use of captive brood-based enhancement has prevented the extirpation of this stock in the wild; although, if current marine survival conditions continue, we will not reach the recovery objective in the near term.

In 2023, 121 adult Sockeye returned to Sakinaw Lake from 169,190 smolts that left in 2021. Marine survival continues to be extremely low; for the 2021 ocean entry year, the smolt-to-adult survival was 0.07% for hatchery origin fish while too few natural-origin smolts were present in 2021 to generate an estimate. Returns from an experimental release of Sakinaw smolts at Big Qualicum were approximately five times higher at 0.42% suggesting a localized survival bottleneck may exist.

Expectations for 2024 are for a lower return considering smolt production in 2022 was below average at 68,036 (10 year average is 114k). If marine survival is near the 4-year average for the 2022 ocean entry year, 69 adults are forecast to return in 2024.

Table 9-1: Recent year escapements, hatchery fry releases and smolts counted leaving Sakinaw Lake, by brood year.

Brood year	Adult escapement	Hatchery fry releases (brood year +1, X1000)	Smolts leaving the lake (brood year +2)		Predominant return year (brood year +4)
			Hatchery origin	Natural origin	
2013	114	320	16,465	632	2017
2014	452	645	78,156	722	2018
2015	695	329	30,088	4,783	2019
2016	171	256	33,442	11,860	2020
2017	12	530	83,928	1,083	2021
2018	3	774	209,044*	UNK***	2022
2019	13	633	169,190**	UNK ***	2023
2020	85	617	65,756*	2280	2024
2021	175	778	138,479**	UNK***	2025
2022	213	311			2026
2023	121				2027

* A large proportion of fry released in 2019 (Brood Year 2018) were not clipped and only 3 adults returned to spawn naturally. Therefore, all of the smolts leaving in 2020 are considered hatchery origin.

** A small portion of the 2021 and 2023 smolts (2019 & 2021 brood year) were of natural origin (only 13 Sockeye returned to spawn in 2019; all 2019 brood year fry were not clipped).

*** Natural production unable to be estimated due to lack of fry clipping. Low adult returns in contributing brood year.

9.1.9 NIMPKISH SOCKEYE

2023/2024: The objective was to minimize the impact of Canadian fisheries during periods of low abundance.

Since 2015, DFO has worked in partnership with the 'Namgis First Nation on a lower river in-season assessment program for Nimpkish Sockeye. The objective of the program is to develop high quality estimates of Sockeye abundance entering the Nimpkish River to support in-season management of this stock. The program involves the installation of two deflection weirs in the lower river to concentrate the migration of Sockeye to areas that can be monitored and recorded using a DIDSON acoustic system. This assessment program continued in 2023.

In 2023, there were no directed First Nation FSC, commercial and recreational Fraser River Sockeye fisheries in Johnstone Strait and Queen Charlotte Strait that could encounter Nimpkish Sockeye. A small First Nations FSC harvest occurred on Sockeye in the Nimpkish River.

Results show escapements were ~22,527 Sockeye to the Nimpkish River in 2023.

9.1.10 INTERIOR FRASER RIVER STEELHEAD

Based on their migration timing, Interior Fraser River Steelhead are assumed to be encountered primarily in fisheries targeting southern BC Chum, but also to some extent Late-run Fraser Sockeye, Fraser Pinks, and various southern BC Chinook populations that return in the fall months. The aggregate run of Thompson, Chilcotin and other Interior Fraser River summer Steelhead stocks normally peak in Johnstone Strait and Juan de Fuca Strait in late September. The peak of the run in the lower Fraser River test fishing area near Fort Langley is in mid-October and the run normally extends through the month of October and into mid-November at that location.

Returns of Interior Fraser River (IFR) Steelhead continued to be poor in 2022/2023. Preliminary spawning estimates for the 2022/2023 run of IFR Steelhead were reported by the Province of BC throughout the fall of 2022; These estimates suggested these populations remain in a state of extreme conservation concern.

Post-season spawning escapement estimates for the 2022/2023 return (which spawn in the spring of 2023) are anticipated to be available from the Province of BC in June or July 2023. Recommended recovery targets for these populations are 938 for Thompson River population and from 562 to 744 for the Chilcotin River population. The time series of spawning escapement for Interior Fraser Steelhead return migration years 1970 to 2021 (spring-time spawning years 1971 to 2022) is shown in Figure 9.1.

Figure 9.1-9-1: Historic trend of Interior Fraser River Steelhead spawner abundance*

*Note that Steelhead spawn in the spring following the year of their return migration. For example, Steelhead that migrated in 2017 did not spawn until the spring of 2018. Field programs that estimate the number of spawners are completed summer in the year following return migration.

9.1.11 INSHORE ROCKFISH

2023/2024: The management objective for inshore rockfish species (which include Yelloweye, Quillback, Copper, China, and Tiger) is to continue conservation strategies that will ensure stock rebuilding over time. These species are currently non-retention in the commercial salmon troll fisheries.

A rebuilding plan remains in effect for the Inside stock of Yelloweye Rockfish; however, rebuilding plans are no longer required for Bocaccio and the Outside stock of Yelloweye Rockfish with both stocks being managed under the Groundfish Integrated Fisheries Management Plan as of February 21, 2024. More information is available in Appendix 9 of the Groundfish IFMP.

The Department is working collaboratively with all fishing interests to achieve rockfish conservation and rebuilding. For the salmon troll, recreational, and FSC fisheries, the current

emphasis is on increasing awareness, given the limited data available on catch. Current work with these fisheries is focused on:

- Improving rockfish identification among fishers, technicians, guides, lodges, creel surveyors, and other catch monitors; and
- Improving fishery monitoring and catch reporting of rockfish by species.

9.2 2023/2024 Post Season Review for Access and Allocation Objectives

9.2.1 INTERNATIONAL OBJECTIVES

The objective was to manage Canadian treaty fisheries to ensure that obligations within the Pacific Salmon Treaty (PST) are achieved.

Review and performance of the PST provisions for Sockeye, Coho, Chum and Chinook salmon occur annually at bilateral meetings. Results of the meetings are published in the annual post-season reports available from the Pacific Salmon Commission (PSC). More information is available on the PSC website at: http://www.psc.org/index.htm

9.2.2 DOMESTIC ALLOCATION OBJECTIVES

The objective was to manage fisheries in a manner that is consistent with the Allocation Policy for Pacific Salmon and the Pacific Salmon Commercial Allocation Implementation Plan.

Fisheries were generally conducted in a manner consistent with the Allocation Policy for Pacific Salmon. Post-season reviews were conducted to provide information on stock status, catches and other fishery information.

9.2.3 FIRST NATIONS OBJECTIVES

The objective was to manage fisheries to ensure that, after conservation needs are met, First Nations' food, social and ceremonial requirements and treaty obligations to First Nations have first priority in salmon allocations in accordance with the Allocation Policy for Pacific Salmon.

Harvest opportunities for First Nations FSC fisheries in the South Coast and Fraser River in many cases did not meet expectations and were affected by conservation measures that restricted opportunities, particularly for Fraser Chinook and Sockeye. As in recent years, restrictions were implemented to protect at least 90% of the Early Stuart component through a rolling window closure as well as very limited opportunities targeting all other Fraser River

Sockeye given low returns. Restrictions were also in place to protect Spring and Summer run Fraser Chinook, Interior Fraser River Coho, Sakinaw Lake and Nimpkish River Sockeye, Interior Fraser River Steelhead, WCVI Chinook, and Lower Strait of Georgia Chinook. Closures to protect Interior Fraser River Coho also benefited lower Fraser Coho, which were also a stock of concern. FSC and treaty fisheries targeting Somass Sockeye stocks were generally successful, while success in other WCVI FSC fisheries were variable.

9.2.4 RECREATIONAL AND COMMERCIAL OBJECTIVES

The objective was to manage fisheries for sustainable benefits consistent with established policies.

The primary objective in the recreational fishery was to maintain the expectation and opportunity to catch fish in a stable manner. Significant Chinook non-retention measures were implemented in most South Coast Areas to address conservation concerns for wild Southern BC, including Fraser River, Chinook Salmon. Sockeye recreational fisheries were closed until open, and low in-season abundance estimates for Fraser Sockeye constrained these fisheries. In 2023, Chum recreational fisheries in the Fraser River mainstem were subject to an end date of November 30 and non-retention on the tributaries until the release of the in-season terminal run size estimate. All South Coast fisheries were subject to the Interior Fraser River Steelhead window closure.

In the commercial fishery, harvest opportunities were planned based on the identification of commercial surpluses and based on the commercial allocation plan. Longer-term closures or additional mitigation measures were implemented in some areas where there are significant conservation concerns for salmon stocks. These closures are expected to remain in place until there is clear evidence of stock growth and abundance above levels associated with the critical zone or Wild Salmon Policy red zone. Overall, commercial catches were low in 2023 due to poor returns and conservation measures in place for stocks of concern.

9.3 2023/2024 POST SEASON REVIEW OF COMPLIANCE MANAGEMENT OBJECTIVES

Fishery officers carry out inspections on vessels, buying stations, processors, transporters, cold storage facilities, brokers, restaurants and retailers. In-season and future compliance and enforcement activities are adjusted, in consideration of the outcomes of the inspections program. The annual post-season review of the inspection program further informs C&P about the successes of the program and where to align resources to provide the greatest value to Canadians.

10 SOUTHERN BC FIRST NATIONS FISHERIES

First Nations fisheries take place using a variety of gear types and methods depending on the location of the fishery. Marine fisheries may take place using larger communal gear types such as seine or gill nets. More terminal marine fisheries and in-river fisheries may take place using gear types ranging from seine nets and gill nets to dip nets and gaffs. The type of gear and how it is used is selected based on the location of the fishery, the target stocks and the objectives and preference of the fisher.

First Nations fisheries are managed to provide opportunity wherever possible subject to conservation concerns and to provide priority, after conservation, over other users of the resource.

10.1 CANADA AND FIRST NATION LONG-TERM AGREEMENTS – TREATIES AND RECONCILIATION AGREEMENTS

10.1.1 TREATIES & SELF GOVERNMENT AGREEMENTS

There are four modern treaties in British Columbia, which all have fisheries chapters: Nisga'a Final Agreement, Tsawwassen First Nation Final Agreement (TFA), Maa-nulth First Nations Final Agreement (MNA), and Tla'amin (Sliammon) Nation Final Agreement. Through these treaties, Nations work with DFO to manage treaty fisheries on an annual basis. There are also historic treaties in British Columbia (Douglas Treaties and Treaty 8). For a detailed list of treaties in BC and Yukon, please see the internet at https://www.pac.dfo-mpo.gc.ca/abor-autoc/treaty-traites-eng.html.

Eleven of the Fourteen Yukon First Nations have Final and Self-Government Agreements derived from the Umbrella Final Agreement (Champagne and Aishihik First Nations, First Nation of Na-cho Nyäk Dun, Teslin Tlingit Council, Vuntut Gwitchin First Nation, Little Salmon/Carmacks First Nation, Selkirk First Nation, Tr'ondëk Hwëch'in, Ta'an Kwäch'än Council, Kluane First Nation, Kwanlin Dün First Nation, Carcross/Tagish First Nation). There are also two Transboundary treaties: the Gwich'in and Inuvialuit of the Northwest Territories have land claim agreements that identify their land and rights in Yukon. Many of these treaties have fisheries provisions.

Fisheries chapters in modern treaties articulate a treaty fishing right for domestic purposes that is protected under Section 35 of the *Constitution Act*, 1982. In addition, some modern treaties contain provisions that enable those Treaty First Nations to make laws relating to certain internal aspects of their fisheries. Negotiated through a side agreement, some modern treaty

First Nations have commercial access through a Harvest Agreement outside of the constitutionally protected treaty. See Section 10.3.2 for a description of these agreements.

10.1.2 COLLABORATIVE FISHERIES MANAGEMENT

In July 2019, the Department signed a co-management agreement with the Fraser Salmon Management Council. Further information on the Fraser Salmon Collaborative Management Agreement can be found in Section 3.6.2.

10.1.2.1 FORUM

In January 2008, Fisheries and Oceans Canada staff initiated a series of Forums with First Nations throughout the South Coast and the Fraser River watershed to discuss possible management approaches for the upcoming season in the case that there are insufficient salmon returns to meet FSC requirements. Forums have occurred annually since this time with the aim of furthering discussions on management principles and approaches for Fraser salmon, with meetings generally occurring in January, March and April of each year.

As a result of the implementation of the Fraser Salmon Collaborative Management Agreement, the joint DFO-First Nation Forum Planning Committee is working to consider how the objectives and structure of the Forum may change to better reflect the new collaborative management agreement. The Forum Planning Committee is working to update their Terms of Reference and the Forum Terms of Reference, and will provide more information, when available, at https://frasersalmon.ca/. The Joint Technical Working Group (JTWG) is a Tier 2 group composed of technical staff from First Nations and DFO. They meet the day before each Forum to review and discuss information and data related to managing salmon in the Fraser River. The intent of the JTWG has been to provide a venue to discuss relevant subject matter that strives to enhance a collective understanding of fisheries management and conservation and in-turn further support the participants of the JTWG, their constituents and more broadly, the Forum meetings.

10.1.2.2 RECONCILIATION AGREEMENTS

In addition to negotiating treaties, the Government of Canada and Indigenous peoples can also negotiate Recognition of Indigenous Rights and Self-Determination (RIRSD) agreements, to explore new ways of working together to advance the recognition of Indigenous rights and self-determination. These agreements are led by Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). DFO can also negotiate Fisheries Resources Reconciliation Agreements directly with First Nations to enhance First Nations and DFO collaborative governance and management on fisheries, marine and aquatic matters.

Reconciliation agreements work within the legislative framework of the *Fisheries Act*. The Act provides the Minister of Fisheries, Oceans and the Canadian Coast Guard with the legislative authority for the proper management and control of the fisheries, the conservation and protection of fish, and regulation of the fishery.

Since 2019, the Government of Canada entered into several framework agreements with First Nations that lay the foundation for incremental development and implementation of new arrangements for collaborative governance on fisheries and marine matters. A 'framework agreement' sets out the subject matter for negotiation and describes how negotiations will proceed towards a final agreement. A final reconciliation agreement includes substantive commitments the Parties have agreed to implementing and governs the relationship between the Parties for its term of the agreement.

See the BC Treaty Commission at https://www.bctreaty.ca/index.php and CIRNAC for more information on current treaty tables at https://www.rcaanc-cirnac.gc.ca/eng/1100100028574/1529354437231 and for current RIRSD tables at https://www.rcaanc-cirnac.gc.ca/eng/1511969222951/1529103469169.

Framework Agreements:

- *GayG̲ahlda "Changing Tide" Framework Agreement* between Haida and Canada
- *Reconciliation Framework Agreement for Fisheries Resources* between A-Tlegay Member Nations (We Wai Kai Nation, Wei Wai Kum First Nation, Kwiakah First Nation, Tlowitsis Nation, and K'ómoks First Nation) and Canada

Reconciliation Agreements:

- *Haíłcístut Incremental House Post Agreement* between Heiltsuk and Canada
- *Coastal First Nations Fisheries Resource Reconciliation Agreement* between Canada and Metlakatla, Gitxaala, Gitga'at, Kitasoo/Xai-Xais, Nuxalk, Heiltsuk, Wuikinuxv, and Haida Nations
- *Gwets'en Nilt'i Pathway Agreement* between Tsilhqot'in, Canada and BC
- *Burrard Inlet Environmental Science and Stewardship Agreement* between Tsleil-Waututh Nation and Canada
- *Fraser Salmon Collaborative Management Agreement* between the Fraser Salmon Management Council, consisting of 76 First Nations, and Canada
- *Incremental Reconciliation Agreement for Fishery Resources* between Canada and the Five Nu-cha-nulth Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowchat/Muchalaht, Tla-o-qui-aht Nations)

As DFO and First Nations develop and implement new fisheries and collaborative governance arrangements, DFO works with these Nations to engage neighbouring First Nations and stakeholders (e.g., commercial and recreational sectors).

10.1.3 ABORIGINAL FISHERIES STRATEGY (AFS)

The AFS was implemented in 1992 to address several objectives related to First Nations and their access to the resource. These included:

- Improving relations with First Nations
- Providing a framework for the management of the First Nations fishery in a manner that was consistent with the Supreme Court of Canada's 1990 *Sparrow* decision
- Greater involvement of First Nations in the management of fisheries
- As of April 1, 2011, no further federal funding has been budgeted for Allocation Transfer Program (ATP) in the Pacific Region. As a result, the ATP inventory of access is fully distributed to coastal First Nations on an annual basis. ATP will continue as a source of distribution of communal commercial licences; however, the Department does not plan to acquire any additional licences. Applications or commercial fishing business plans are being kept on file and will be considered should any further licences and quota become available in the Pacific Region

The AFS continues to be one of the principal mechanisms – in addition to Treaties, that supports the development of relationships with First Nations including the consultation, planning and implementation of fisheries, and the development of capacity to undertake fisheries management, stock assessment, enhancement and habitat protection programs.

10.2 COMMUNAL LICENCES

First Nations opportunities to harvest salmon for food, social and ceremonial (FSC) purposes are provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings and describe the FSC fishery's details including the dates, times, methods, and harvest locations. Communal licences for Southern Coastal First Nations are typically multi-species and are issued on an annual basis. Shorter duration amendments to licences are also issued on occasion. For Fraser River First Nations, licences are typically of shorter duration, and are issued to provide for specific First Nations' salmon fisheries openings. Fisheries and Oceans Canada seeks to provide for the effective management and regulation of First Nations fisheries through the negotiation of mutually acceptable and time-limited

Fisheries Agreements, frequently referred to as AFS agreements. Where agreement is reached, agreed-to fisheries provisions may form the basis of the communal licence issued by DFO. Where agreement cannot be reached, Fisheries and Oceans Canada will issue an Aboriginal communal fishing licence to the group based on DFO's best understanding of the group's Indigenous fishery and taking into account conservation requirements for the stocks in the area.

10.2.1 COMMUNAL LICENCE TARGET HARVEST ALLOCATION

Harvest target amounts for communal licences in the Fraser River and Southern BC are outlined in Table 10- below. These are initial amounts and may change through ongoing consultation and collaboration with First Nations about their communities FSC needs and how their fishing plan supports meeting those needs. Actual opportunities and catches will be dependent on, among other factors: in-season stock strength, management measures taken to ensure conservation of individual stocks, community FSC needs of all First Nations with access to the stock, and alternative sources of salmon, if preferred species are not available locally due to low abundance. Where a proposal for a change to a First Nation's FSC access is received, the Department will evaluate the proposal against the common set of principles and considerations outlined in the Pacific Region's Framework for changes to Food Social and Ceremonial Fisheries Access. The Department will consult and work with First Nations on FSC access towards a balance between the diversity and abundance of resources that are locally available, community needs and preferences, and operational management considerations. The Department's operational approach and criteria can be found online at: http://www.pac.dfo-mpo.gc.ca/consultation/fn-pn/fnfc-2014/docs/aboriginal-fishing-peches-autochtones-eng.pdf

Table 10-1: Communal Licence Harvest Target Amounts

	South Coast First Nations *	Lower Fraser Area First Nations * #	Mid/Upper Fraser First Nations	Total
Sockeye Fraser River	266,850	434,000	350,000	1,050,850
Sockeye Non-Fraser River	15,600**	0	20,000	35,600
Coho	Directed harvest may be permitted in specific areas or terminal systems where abundance permits based on in-season assessment. Restrictions on retention of Coho caught incidentally during fisheries on more abundant species or stocks where IFR Coho are present.			
Pink	48,850	129,800	9,500	188,150
Chum	139,000	92,800	0	231,800
Chinook	26,760	25,300	18,000	70,060
Total Salmon	**497,060**	**681,900**	**389,000**	**1,561,460**

* Note: Maa-nulth, Tsawwassen, and Tla'amin Treaty domestic fishery allocations are not included here.

Note: these harvest targets are initial amounts prior to any negotiated comprehensive fisheries agreement between some Lower Fraser First Nations and DFO for economic opportunities.

** Note: The 15,600 total non-Fraser Sockeye amount does not include Maa-nulth treaty allocation or the FSC quantum in the Tsu-ma-uss agreement.

10.3 INDIGENOUS COMMERCIAL FISHING OPPORTUNITIES

10.3.1 FIVE NATIONS' RIGHT-BASED SALE FISHERY

Five Nuu-chah-nulth First Nations located on the west coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) – have an Aboriginal right to fish for any species, with the exception of Geoduck, within their fishing territories and to sell that fish.

Since 2019, DFO has released an annual Five Nations Multi-Species Fishery Management Plan (FMP). The FMP provides for a right-based multi-species sale fishery that DFO considers to

accommodate the Five Nations' Aboriginal commercial fishing rights. The FMP outlines the Five Nations' fishing opportunities for salmon, groundfish, crab, prawn, Sea Cucumber and Gooseneck Barnacle and the fishery management regime.

The 2023/24 FMP is the fifth Multi-Species FMP developed by DFO since the 2018 BC Supreme Court Order and integrates changes following the 2021 BC Court of Appeal decision.

DFO and the Five Nations continue to work together to identify opportunities to harvest additional species and expand the multi-species sale fishery in future years. These opportunities will be developed, where possible, based on other access that DFO provides the Five Nations outside the FMP.

For further information, the 2023/24 FMP may be obtained online at: https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41096605.pdf

10.3.2 TREATY NATIONS HARVEST AGREEMENTS

Negotiated through a side agreement, some modern treaty First Nations have communal commercial access through a Harvest Agreement outside of the constitutionally protected treaty. The Maa-nulth and Tsawwassen First Nations each have commercial fisheries through their Fisheries Harvest Agreements. These Agreements, which are outside of Treaty, lay out commercial access (licences) and corresponding allocations that have been provided to these Treaty Nations.

Tsawwassen First Nations Harvest Agreement:
https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/consulting-withfirst-nations/agreements/harvest_agreement.pdf

Maa-nulth First Nations Harvest Agreement:

https://www2.gov.bc.ca/assets/gov/zzzz-to-bemoved/9efbd86da302a0712e6559bdb2c7f9dd/9efbd86da302a0712e6559bdb2c7f9dd/agreements/ maa_nulth_first_nations_harvest_agreement.pdf

10.3.3 ALLOCATION TRANSFER PROGRAM (ATP)

The AFS was implemented to address several objectives related to First Nations and their access to the resource. One of these objectives was to contribute to the economic self-sufficiency of Indigenous co-income, and increasing participation in commercial fisheries as part of relationship-building with the Department. Since 1994-95, when the ATP was first launched and including PICFI starting in 2007, 503 commercial licences have been relinquished for Indigenous participation.

10.3.4 PACIFIC INTEGRATED COMMERCIAL FISHERIES INITIATIVE (PICFI)

The Pacific Integrated Commercial Fisheries Initiative (PICFI) was announced in 2007 and is aimed at achieving environmentally sustainable and economically viable commercial fisheries, where conservation is the first priority and Indigenous aspirations are supported. PICFI builds on fisheries reform work begun in response to the 2004 reports of the First Nations Panel on Fisheries and the Joint Task Group on Post-treaty Fisheries, as well as subsequent discussions in a wide variety of forums that have confirmed the need for PICFI. PICFI seeks to build BC and Yukon First Nations communities' capacity to fish and operate commercial fishing enterprises (CFEs) and aquaculture businesses. It also seeks to strengthen community economic self-sufficiency within the framework of an orderly, stable integrated commercial fishery. Commercial fishing enterprises participating in PICFI can apply for funding under two different components: the first is capacity building and the second is business development. In addition, eligible First Nations in the Pacific Region can apply for aquaculture development funding, a third funding envelope in the program to support First Nations in developing their aquaculture operation.

Beginning with federal budgeting in 2017, PICFI received permanent long-term funding and as such committed to expanding the program to allow participation from a greater number of First Nations. The program provides funding and support to First Nations groups and communities in Canada's Pacific region to maximize the potential of their communal fishing enterprises and to strengthen community economic self-sufficiency within the framework of an orderly, stable integrated commercial fishery. PICFI currently receives an ongoing $22.05M annually. Commercial Fisheries Enterprises (CFE) receive a notional funding of up to $340K under the Business Development Source (BDS) funding envelope and a notional funding of up to $115K under Capacity Building Support (CBS). Beginning 2018/2019, a $1.5M Aquaculture Development Source (ADS) funding envelope was launched to support aquaculture projects under PICFI , and the annual budget increased to $1.6M in 2021/22 and was $3M in 2023/24 and 2024/25. Since 2018/19, a $4.7M fund over 5 years was initiated for the Indigenous Marine Servicing Initiative (IMSI). The IMSI is administered nationally in collaboration with PICFI to support activities including vessel servicing and marina services.

PICFI works with eligible participants, Indigenous organizations, and other stakeholders to co-design, co-develop and co-deliver the program that achieve DFO's intended results of improved outcomes for Indigenous Peoples. The six key structures in place to support to the delivery of the program and the use of a collaborative approach of co-design, co-develop and co-deliver are the Business Development Management Committee (BDMC), Business Development Team (BDT), Capacity Development & Training Advisor, Independent Third Party Evaluator (ITPE), Application Review Committee (ARC), and Special Planning Sessions. The governance of PICFI

delivery model contributes to effective collaboration with Indigenous communities. The BDMC is co-chaired by a DFO senior official and an executive of a First Nations organization (First Nations Fisheries Council) and includes other DFO personnel, Indigenous organizations, and program delivery partners to set direction, provide guidance to program delivery, and oversees work of program delivery partners. Further, key delivery partners, such as the BDT, the Training Advisor, the ITPE, and the ARC, operate at arm's length from DFO, limiting direct government involvement, which adds an element of independence to provide ongoing, transparent support to CFEs and First Nations in the program.

10.3.5 FIRST NATIONS DEMONSTRATION FISHERIES

Discussions regarding demonstration fisheries that will provide commercial opportunities for First Nations and allow for experimentation and testing of inland fisheries are on-going with First Nations and stakeholders through the Commercial Salmon Allocation Framework process. For 2024, as in previous years, the focus with First Nations will be on experimenting mainly in terminal areas on abundant stocks. These fisheries will be conducted separately from FSC fisheries, using the same harvest decision guidelines as the commercial fishery and fish harvested will be off set with licences voluntarily relinquished from the commercial fishery. The demonstration fisheries proposed are described in Appendix 6.

As part of the reform of Pacific fisheries, DFO is looking for opportunities to increase First Nations participation in commercial fisheries through an interest-driven business planning process. New planning approaches and fishing techniques will be required to ensure an economically viable fishery. In recent years some First Nations inland demonstration fisheries have occurred in order to explore the potential for inland fisheries targeting terminal runs of salmon.

10.3.5.1 TRANSITION OF FIRST NATION INLAND DEMONSTRATION FISHERIES TO COMMERCIAL FISHERIES

In 2014, an independent review and evaluation of the Pacific Integrated Commercial Fisheries Initiative (PICFI) was completed by Malatest and Associates and a number of recommendations were made.

Recommendation four was related to development a transition strategy moving demonstration fisheries to regularized fisheries. In response to the review, the Department has developed a transition strategy for the in-river First Nation demonstration component of PICFI. The Department identified criteria to be incorporated into an evaluation framework which will enable the transition of Inland First Nations Demonstration fisheries to regular commercial fisheries in the future.

A transition strategy has been approved to proceed on a case-by-case basis of successful inland demonstration fisheries developed through the Pacific Integrated Commercial Fisheries Initiative (PICFI). The evaluation criteria in the strategy will assess their sustainability and ability to meet management objectives, including the ability to harvest fish allocations, conservation objectives and fishery management requirements. If the criteria are met, the transition to an ongoing commercial fishery would occur and may be defined in an Access Agreement. This work is intended to improve consistency and transparency in how the Department assesses, implements, and reviews demonstration fisheries while supporting integrated commercial fisheries consistent with the vision and principles of Pacific Fishery Reform.

10.3.6 DUAL FISHING

Many First Nations have expressed a strong interest in conducting dual fishing to support self-determination, cultural practices and methods of fishing (particularly utilizing all fish caught); to increase flexibility in harvesting practices; to eliminate inefficiencies; and to reduce cost of conducting FSC fisheries by eliminating the need for separate fishing trips.

In 2024, DFO will be considering limited opportunities, similar to 2023, to pilot *Type B* (bycatch-type) dual fishing in salmon economic opportunity and demonstration fisheries. These pilots would enable retention of non-target bycatch for FSC purposes that the First Nation would otherwise be licenced to harvest under their FSC licenses, where there is commercial TAC identified to initiate a directed commercial fishery of a different target species. Retention of bycatch for FSC would be permitted subject to available allocation, sufficient abundance, a valid FSC licence for the fishing area, compliance with communal licence areas, and mandatory landing requirements, including any additional catch monitoring and reporting requirements to separately account for FSC and sale harvests.

DFO is engaging First Nations who have expressed an interest to explore potential bycatch-type dual fishing pilots that may be permitted in 2024. Evaluations of proposals will be conducted, informed by criteria related to four key objectives: conservation and sustainable harvest, FSC priority, orderly and manageable fisheries, and transparency and predictability. Based on these criteria, a decision on the pilots in June 2024 is expected. If a pilot is implemented, the results will be reviewed and evaluated post-season.

10.4 CATCH MONITORING AND REPORTING INITIATIVES

DFO released the national *Fishery Monitoring Policy* in 2019, replacing the regional *Strategic Framework for Fisheries Monitoring and Catch Reporting* in the Pacific Fisheries (2012). The national

policy seeks to provide dependable, timely and accessible fishery information through application of a common set of steps used to establish fishery monitoring requirements across fisheries.

The 2012 Pacific *Strategic Framework for Fisheries Monitoring and Catch Reporting* is available at: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fmp-implementation-psp-mise-en-oeuvre-eng.htm

To ensure consistent national application, further guidance is provided through the *Introduction to the Procedural Steps of Implementing the Fishery Monitoring Policy*, available at: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fmp-implementation-psp-mise-en-oeuvre-eng.htm

10.4.1 ECONOMIC OPPORTUNITY FISHERIES

Negotiations to provide economic opportunities to First Nations in Barkley Sound and the lower Fraser River will be undertaken as in recent years. Economic opportunity fisheries will be conducted under agreements that specify provisions for planning fisheries, allocations, catch reporting requirements as well as roles and responsibilities regarding the management of the fishery. The Department's general approach is that Indigenous commercial harvest opportunities are managed using the same harvest decision guidelines as the commercial fishery. Indigenous commercial harvest opportunities may be implemented with different times, areas, gears and regulations consistent with the overall management approach for the commercial fishery.

In the lower Fraser, DFO will work with First Nations and commercial harvesters to develop an approach to an integrated commercial fishery based on the principles of transparency, accountability and collaboration. Specific elements of this approach will include defined harvest shares, enhanced catch monitoring and compliance programs, some initial work on a traceability program and improved collaboration amongst harvesters.

10.4.2 ABORIGINAL HARVEST MANAGEMENT SYSTEM

Since the year 2000, Fisheries and Oceans Canada have been working with First Nations groups to design and develop electronic recording and reporting systems for First Nations FSC catch data, to improve the efficiency and accuracy of reporting FSC catch and other fishing information used by Aboriginal fishery managers and the Department. The software has incorporated recommendations from numerous First Nations members and is based on their reporting requirements within their communities and those required by the Department. The application also has a harvester designation system, allowing First Nations to track FSC effort and harvest as well as other fishing information for their members.

The initiative first utilized a Microsoft Access database used by interested First Nations groups within the Pacific Region, including the BC Interior area, South Coast and the Central Coast. In the late 2000's approximately 34 First Nations groups employed this software application with different success rates, with a few sending FSC data to DFO's Regional catch database. In 2010, work started on compiling all aspects of the 34 current MS Access databases into one (1) system called the Aboriginal Harvest Management System (AHMS) that could be customizable for each Nation's needs. Since 2010 new Nations have been brought onboard each year bringing the total in 2022 to 17 First Nation's currently using AHMS throughout the Region, with up to 6 First Nations still using MS Access databases. The current DFO Regional Database where First Nation's FSC data is managed is called KREST (the Kept and Released Estimation Survey Tool (KREST). AHMS users have the option to export data directly into KREST or submit catch reports via other means. For more information please contact Aleta Rushton at 250-230-1227.

10.4.3 CHINOOK AND COHO CODED WIRE TAG (CWT SAMPLING)

CWT target sample rates are established by the Department to meet bilateral Pacific Salmon Treaty standards. The minimum required sample rate is 20% of the estimated catch of the fishery to recover a minimum quantity of CWTs from indicator stocks. CWT sampling programs in First Nations fisheries are comparable in overall design to CWT sampling in commercial and recreational fisheries but may be different in some aspects to recognize the differences in First Nations economic or demonstration fisheries and FSC fisheries, to recognize regional differences in priorities or risk for CWT sampling, and to integrate sampling into First Nations catch monitoring programs.

In economic and demonstration fisheries, sampling for CWTs is a mandatory catch monitoring requirement in Chinook and Coho retention fisheries that intercept CWT indicator stocks. Where needed, the will:

- Count the landed Chinook and Coho catch by adipose fin-clip status of approximately 20% randomly selected landings or at fish processing plants using designated observers and sample the entire landed catch of each vessel selected to collect snouts from fish that contain CWTs, or
- Work with First Nations catch monitoring programs to establish comparable requirements.

In FSC fisheries, the success in achieving the 20% target sample rate relies on CWT sampling that is integrated into the catch monitoring program or on individual submissions of Chinook or Coho heads to local First Nations fisheries organizations, catch monitors, guardians, or to First Nations Salmon Head Depots. Sample rates may also be called submission rates in these fisheries. Essential requirements for the "head-submission-style" sampling for CWTs are:

- Submission of heads from hatchery-marked (adipose fin-clipped) Chinook and Coho. With mass marking, not all hatchery-marked Chinook and Coho contain a CWT, but the missing adipose fin is the only external clue to identify the possibility of an internal CWT.
- Completed head label(s) attached to each head with required catch information including location caught and date caught. For salmon caught together (same date and location), one label may be placed in a sealed bag with multiple heads.
- Provision of catch information by mark status (number of hatchery marked kept Chinook and Coho) to catch monitoring programs.

In head-submission-style programs, if fisher names, Nation, Band or Monitoring Organization is provided, information about the origin of their fish will be provided to individuals and First Nations when CWT dissection results are available.

For additional information about First Nations CWT Sampling Programs:
Salmon Head Recovery Program
Telephone: 1-866-483-9994 (toll-free)

11 SOUTHERN BC RECREATIONAL FISHERIES

Recreational fisheries are managed to maintain opportunity wherever stock status allows and to allow fisheries to be managed in a predictable manner, wherever possible.

11.1 RECREATIONAL VISION

In May 2018 the Sports Fish Advisory Board created *'Vision 2021' - A Strategic 10-point framework to grow Canada's recreational fishing sector on the Pacific coast.* It serves as a framework for developing initiatives and actions to support achievement of a collective vision for the recreational fishery in BC. The recreational fisheries Vision 2021 document is available from the Regional Manager Recreational Fisheries Greg Hornby at Greg.Hornby@dfo-mpo.gc.ca.

11.2 LICENCING

The recreational harvest of various fish and invertebrate species in BC is regulated via the *British Columbia Sport Fishing Regulations*, 1996 made under the *Fisheries Act*. A DFO Tidal Waters Sport Fishing licence is required for the recreational harvest of all species of fish and marine invertebrates.

Tidal Waters Sport Fishing licences may be purchased for a 1 day, 3 day, or 5 day period, or as an annual licence, covering the period April 1 (or date of purchase, whichever is later) to March 31 the following year. The annual licence fee is not pro-rated for annual licences purchased mid-season. Fees depend on licence duration, age (senior, adult, juvenile), residency status and the consumer price index (CPI) increase that is applied annually. Licences for juveniles (under 16 years old) are free. Concessionary fees are not otherwise available. There were over 297,000 adult fishers participating in BC's tidal waters recreational fishery in 2022/23.

Alternatively, licences may be purchased through Independent Access Providers (IAPs) in many areas (note that the IAP may charge an additional service fee).

Licences may also be purchased online via the National Recreational Licensing System (NRLS):

http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/licence-permis/application-eng.html.

A list of IAPs is available at:

http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/licence-permis/iap-fai-eng.html.

11.2.1 INFORMATION ON OPENINGS AND CLOSURES

The regulations for recreational fishing are provided online in the British Columbia Tidal Waters Sport Fishing Guide, which lists open and closed times, catch limits, size limits (where applicable), and open and closed areas.
Changes to regulations are issued in Fishery Notices which are posted online and sent to subscribers by email.
The printed Sport Fishing Guide booklet is no longer being produced or distributed to reduce costs and environmental impacts. The online Sport Fish Guide allows for in-season regulations to be accurately provided and ensures all the regulations are current. Staff at local DFO offices can also provide regulatory information.

The British Columbia Tidal Waters Sport Fishing Guide is available at:

http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html

Viewing Fishery Notices and application to receive Fishery Notices by email is available at:

http://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm

Contact information for DFO offices is available at:

https://www.dfo-mpo.gc.ca/contact/regions/pacific-pacifique-eng.html

For questions or comments of a general nature regarding DFO in the Pacific Region,

call 604-666-0384 or email info@dfo-mpo.gc.ca

11.2.1.1 CHINOOK HEAD-OFF CONDITION OF LICENCE

Recreational Chinook Salmon regulations specify a variety of minimum and maximum overall length thresholds. In 2022, the Department introduced equivalent minimum and maximum head-off length measurements for each threshold for Chinook and Coho to the conditions of license. This enables fishers to remove heads for transport and to contribute to the Salmon Head Recovery Program for coded wire tag recoveries prior to returning home, while allowing enforcement of size-specific daily and possession limits.

Head-off lengths for Chinook and Coho will be measured from the fork of the tail to the anterior (front) of the insertion of the pectoral fin; this measure is the same as that used to determine compliance with size limits in recreational halibut. A description of how this measure would be taken by enforcement officers inspecting recreational catches, as well as the specific head-off equivalent lengths corresponding to each overall (head-on) length used in regulations, will be specified on the Tidal Water Sport Fishing licences beginning with the 2022-23 licence season and into the future.

11.2.1.2 FISHERY NOTICES

To sign up to have recreational Fishery Notices sent directly to your email, there is a link to subscribe to fishery notices on the Fishery Notice web page. Fishery Notices include important alerts to in-season changes for areas and species, fishery openings and closures, as well as timely health advisories for e.g. marine bio toxins or fuel spills.

To view or sign-up to receive Fishery Notice notifications by email is available at:

http://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm

11.2.1.3 USING MOBILE DEVICES AND THE FISHINGBC APP

The FishingBC App, developed by the Sport Fishing Institute of BC, can be downloaded to a mobile device to assist with access to regulatory information for species, areas, fishing gear while on the water (along with other functionalities). New for 2024 –the FishingBC App may now be linked (using the internet) with your National Recreational Licensing System (NRLS) account, so as to (1) download a copy of your tidal water sports fishing licence to your mobile device, and (2) record catch (chinook salmon, halibut and lingcod) using the app catch log for real-time display to your licence on your mobile device. Note that catch records will then be automatically shared between your NRLS account and your app account. In the event of any technical issues with these new features of the app a paper licence must be used for regulatory catch recording purposes (or NRLS).

Please note: the DFO Sport Fishing Guide website is the official site for regulatory information in the event of a discrepancy with the FishingBC App. The FishingBC App may be downloaded from the App Store (Apple devices) and from the Google Play Store (Android devices). Learn more about these app features at https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/licence-permis/fishingbc-pechecb-app-faq-eng.html and at http://www.fishingbcapp.ca/

11.3 CATCH MONITORING

Following multi-sectoral consultations, DFO released the national *Fishery Monitoring Policy* in 2019, replacing the regional Strategic Framework. A phased approach to implementation of the national *Fishery Monitoring Policy* will result in a transition period from the Strategic Framework to the national policy. For more information on the new national *Fishery Monitoring Policy*, please see Section 1.6.1.4. The requirement to report catch is a condition of the Tidal Waters Sport Fishing Licence. Licence holders must report information on their recreational fishing activity and catch or provide biological samples to DFO representatives when requested.

11.3.1 CREEL SURVEYS

The Department collects information used to estimate boat based angling harvest of finfish in marine waters and salmon in fresh waters throughout BC using a variety of methods. Recreational harvesters may be requested by a Fishery Officer or designated DFO representative, such as a creel interviewer, to provide mandatory catch and effort information or biological samples either on the water or at the dock. Approximately 40,000 such interviews are conducted annually to monitor marine and freshwater recreational fishing. Creel surveys for boat based angling in marine waters are the main source of recreational catch and effort information in the highest effort fisheries.

11.3.2 INTERNET RECREATIONAL EFFORT AND CATCH (IREC) REPORTING PROGRAM

The internet Recreational Effort and Catch (iREC) reporting program is an online program that has been collecting effort and catch information from Tidal Waters Sport Fishing licence holders since July 2012. All 2023/24 adult Tidal Water Recreational Fishing licences will be selected to iREC reporting program and assigned to a reporting period. Annual licence holders are required to report for only one month to limit their reporting burden. Term licence holders are required to report for all or most of the days that their licence is valid. Information regarding the iREC reporting requirement is printed on each licence including the reporting period, the website at which to report, a unique iREC Access ID and reporting deadline. Further, licence holders with a valid email address in the National Recreational Licencing system will receive emails reminding them to complete their iREC reports. Providing complete and accurate information to the iREC program when selected is a condition of licence (i.e., mandatory requirement).

The iREC reporting program is one of the sources used in developing DFO official catch and effort estimates. The iREC reporting program methodology was peer reviewed and published by the Canadian Science Advisory Secretariat (CSAS) in 2015. This program provides monthly

estimates of effort for six fishing methods and catch for over 80 species of sport caught finfish and invertebrates in all Pacific Fishery Management Areas based on responses by Tidal Waters Sport Fishing Licence holders. The recreational fishing methods covered by the iREC reporting program include boat-based angling, angling from shore, shellfish trapping from boat and shore, beach collecting, and diving. iREC estimates are developed for methods and species not covered by the marine creel surveys, which cover only boat-based angling, and for months and areas not covered by marine creel surveys.

More information about the iREC reporting program is available at:

https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/report-declarez-eng.html

11.3.3 LOGBOOKS

Finally, the Department is continuing to work with identified groups - sport fishing guides, fishing lodges, associations – with the assistance of the Sport Fishing Institute of BC to implement logbooks in areas of highest risk or areas conducive to reporting through the use of logbooks. The latter includes areas such as the Central Coast, Kyuquot Sound, Port Hardy, Mainland Inlets, and parts of Georgia Strait where there are concentrations of lodges and guided effort.

The development of an improved catch monitoring regime, including reporting standards, will continue to be a priority in the management of recreational fisheries. The Department continues to work with the Sport Fishing Advisory Board and the Sport Fishing Institute of BC, and other identified groups - sport fishing guides, fishing lodges, and associations - to develop logbooks as a tool to collect catch and other fishing information and to report this information to the Department.

11.3.4 CHINOOK AND COHO CODED WIRE TAG (CWT) SAMPLING

Essential requirements for the sampling for CWTs in recreational fisheries are:

- Submission of heads from hatchery-marked (adipose fin-clipped) Chinook and Coho. With mass marking, not all hatchery-marked Chinook and Coho contain a CWT, but the missing adipose fin is the only external clue to identify the possibility of an internal CWT.
- Completed DFO-supplied head label(s) attached to each head with required catch information including location caught and date caught. For salmon caught together (same date and location), one label may be placed in a sealed bag with multiple heads.

- Provision of catch information by mark status (number of hatchery marked kept Chinook and Coho) to DFO catch monitoring programs such as creel interviews or iREC.

CWT target sample rates are established by the Department to meet bilateral Pacific Salmon Treaty standards. The minimum required sample rates in recreational fisheries are 20% of the estimated hatchery-marked catch to recover a minimum quantity of CWTs from indicator stocks. It is not cost effective or possible to acquire this quota through direct sampling of recreational fisheries due to the wide distribution of the fishery throughout the year and throughout the province. Instead, the success in achieving the 20% sample rate relies on head submissions by anglers to a network of Salmon Head Depots. Because of the reliance on fisher-provided samples, sample rates are also known as submission rates in recreational fisheries.

Salmon Head Depots exist at more than 250 locations in BC and are situated at marinas, tackle stores, fishing lodges, and hatcheries. Depot operators provide head labels and store the heads in freezers or buckets containing a brine solution. Servicing and maintenance of Salmon Head Depots will be delivered by a federal government contractor or by Department employees. Information about the origin of their fish will be provided to anglers, guides and depots, when CWT dissection results are available.

While the majority of CWTs are collected from submissions to Salmon Head Depots, recreational harvesters are also required as a condition of the Tidal Waters Sport Fishing Licence to provide biological samples (salmon heads) to Department representatives when requested.

For additional information or locations of Salmon Head Depots:
Salmon Head Recovery Program
Phone: 1-866-483-9994 (toll-free)
Search: DFO Salmon Head Recovery

12 SOUTHERN BC COMMERCIAL FISHERIES

Details regarding specific commercial fisheries are contained in the Section 13 - Species Specific Salmon Fishing Plans.

12.1 LICENSING

12.1.1 NATIONAL ONLINE LICENSING SYSTEM (NOLS) CLIENT SUPPORT - LICENSING SERVICES

All fish harvesters/licence eligibility holders/vessel owners are now required to use the National Online Licensing System (NOLS) to view, pay for and print commercial fishing licences, licence conditions and/or receipts.

Training materials, including step-by-step guides and a detailed user training manual, are available online (http://www.dfo-mpo.gc.ca/FM-GP/SDC-CPS/licence-permis-eng.htm) to guide users of the system in completing their licensing transactions.

The Department also provides client support and assistance on how to use the system via e-mail at fishing-peche@dfo-mpo.gc.ca or by calling toll-free at 1-877-535-7307. Telephone support is available Monday to Friday (excluding holidays) from (07:00 AM to 19:00 PM Eastern).

For more information on how to register and use the system, visit the Department's website at the website address above, or contact our client support.

12.1.2 LICENCE CATEGORY

A salmon category A or FA, licence is required to commercially harvest salmon. Salmon, category A licence eligibilities are limited entry and vessel based. Category FA licence eligibilities are party based and must be designated to a registered commercial fishing vessel that meets established length restrictions. Communal commercial category FA licence eligibilities are held by a First Nation or Indigenous group as the licence eligibility holder.

Vessels authorized to fish under the authority of a salmon licence are also permitted to catch and retain species described in Schedule II, Part 2 of the Pacific Fishery Regulations, 1993, transport species caught by other vessels, and be designated to fish under the authority of a category Z licence.

12.1.3 LICENCE CATEGORY BACKGROUND

Salmon has been a limited entry vessel based fishery since 1969. In 1996 under the Pacific Salmon Revitalization Plan, area and gear selection were introduced in the salmon fishery.

Salmon licensed vessel owners selected a gear and area for each licence eligibility. Gear selections were seine, gill net or troll. Gear selection was permanent.

Area selections for seine were area A or B; for gill net, areas C, D or E; and, for troll, areas F, G or H. A vessel may hold only one salmon licence eligibility per area. Area licensing has been a feature of salmon management since 1996 with area selections processes in 1996, 2000, 2006 and 2007. Initial area selection was for a four year period. The majority of the Commercial Salmon Advisory Board advised that, given all the uncertainties, area reselection proceed in 2007 for an indefinite period.

Licence Stacking was also introduced in 1996 as a method to decrease the number of vessels actively participating in the fishery while allow vessel owners to fish in more than one area or with more than one gear.

12.1.4 LICENCE RENEWAL FEES

Salmon licence renewal fees are available at full and reduced fee rates. Annual licence renewal fees are based on the length of the vessel. Reduced fee licence eligibilities must be held on vessels owned by Indigenous individuals.

In accordance with the Service Fees Act, annual licence renewal fees will be adjusted by the annual rate of inflation determined by the Consumer Price Index (CPI) published by Statistics Canada.

All fee payments must be made through the National Online Licensing System (NOLS).

Commercial Salmon (category AG, AT, and AS) licence renewal fees may be found on the following link: https://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/fees-frais-24-25-eng.html https://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/fees-frais-24-25-eng.html

There is no annual licence renewal fee for communal commercial (category FAG, FAT, and FAS) licences. For communal commercial licences, even though the fees are $0.00, clients are still required to add a checkmark beside the licence(s) to renew and click “Checkout” through NOLS.

12.1.5 LICENCE RENEWAL AND ISSUANCE

Renewal of a Category A licence and payment of the licence renewal fee must be done on an annual basis to retain the privilege to be issued the licence in the future, regardless of whether or not fishing is carried out. Those category A licenses not renewed by March 31, 2025 will cease and licence issuance requests will be unable to be considered in future.

Upon the Department receiving the required payment, and information, the salmon licence will be issued and notification will be sent via email to advise vessel owners/licence eligibility holders that a change has been made to the NOLS account. The salmon licence documents, licence conditions and receipt will be available to be printed at that time.

a. Prior to annual licence issuance of a communal commercial licence, licence eligibility holders are required to annually designate the registered commercial fishing vessel to hold the licence; where there is not more than one salmon licence for the same area held/designated to the vessel. This must be done by navigating to the 'Submit a Request' menu selection within the National Online Licensing System (NOLS). Where appropriate, select the account that holds the licence you are wishing to 'Submit a Request' for and mouse click on 'Select';
b. Choose the 'Request Type' 'Commercial Communal Designations (vessels and operators)' and mouse click on 'Select';
c. Select the licence(s) to be designated to the vessel by mouse clicking the check box (above or to the left of the licence description) and mouse click on 'Select';
d. In the 'Comment' box please enter the following information:
    i. Vessel Registration Number (VRN);
    ii. Vessel Name
    iii. Vessel Master name;
    iv. Other information as required for the fishery;

Please note that the overall length (OAL) of the designated vessel may not exceed the Maximum Vessel Length (MVL) associated with the communal commercial (category FAG, FAT or FAS) licence eligibility

e. Clients are advised to please check the 'Request Status' during the next 2 working days as this is how they will be advised of any problems or additional requirements.

Full instructions are available at: https://www.dfo-mpo.gc.ca/fisheries-peches/sdc-cps/products-produits/user-manual-utilisateurs-sec1-eng.html.

Prior to annual application of a salmon licence, vessel owner(s)/licence eligibility holders are required to:

- Meet any Ministerial conditions placed on the licence eligibility
- Ensure any conditions of the previous year's licence are met, such as:
    - Catch reporting requirements (i.e. all trips are closed), and that all harvest logs are submitted. Submit a nil report if no fishing occurred. For further information

contact the Commercial Salmon Catch Monitoring Unit at cscmu-usccs@dfo-mpo.gc.ca; and

- Submission of all fish slips (for further information contact the Regional Data Unit at DFO.PACCatchStatistics-StatistiquesCapturesPAC.MPO@dfo-mpo.gc.ca).

LICENCE DOCUMENTS

Salmon licence documents are valid from the date of issue to March 31, 2025.

Replacements for lost or destroyed licence documents may be obtained by reprinting the licence documents through the National Online Licensing System.

CLEARANCE AND NIL REPORTS

Logbook clearance must be obtained before an Application to Replace a Commercial Vessel, a Change of Ownership, or an Application for Salmon Licence Eligibility Stacking is processed/approved by the Pacific Fishery Licence Unit.

Please contact the Salmon Catch Monitoring Unit (CMU) at cscmu-usccs@dfo-mpo.gc.ca for further information on logbook clearance.

VESSEL REPLACEMENT (CATEGORY A ONLY)

The owner(s) of a category A licensed Salmon vessel may make an application to replace the commercial fishing vessel. Both the replacement vessel and the vessel being replaced must have a vessel measurement survey on file with the Pacific Fishery Licence Unit (PFLU) that is dated after May 1st, 1989 or submitted with the vessel replacement application. Vessels must be surveyed by a Marine Surveyor in in accordance with current Fisheries & Oceans Canada Vessel Measurement Guidelines.

A salmon licence eligibility may not be split from other vessel-based licence eligibilities.

Replacement vessels for salmon licence eligibilities where no stacking is involved, remain at the exact overall length or smaller than the existing vessel.

Where the licence eligibility is a reduced fee licence, an Indigenous individual must own the replacement vessel.

TEMPORARY VESSEL REPLACEMENT (CATEGORY A ONLY)

Temporary vessel replacements are permitted if the vessel has been declared a total loss or the vessel is out of service due to an accident or unforeseen damage. Vessels that are in disrepair at the time of purchase, have encountered delays in annual maintenance, or are being rebuilt, do not qualify for a temporary vessel replacement.

Written confirmation from an insurance company, shipyard, or marine engineer is required explaining why the vessel is inoperative.

Temporary replacement vessels may not exceed the overall length (OAL) plus 10% of the Salmon vessel being replaced

If a Salmon licence eligibility is temporarily split from other licence eligibilities, the remaining eligibilities may not be placed on a third vessel.

Temporary vessel replacement (e.g., total loss of vessel) requests are not eligible for any of the salmon stacking allowances.

Vessel replacement rules do not apply to communal commercial Salmon category F licence eligibilities, as they are designated to vessels annually.

STACKING

The owner(s) of a category A licensed Salmon vessel may make an application to stack the Salmon licence eligibility. Both the replacement vessel and the vessel being replaced must have a vessel measurement survey on file with the Pacific Fishery Licence Unit (PFLU) that is dated after May 1st, 1989 or submitted with the Salmon stacking application. Vessels must be surveyed by a Marine Surveyor in in accordance with current Fisheries & Oceans Canada Vessel Measurement Guidelines.

Applications for Salmon licence eligibility stacking may only be submitted for processing between December 1 and May 31 annually; applications will not be processed outside of this timeframe.

A salmon licence eligibility may not be split from other vessel-based licence eligibilities.

Different gear and area licence eligibilities may be combined on one vessel. That is, a vessel may hold a salmon gill net licence eligibility and a salmon troll licence eligibility or multiple salmon licence eligibilities of the same gear so long as each licence eligibility has a different area associated. A vessel may not hold more than one Salmon licence eligibility for the same area.

For the purpose of stacking licenses, **a single** salmon licence eligibility may be stacked to a vessel that is up to 30% longer in overall length than the overall length of the vessel from which the licence eligibility is being removed.

Salmon licence eligibilities that are married to other licence categories (or another salmon licence) may be stacked, but the additional 30% in overall length is not applicable and the salmon stacking cannot result in the stacking of other licence categories, except where permitted for that licence category.

An area change request may only be made at the time of submission of an application for Salmon licence eligibility stacking and the area change may only be made for the licence eligibility that is being stacked. The owner of the receiving vessel must make the request by completion of the applicable section on the form.

An area change may not result in a change to gear type. Gear selections were permanent when made in 1996 and may not be changed.

Reduced fee category A licence eligibilities may be stacked with either another reduced fee licence eligibility or a full fee licence eligibility, however, the receiving vessel must be owned by an Indigenous person.

Vessel replacement rules for Salmon licence eligibilities where no stacking is involved remain at the exact overall length or smaller of the existing vessel. **Licences eligible for temporary vessel replacements (e.g., total loss of vessel) are not permitted to be stacked.**

Category FA licence eligibilities may be stacked with any category A licence eligibility or another category FA licence eligibility, in compliance with all stacking rules except that they will not be tied to the other salmon licence eligibility. Stacking a category FA licence eligibility does not result in a change of licence area for the category FA licence eligibility.

Please visit the Salmon licence page for further information at:
http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/fisheries-peches/licence-permis-eng.html

12.2 OPENINGS AND CLOSURES

Due to uncertainty of both timing and size of returning salmon runs, many commercial openings are not confirmed until a few days prior to the actual opening. Also, the management plan for any area may change in-season. Fishing Areas and Subareas (or portions thereof), provisions for extensions, opening patterns, and the duration of the fishing season can all be adjusted based on factors such as weak stock concerns, target stock abundance, fishing effort, rate of gear selectivity, domestic allocations, and other factors.

This fishing plan is designed to minimize the incidental harvest and bycatch of a range of stocks of concern (see Section 6 – Management Objectives for Stocks of Concern). Fisheries that occur on the South Coast may be required to release all non-target species to the water with the least harm, depending on local stock concerns.

Under circumstances where there appears to be an abundance of fish that could support a commercial fishery and that fishery is not specifically addressed in the IFMP, DFO will address requests to fish as identified below:

1. Attempt to verify the abundance using available observations and information of the salmon species and to determine whether or not it could provide a fishing opportunity consistent with conservation objectives and Allocation priorities for First Nations FSC and recreational fisheries. DFO will consult with local First Nations regarding any interests or concerns they may have.
2. If 1 is addressed and there appears to be adequate numbers of fish to support some level of a commercial fishery; then a precautionary approach will be taken and information requirements will be discussed and agreed upon. Initially, a limited number of vessels may be licenced, and independent catch verification will be required with timely reporting of harvest data.
3. Regular dialogue between harvesters, DFO, and others — as appropriate — will take place throughout the fishery including whether the scope of the fishery could be increased and other relevant parameters.

DFO continues to encourage the development of demonstration fisheries that promote biologically sustainable and economically viable fisheries. Fishery managers are working with fleet advisors to develop demonstration fisheries that experiment with meeting a range of objectives including matching fleet size to the available harvest, pacing fisheries to maximize value of the harvest, and developing more cooperative fishing arrangements between harvesters.

In addition to existing demonstration fisheries reviewed and approved prior to 2016; the collaborative work of the Department, FNFC SCC, and CSAB through the initiative to update the CSAF has resulted in a common assessment process to review and develop flexible harvest arrangements (CSAF Demonstration fisheries). Additional detail on CSAF demonstration fisheries proposed for this season and information on other related work is outlined in Appendix 6.

12.3 Licence Conditions

12.3.1 TRANSPORTING

Please see Part III of the commercial salmon conditions of licence for transporting of salmon for additional details and information.

Transporting conditions for the salmon fisheries include a requirement to submit fish slips for all fish transferred to any commercial vessel transporting salmon; the requirement to maintain a salmon transfer log on board the vessel receiving fish; and a phone-in hail requirement to the DFO Fishery Manager.

The requirement to submit fish slips is currently in place for commercial salmon vessel owners/licence eligibility holders and has previously been a provincial requirement for transporting vessels. It is a federal requirement for transporting vessels to submit fish slips as a condition of licence.

The phone-in hail will alert DFO fishery managers prior to an opening that the vessel is active for transporting salmon in a fishery and will provide managers a better understanding of the fishing effort during an opening. After each opening, there is a requirement to phone the DFO Fishery Manager with information on where the transporting vessel received fish, approximate amount of fish, total number of landings, and the time and location of the final offload. No service provider is needed to deliver on this requirement currently.

The salmon transfer log will identify when, where, and from whom fish were received. This transfer log will be required to be on board the vessel and produced for examination when requested by a representative of DFO. The completed transfer log must also be submitted to the Regional Data Unit at the end of the calendar year. No service provider is needed to deliver on this requirement currently. This condition will complement the existing fish slip program and support improved enforcement of unreported harvests and unauthorized sales in the commercial salmon fishery.

A copy of the salmon transfer log template is available on DFO website at:https://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/forms/smon-trans-log-journal-eng.html

12.3.2 RETENTION OF LINGCOD BY SALMON TROLL

To help meet the conservation and sustainability objectives under groundfish integration, an individual transferable quota (ITQ) management system has been established for the lingcod fishery.

Implementation of an integrated commercial groundfish fishery has monitoring and reporting requirements for those wishing to retain lingcod while salmon trolling. As in previous years, all vessels wishing to retain any amount of lingcod must have their fish validated through the established Dockside Monitoring Program. In addition to this, any vessel wishing to land lingcod must hold or acquire sufficient quota to cover catch.

Requirements include the following (less than 500 lbs. of lingcod per trip):

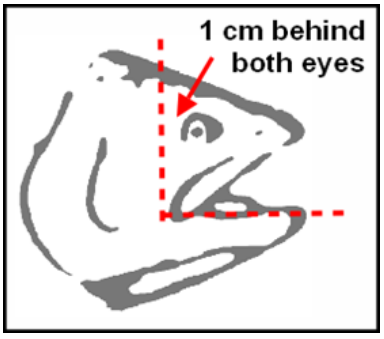
- Vessel must have or acquire sufficient lingcod quota to cover catch.
- Transportation requirement — All lingcod must be transported by the licenced vessel either directly to land or to a fish pen.
- In addition to submitting Start Fishing and End Fishing Reports to the designated salmon service provider, the vessel master must report to the designated groundfish hail service provider to create Hail-in and Hail-out Reports.

- The vessel master must adhere to specific dates, times and port locations when landing groundfish catch.
- Landing requirements — The landing of any fish of any species is not permitted unless a designated observer is present to authorize the commencement of weight verification.

Vessels wishing to retain and land **more than 500 lbs**. per trip of lingcod must, in addition to all of the above, meet the electronic monitoring requirements described in Appendix 2 of the Groundfish Integrated Fisheries Management Plan.

12.3.3 RETENTION OF FREEZER TROLL CHINOOK AND COHO HEADS

These requirements apply to all Area F and G troll licences, unless the license is listed in a Fisheries Notice that identifies the troll licenses that are exempted from retaining salmon heads during the fishing season. Area F and G Fisheries Notices that list the licenses that are exempted from retaining salmon heads during the fishing season are released prior to the opening of each fishery. Vessels that hold licenses in both Area F and G who are exempt from retaining heads in one Fishery Area are required to retain heads in the other Fishery Area unless their license is listed as exempt in both an Area F Fishery Notice and an Area G Fishery Notice.



For Area F, the exemption rate this season will be approximately 75%. As in past seasons, licenses that were insufficiently diligent in carrying out their conditions of license to bring in all Chinook and Coho heads will not be exempted this season.

For Area G, prior to 2022, the small number of vessels that froze their catch at sea led to the requirement that 100% of the Area G troll fleet retain salmon heads. In 2022, an exemption rate of approximately 66% was introduced. The exemption rate this year is expected to be increased to approximately 75% due to good compliance in 2022 and 2023. . As in Area F, licenses that were insufficiently diligent in carrying out their conditions of license to bring in all Chinook and Coho heads will be reselected this season.

Head Retention: Troll vessel masters must retain all heads from caught and kept Chinook and Coho. Recognizing that vessels may have space limitations for retaining heads, the Department allows the alternative of retaining only the portion of the head likely to contain the CWT, referred to as the 'snout'. At a minimum, the portion of each head must include the upper portion of the head extending from the tip of the snout to a cut travelling from the top of the head, passing one centimetre behind both eyes, and ending at the back corner of the mouth. The top jaw and gums must remain intact. There is no need to retain the lower jaw, or gill plates.

Head Storage: Heads must be stored in Salmon Head Recovery Program bags with labels. Bags and labels are available free of charge from the Department. Heads must be kept frozen until

delivery and each bag must contain only the heads from a single week of fishing (where weeks run from Sunday to Saturday). All bags must be labelled completely and securely closed. Bags and labels can be obtained in three ways:

i) Pick them up at DFO offices announced via fishery notice,

ii) Contact DFO toll-free at 1-866-483-9994 to make arrangements for shipping, or

iii) Obtain them from CWT samplers at fish landing stations.

Head Delivery: The vessel master shall ensure that all bags containing heads are offloaded at the first designated fish landing station at which Chinook or Coho catch is offloaded.

For complete head retention requirements, vessel masters freezing their catch at sea should refer to their conditions of license.

12.3.4 CHINOOK AND COHO CODED WIRE TAG (CWT) SAMPLING

Fisheries and Oceans Canada uses independent designated dockside monitoring program observers (CWT samplers) who are federally-contracted to the DFO Mark Recovery Program to sample the entire catch from randomly selected vessels at fish landing stations or processors. CWT target sample rates are established by the Department to meet bilateral Pacific Salmon Treaty standards for statistically reliable data. The minimum required sample rate is 20% of the estimated catch in all Chinook or Coho retention fisheries that intercept CWT indicator stocks. CWT target sampling rates may be adjusted in-season for high abundance or to meet additional CWT program requirements to recover a minimum quantity of CWTs from indicator stocks. Sampling for CWTs is a mandatory catch monitoring requirement for commercial salmon fisheries that intercept CWT indicator stocks. Where needed, dockside observers will:

- Count the landed Chinook and Coho catch by adipose fin-clip status of approximately 20% randomly selected landings or at fish processing plants using designated observers and sample the entire landed catch of each vessel selected to collect snouts from fish that contain CWTs.

Conforming to the *Fishery (General) Regulations*, when requested, the master or owner of fishing vessels and the owner or any person who has the care, charge or control of a fish landing station must permit access to the catch and provide CWT samplers with assistance that is reasonably necessary to enable them to perform their duties according to DFO-approved sampling protocols including:

- Making the fish readily accessible to the CWT samplers;

- Providing samplers with a suitable work area; and

- Permitting CWT samplers to remove the head from the fish free of charge

In the past, Chinook and Coho were checked for a missing adipose fin to indicate that it had a CWT. Due to mass marking, it is necessary to use electronic equipment such as handheld wands or tube detectors to recover CWTs in most fisheries. Because detection rates may be affected by sampling technique, it is important to ensure CWT samplers are given adequate time and opportunity to sample the entire catch of each vessel selected. Incomplete or unrepresentative sampling of CWTs in fisheries is a serious concern because it generates unknown bias in stock identification for fisheries management, stock assessment, hatchery assessment, and implementation of Pacific Salmon Treaty management regimes.

12.3.5 COMMERCIAL HARVEST LOGS AND IN-SEASON REPORTING

A mandatory harvest log and in-season reporting program for catch information is required in all Pacific region commercial salmon fisheries. Harvest logs are a record of fishing activities and are required to be kept under the conditions of licence and can be administered through either a hard copy (paper) logbook version or an electronic (E-Log) version, unless otherwise specified. Commercial salmon harvesters are required to maintain a harvest log of all harvest operations and are responsible for any associated financial costs.

To facilitate reporting of catch information, the Commercial Salmon Advisory Board (CSAB) has identified the following service provider for the paper logbook program for 2024:

Paper logbook Program:
Archipelago Marine Research Ltd. (AMR)
525 Head Street
Victoria, BC
V9A 5S1

Telephone: (250) 383-4535
Fax: (250) 383-0103
Toll Free: 1-877-280-3474
Website: http://www.archipelago.ca
Email: SalmonRegistration@archipelago.ca

Harvesters may also meet their reporting licence conditions through the regional E-log Program. The service provider for the E-log Program in 2024 is:

E-log Program:
M.C. Wright and Associates Ltd.
Telephone: (250) 753-1055 Ext: 3
Website: http://www.mcwrightonline.com
Email: support@mcwrightonline.com

To make arrangements for their 2024 harvest log requirement, harvesters are required to enlist the services of one of these identified service providers. Sample logbook pages are provided in Appendix 1.

Harvesters can continue to use their existing E-logs as long as software changes are not required to meet licence conditions. If software changes are required to meet licence conditions, harvesters can select to use a paper logbook or arrange to pay for any associated costs for software updates with a service provider.

The Department has been working with the Canadian Pacific Sustainable Fisheries Society to address conditions set out in the Marine Stewardship Council action plan for the continued certification of BC Pink, Chum, and Sockeye salmon fisheries. Several conditions within the action plan identify the need for improved reporting of catch, particularly in reference to Endangered, Threatened, and Protected species. The harvest logs have been updated and include additional materials for identifying groundfish, seabirds, Sturgeon, and marine mammals at the species level. Harvesters are encouraged to provide the correct identification of all catch to the species level in the harvest logs and when submitting catch reports to the service providers.

12.4 Catch Monitoring

Beginning in the 2024/25 season, the Department will be working with commercial harvesters to develop implementation plans and test approaches for meeting an interim minimum standard of independent catch verification by the 2025/26 season. This will build on monitoring requirements developed for commercial salmon fisheries in 2011. The Department will be seeking feedback on interim coastwide minimum levels of coverage which are intended to provide more clarity around requirements for independent monitoring of landed catch and at-sea releases. The following interim minimum monitoring coverage requirements are proposed coastwide for commercial salmon fisheries by the **2025/26 season**:

- **5%** of fishing trips shall be subject to **independent at-sea monitoring** to observe the time, location, and species composition of released catch. Where bycatch limits exists for a fishery, coverage shall be **20%**.
- **20%** of fishing trips shall be subject to **independent dockside validation** to observe the species composition and total volume of landed catch.

Where a fishery is already subject to a coverage level the is greater than the minimum standard, the current level of coverage will remain in effect. The minimum coverage level will provide an interim baseline, ensuring that all fisheries undergo a minimum level of independent verification to facilitate the collection of dependable, timely, and accessible information consistent with the *Fishery Monitoring Policy* objectives. In the longer term, results from the

interim requirements will be reviewed and work will continue to develop incremental steps towards refined independent monitoring requirements.

DFO released the national *Fishery Monitoring Policy* in 2019, which will replace the regional *Strategic Framework for Fisheries Monitoring and Catch Reporting* in the Pacific Fisheries (2012). The national policy seeks to provide dependable, timely and accessible fishery information through application of a common set of steps used to establish fishery monitoring requirements across fisheries. Available at: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fishery-monitoring-surveillance-des-peches-eng.htm

To ensure consistent national application, further guidance is provided through in the *Introduction to the Procedural Steps of Implementing the Fishery Monitoring Policy*, available at: https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fmp-implementation-psp-mise-en-oeuvre-eng.htm

The 2012 Pacific *Strategic Framework for Fisheries Monitoring and Catch Reporting* is available at: https://www.pac.dfo-mpo.gc.ca/fm-gp/docs/framework-monitoring-cadre-surveillance-eng.html

12.5 Commercial Salmon Allocation Implementation Plan

This section describes the commercial salmon allocation implementation plan. An overview of the process to update the CSAF initiated in 2013, with principles and guidelines approved in 2015 and an evaluation framework for assessing CSAF demonstration fishery proposals implemented in 2016. For background information on the CSAF initiative please see: http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html

COMMERCIAL ALLOCATION IMPLEMENTATION PLAN FOR THE 2015 – CURRENT PERIOD

Shares recommended by the Commercial Salmon Advisory Board (CSAB) were intended to apply for a 5-year period (2015 through 2019 seasons) with provision for a review after year 4 (2018 season) to determine if adjustments should be made to any sharing arrangements in subsequent years. For 2024, the sharing arrangements outlined in this IFMP are expected to remain in effect for the current fishing season. Consideration of changes to the commercial allocation implementation plan may be considered in the future based on advice for the CSAB and any changes will be consulted on in advance of the fishing season through the IFMP process.

The sharing arrangements described in this plan are intended to guide fishing arrangements at the local level and are not fixed entitlements. Application of these sharing arrangements is subject to meeting all conservation objectives, First Nations obligations, international commitments, deliverability and manageability constraints and other management considerations.

Although best efforts will be made to achieve these allocation targets/shares, no guarantees are offered that allocations will actually be achieved in any given year. The achievement of these shares will depend upon the ability to fish selectively and the conservation needs of the resource. In the event that allocations are not achieved, no compensatory adjustments will be made to future allocations.

As in previous years, there will be no directed commercial fisheries for Fraser River Sockeye or Fraser River Pink salmon in the north (i.e. area licence categories A, C and F and First Nations economic fisheries).

The tables below provide a complete list of allocation shares by gear type, species and production area for fisheries starting in 2015. Three new productions were approved in 2015 to clarify sharing arrangements associated with the Pacific Salmon Treaty for troll harvests of AABM Chinook and AB line Pink fisheries. For 2023 the sharing arrangements outlined in this IFMP are expected to remain in effect for the current fishing season.

SOCKEYE

Description	Areas	Seine A	Gill Net C	Troll F
Skeena/Nass	1, 3 to 5, 101 to 105	25%	75%	*
Central Coast	6 to 8	80%[a]	20%[b]	*
Rivers/Smiths Inlets	9 to 10	5%	95%	[c]

Notes on Sockeye allocation (north):
* bycatch provisions
[a] share reflects current Sockeye bycatch during Pink directed fisheries
[b] potential for re-negotiation of sharing arrangements in event of a future directed Sockeye fishery
[c] potential for future re-negotiation

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Local	23	60.0%	40.0%	0.0%	0.0%[c]	0.0%
South-Fraser	11 to 20, 29, 121, 123 to 127	48.5%	21.6%	25.1%	0.0%[d]	4.8%
South-Fraser – Large return year (e.g. 2014, 2018, 2022)	11 to 20, 29, 121, 123 to 127	48.015%	21.384%	24.849%	1% [d]	4.752%

Notes on Sockeye allocation (south):
[c] potential for future re-negotiation
[d] a 1% share to occur in large Fraser River return years only. A 1% reduction will be proportionately applied across other fleets in those years

PINK

Description	Areas	Seine A	Gill Net C	Troll F
North	1, 2E, 2W (even), 3 to 5, 101 to 105	75.5%	22.5%[a]	2.0%
Central	6 to 10	95.0%	5.0%[b]	*

Notes on Pink allocations (north):
* bycatch provision
[a] Skeena sharing 75% seine: 25% gill net
[b] potential for future re-negotiation

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
Fraser	11 to 20, 29, 121, 123 to 127	82.5%	4.0%*	3.0%*	0.5%[c]	10.0%
Mainland	12 to 13 (mainland inlets only)	73.0%	9.0%	0.0%	0.0%	18.0%

Notes on Pink allocations (south):
[*] Pink bycatch provision required for fisheries on more abundant species
[C] potential for future re-negotiation. Pink bycatch required for fisheries on more abundant species

NEW PRODUCTION AREA STARTED IN 2015

Description	Area	Troll F
A-B line Pink troll fishery	101	100%

CHUM

Description	Areas	Seine A	Gill Net C	Troll F
North	1, 2E, 2W, 101 to 111, 130, 142	54.0%	43.0%	3.0%
North	3 to 5	55.0%[b]	45.0%[b]	*
Central	6 to 10	45.0%[c]	55.0%	*

Notes on Chum allocations (north):
[b] recent Chum non-retention; fishery allows bycatch of Chum only
[C] currently Chum non-retention
[*] bycatch provision

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Inside	11 to 19, 28 to 29	63.0%	19.2%	12.0%	0.0%	5.8%
Nitinat	21 to 22	65.5%	0.0%	34.5%	*	0.0%
South Outside	23 to 27	0.0%[d]	98.0%	0.0%	2.0%	0.0%

Notes on Chum allocations (south):
[*] bycatch provision
[d] potential for future re-negotiation if Chum populations re-build

Commercial allocation sharing arrangements in Johnstone Strait are: seine Area B – 77%; gill net Area D – 17%; and troll Area H – 6%.

COHO

Description	Areas	Seine A	Gill Net C	Troll F
North	1 to 10, 101 to 111, 130, 142	12.5%	6.5%	81.0%

Notes on Coho allocations (north):

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Inside	11 to 20, 29	TBD	TBD	TBD	TBD	TBD
South Outside	21 to 27, 121 to 127	9.5%	9.5%	1.0%	80.0%[a]	0.0%

Notes on Coho allocations (south):
[TBD] currently no directed fisheries in this area. Will be reviewed should future directed opportunity develop. Principles to be drafted regarding how to distribute impacts.
[a] Coho taken primarily in offshore fisheries

CHINOOK

Description	Areas	Seine A	Gill Net C	Troll F
Northern BC AABM Chinook	1, 2E, 2W, 101-105, 130, 142	*	*	100.0%[a]
Central	6 to 10	*	100.0%[b]	*[c]

NEW PRODUCTION AREA STARTED IN 2015

Description	Areas	Seine A	Gill Net C	Troll F
North-Inside	3 to 5	*	100.0%[d]	*

Notes on Chinook allocations (north):
[*] bycatch provisions
[a] Northern BC AABM Chinook harvest
[b] near-terminal fisheries (primarily hatchery origin)
[c] review potential re-entry of troll into Production Areas 6 + 7. Bycatch provisions
[d] bycatch provision and near-terminal directed fisheries (e.g., Skeena)

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South- Inside	11 to 20, 29	1.0%[e]	3.0%	90.0%[f]	0.0%	6.0%
South - WCVI AABM Chinook	21, 23 to 27, 121 to 127	*	*	0.0%	100.0%[g]	0.0%

<< NEW PRODUCTION AREA STARTED IN 2015>>

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South- WCVI Inside	21 to 27	5.0%[h]	75.0%[i]	5.0%[i]	15.0%[j]	0.0%

Notes on Chinook allocations (south):
[e] subject review pending completion of southern BC Chinook initiative
[f] directed Fraser Chinook fishery
[g] this is WCVI AABM Chinook fishery
[h] Area 23 sharing arrangement currently 33.3% seine: 66.7% gill net. May need to review
[I] Area 25 fishery (potential for future review. 75% fishery to Area D (e.g., Conuma Bay fishery); potential 5% to Area E if future surplus at Nitinat; otherwise default to Area D)
[j] winter troll fishery

12.6 Conservation Measures

12.6.1 SELECTIVE FISHING

The Department will work with Area Harvest Committee representatives to implement selective fishing measures to avoid non-target fish or, if encountered, to release them alive and unharmed. These measures include but are not limited to: the use of troll plugs, Alaska twist gill nets, maximum gill net set time and net length, gill net mesh size, gill net depth, seine bunt mesh size, brailing and sorting for seine vessels, and revival tanks.

12.6.2 ROBSON BIGHT

DFO will once again be seeking the co-operation of harvesters in minimizing fishing activities in Robson Bight. This is part of a long-term management plan to afford protection to the killer whale populations that frequent this area during periods from mid-May to early October. Fish harvesters are requested not to moor in the Robson Bight area. See Section 5 – Southern Resident Killer Whales for more information. Information on this management initiative can

also be obtained from Department charter patrol vessels on the grounds and from Fisheries and Oceans Canada offices.

12.6.3 ROCKFISH CONSERVATION MEASURES IN SALMON TROLL

YELLOWEYE ROCKFISH

Information on the Yelloweye Rockfish will be available in Appendix 9 of the Groundfish IFMP.

12.7 COMMERCIAL DEMONSTRATION FISHERIES

The Department has conducted extensive consultations with the commercial salmon industry and First Nations concerning fisheries reform and renewal. Changes in the fishery will be designed to improve biological and economic performance of the fishery.

In an ever-changing environment such as resource conservation, a group may want to explore special harvesting initiatives or new management approaches to develop flexible fisheries with greater harvester control that improve product quality, increase value to the fleet and have better catch monitoring and compliance with catch limits.

The Department is interested in continuing to explore innovative ways to access TAC more efficiently, to increase market value of the product, or to access TAC that may be unavailable due to conservation concerns or that a full fleet fishery is unable to access.

To contribute to the Pacific Fisheries Reform vision, the Department will consider demonstration projects that support alternative management strategies that:

- Maintains or improves management control and conservation performance in the fishery;
- Promotes the use of clearly defined shares to improve manageability and industry viability; and
- Increases the ability of harvesters to work cooperatively to harvest available surpluses and to take on greater responsibility for control and monitoring of their fishery.

Details regarding demonstration fisheries that the department is considering are contained in Section 13 - Species Specific Salmon Fishing Plans.

In addition to existing demonstration fisheries within Section 13, additional opportunities to demonstrate flexible harvest arrangements were initiated in 2016 in support of updates to the Commercial Salmon Allocation Framework (CSAF). Guidelines and principles associated with CSAF as well as a list of CSAF demonstration fisheries are included in Appendix 6.

12.7.1 TRANSFER GUIDELINES FOR THE TEMPORARY TRANSFER OF COMMERCIAL SALMON SHARES

In consideration of discussions with the First Nations SCC, the CSAB and any feedback received, these guidelines will be reviewed and may be updated annually.

These guidelines address the transfer of commercial salmon shares between the following groups:

- Area A-H Fishery participants with a defined percentage share of the commercial TAC
- Area A-H fleets or portions of fleets or individual licences
- Marine Demonstration Fishery participants
- In-river Demonstration Fishery participant
- First Nations with one or more Area A-H licences
- First Nations entities who are signatories to current arrangements or area provided communal licences allowing sale that provides a defined commercial share of salmon for the given year including;

- Economic Opportunity agreements
- Harvest Agreements
- Demonstration Fisheries

Transfers of harvest shares may occur when there is a formal arrangement outlining possibilities as defined by the Guiding Principles and Operational Considerations below, (approved by DFO) between the original share-holders and the recipient. Requests can include transfer from downstream to upstream locations, and vice versa. These arrangements should identify mechanisms pre-season that will be used for transfers to ensure proper management and accounting of shares (Actual transfers may occur in-season; e.g., between ITQ fishery participants using established transfer request processes). For transfers of commercial licences, arrangements will need to be made in advance of the fishery opening for which the transfer is intended to apply to ensure appropriate allocations associated with the licence can be set aside.

In-season proposals to transfer uncaught commercial Total Allowable Catch (TAC) allocations between the above groups will be reviewed and DFO will determine whether to allow the transfer of some or all of the uncaught TAC.

Requests for temporary transfers of commercial salmon shares will be reviewed with consideration to the following general principles and the operational considerations identified below.

Guiding Principles for Temporary Transfer of Salmon Shares:

- Result in similar or better management control and/or conservation performance in the fishery (both for target and bycatch species/stocks)
- Consistent with conservation measures and allocation approaches (if any) for stocks of concern, including bycatch species/stocks;
- Respect existing Aboriginal and treaty rights and the priority of Food, Social and Ceremonial access.
- Consistent with international obligations;
- Consistent with objectives and management measures outlined in Salmon Integrated Fishery Management Plans;
- Respect the Common property nature of the fisheries resource: subject to Principle 3, access to the resource does not imply ownership of the resource or any portion of the resource, and is not conferred irrevocably to individuals.
- Support opportunities to utilize Canadian commercial total allowable catch while respecting conservation requirements.
- First Nations commercial fisheries and Area A-H commercial fisheries conducted in tidal waters will be managed under common and transparent rules for each gear type. For example, First Nations commercial troll fisheries conducted in tidal waters where Area F licences are permitted to operate will be managed in accordance with the same rules as the Area F commercial fishery for those tidal waters.
- First Nations commercial fisheries conducted in non-tidal waters will be managed under transparent rules that are consistent with the rules used to manage marine commercial fisheries that target similar stocks associated with that production area.
- Affordable to implement i.e. would not result in any substantive incremental costs to DFO in areas such as monitoring stock assessment and enforcement.

Operational Considerations Regarding Requests for Temporary Transfers:

- Transfers of commercial salmon allocation shares will only occur when there is a Canadian commercial Total Allowable Catch (TAC) (i.e., commercial

harvestable surplus) identified for the target stock or species which is available for harvest.

- Transfers of commercial salmon shares between parties will only be considered for commercial fisheries and commercial participants with a clearly defined percentage share of the Canadian commercial total allowable catch.
- In most cases, transfers will be based on a percentage share of the available commercial TAC. Alternate approaches for calculating transfer shares may be considered.
- In-season transfers may occur if pre-season plans outline possibilities. For share transfers between Area A-H commercial fisheries, individual salmon shareholders or groups of salmon shareholders; the mechanism (e.g., tracking, management and accounting of shares) for facilitating transfers needs to be described and agreed upon by all parties to the arrangement and DFO pre-season. Individual commercial licence holders or groups of commercial licence holders will not be permitted to make their own allocation transfer arrangements unless these are part of a pre-season plan approved by the Department.
- DFO will not be responsible for leading or facilitating the negotiation of transfer arrangements between parties.
- For commercial salmon licences held by the Department, individual licence allocations will be based on an equal percentage allocation of the commercial TAC for all licences in that commercial licence area (i.e., Areas A to H).
- If, despite the best efforts of any commercial harvest group, it becomes apparent that it will be unable to harvest its share, and no mechanisms are in place that would permit the transfer of the share to another commercial harvest group, the Department may consider transfers of uncaught commercial harvest shares to any other commercial harvest group already holding a clearly defined percentage share of the Canadian commercial total allowable catch, on a case by case basis, assuming that harvest can occur using fishing methods, times and locations permitted for that commercial harvest group.
- Transfers of commercial salmon allocations must consider shares of all stocks that will be harvested in the recipient area.
    - Allocations transferred inland will be reduced proportionately to reflect the reduced stock composition in the more terminal harvest location (e.g. Area F troll licence shares allocated to the Kamloops Lake inland demo fishery will

be only for the proportion of Thompson Chinook encountered in the marine commercial troll fishery). Alternative approaches may be considered in specific circumstances (e.g., allocation may not be proportionally reduced if harvest of an allocation in a terminal area reduces impact on stocks of conservation concern). DFO will document the rationale for its decision and make it publicly available.

- For co-migrating stocks or management units of concern or where little or no Commercial TAC has been identified, transfers will need to consider and/or mitigate potential impacts. For example: access to a harvest share of Fraser Pink Salmon might require the fishing group or individuals to have some Sockeye remaining in their harvest share of co-migrating Fraser Sockeye.
- For co-migrating stocks/species or management units of concern where exploitation rate caps or some other limit on mortalities have been defined (e.g. Interior Fraser River Coho), the parties to the transfer arrangements are responsible for demonstrating that the transfer arrangement will be neutral or of benefit to the stock or management unit of concern (i.e. same or lower impact in the new fishing area). Limiting stocks/species will only be transferred to the extent needed to harvest the target stock transfer amount with residual amounts being available for the use by all other commercial harvest groups with a share of the targeted stocks.
- Transfers into areas that require management adjustments need to be accounted for in determining TAC (e.g. a similar accounting process to current Fraser Sockeye).
- Priority will be given to those proposals that allow shares to be harvested using fishing techniques that are more selective than the original technique, and / or allow harvesting in fishing areas that avoid stocks or management units of concern.

- Harvest of commercial salmon allocations is not guaranteed and actual harvest opportunities may be limited by constraints to protect species or stocks of concern. Commercial fishery participants that demonstrate an ability to fish selectively may be able to access a greater amount of their harvest share.
- Enhanced fisheries monitoring and catch reporting programs must be in place for participants to ensure that there is reliable accounting for both retained and released fish and that harvests do not exceed defined shares. Incremental

monitoring costs will not be assumed by DFO, and will need to be covered by parties to the transfer arrangement.

- Proposals for transfer arrangement must include contingencies for situations where shares are exceeded. Parties not complying with agreed-to arrangements could face enforcement actions.
- Transfers of commercial salmon shares will not be permitted when this may adversely affect First Nations Food, Social and Ceremonial harvest opportunities in the area.
- Surpluses of salmon in terminal areas (i.e., ESSR fisheries) will continue to be managed using existing ESSR guidelines.

All decisions regarding temporary salmon share transfers are one-time only. Unless otherwise communicated by DFO at the time of the decision, all future transfer requests must undergo new process of application, review and approval from DFO.

For clarity, in season transfers of AABM Chinook CTAC may be considered between interested parties in accordance with the transfer guidelines outlined in section 12.7.1.

13 SPECIES SPECIFIC SALMON FISHING PLANS

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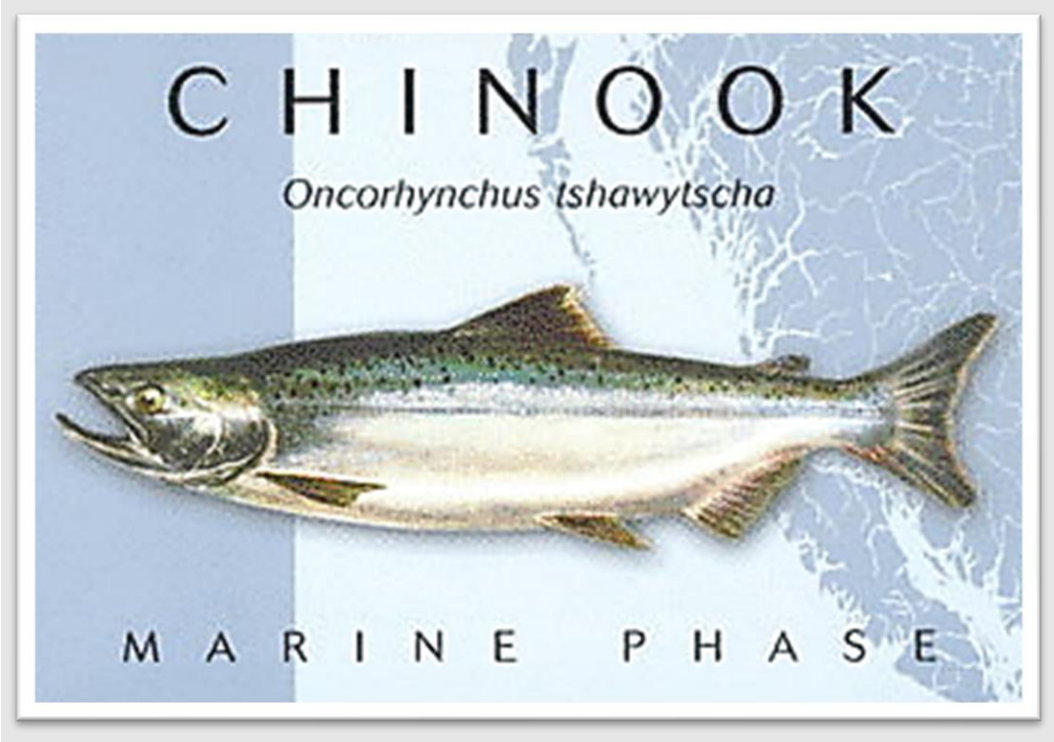
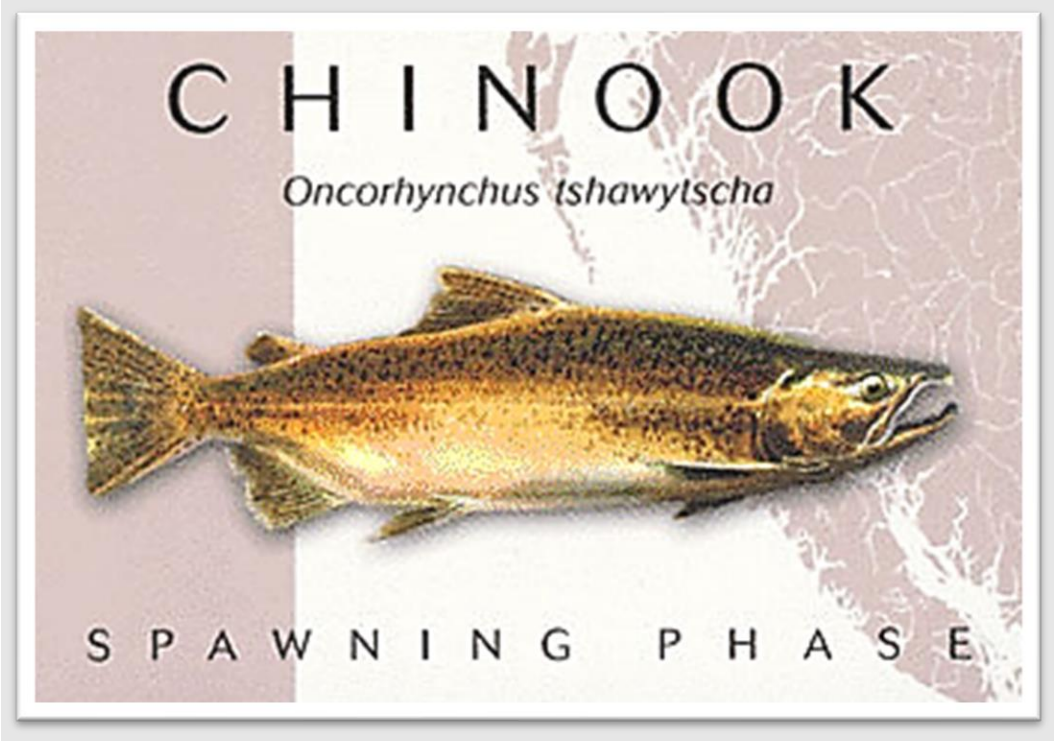
13.1 SOUTHERN CHINOOK SALMON FISHING PLAN





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13.1.1 SOUTHERN CHINOOK OVERVIEW

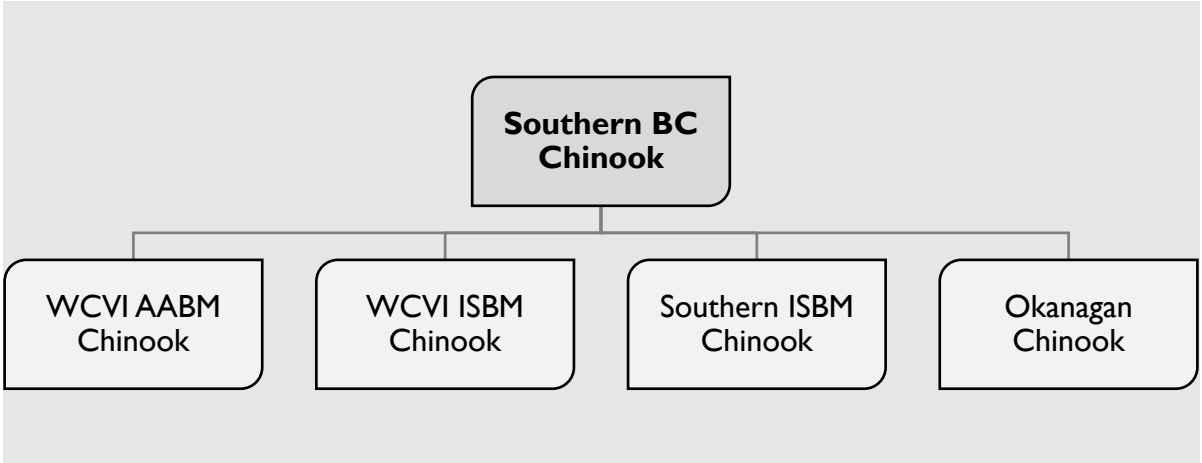


Figure 13.1.1-13-1: Overview of Southern BC Chinook

FRASER RIVER CHINOOK CONSERVATION CONCERNS:

This section of the IFMP outlines conservation measures for Fraser River Chinook. Management measures for the 2024/2025 season are outlined through Section 13.1 or can be found via fisheries notice or https://www.pac.dfo-mpo.gc.ca/fm-gp/fraser/index-eng.html.

GENERAL OVERVIEW

Chinook Salmon fisheries in BC are managed under the umbrella of the Pacific Salmon Treaty (PST). Domestic considerations are also in place for stocks of concern, allocation between sectors of the fishery, and application of selective fishing practices.

With the exception of the Transboundary Rivers, the basis for managing fisheries impacting Chinook Salmon from Alaska to Oregon is the Chinook abundance-based management system in Chapter 3 of the PST. This management system was adopted in 1999 and defined harvests of Chinook through 2008. Chapter 3 of the PST outlines the abundance-based management framework established under the 1999 Agreement for management of Chinook fisheries. This chapter expired in 2018 and renewed provisions are in effect as of January 1, 2019.

Further explanation and the text of the Chinook salmon agreements can be found on the PSC website at:
http://www.psc.org/publications/pacific-salmon-treaty/

Chinook Salmon fisheries under the PST are accounted for during the Chinook year which begins on October 1 in one calendar year to September 30 in the next calendar year.

Two types of fisheries are identified in the PST under Chapter 3:

Aggregate Abundance Based Management (AABM) fisheries; and

Individual Stock Based Management (ISBM) fisheries.

Within the PST Chinook management framework, Canadian domestic policy further defines fishing opportunities. The domestic objectives or policies which will most affect fishing opportunities include: conservation, Canada's constitutional obligations to First Nations, the WSP, *An Allocation Policy for Pacific Salmon*, and the *Policy for Selective Fishing in Canada's Pacific Fisheries*.

OVERVIEW: AABM FISHERIES

AABM fisheries are mixed-stock fisheries that intercept and catch migratory Chinook from many Canada- and U.S.-origin populations.

In southern BC, AABM applies to Chinook directed fisheries in the following Areas and times on the WCVI:

Areas 21, 23 and 24 and Areas 121, 123, 124 during the period October 16 through July 31, plus that portion of Areas 21, 121, 123, 124 outside of a line one nautical mile seaward of the surfline, during the period August 1 through October 15;

Areas 25, 26, 27 and Areas 125, 126, 127 during the period from October 16 through June 30, plus that portion of Areas 125, 126, 127 outside of a line one nautical mile seaward from surfline, during the period from July 1 through October 15.

These fisheries are managed to an annual total allowable catch based on a forecast abundance index (AI) of the aggregate of stocks that contribute to the fishery. All other areas and times are managed as ISBM fisheries.

OVERVIEW: ISBM FISHERIES

In response to conservation concerns for Chinook in both countries, several changes were made to PST Chapter 3 (Chinook), including targeted harvest reductions in both Canadian and U.S. fisheries and adoption of a new metric (the calendar year exploitation rate or CYER) to manage and evaluate performance in specific Canadian and U.S. individual stock-based management (ISBM) or "inside" fisheries. The agreement identifies reductions of up to 12.5% from 2009-2015 levels for specified Canadian and U.S. indicator populations in Canadian ISBM fisheries.

ISBM management regimes apply to all Chinook Salmon fisheries subject to the PST that are not AABM fisheries and include marine and freshwater salmon fisheries from northern British Columbia to northern Oregon coast. ISBM fisheries in southern BC include First Nations

fisheries in both marine and fresh waters, recreational fisheries, WCVI seine and gill net, and Fraser River gill net.

13.1.1.1 SOUTHERN CHINOOK ENHANCEMENT INFORMATION

The major DFO operation enhancement facilities that produce Chinook are:

South Coast Area:

- Big Qualicum River hatchery
- Conuma River hatchery
- Little Qualicum River hatchery
- Nitinat River hatchery
- Puntledge River hatchery
- Quinsam River hatchery
- Robertson Creek hatchery

Fraser River Area:

- Capilano River hatchery
- Chehalis River hatchery
- Chilliwack River hatchery
- Inch Creek hatchery
- Shuswap Falls hatchery
- Spius Creek hatchery
- Tenderfoot Creek hatchery

The information available at the link below addresses production from major DFO Operations (OPS) facilities, contracted Community Economic Development Program hatcheries (CEDP), Public Involvement Projects (PIP) operated by volunteers, and Aboriginal Fisheries Strategy (AFS).

SEP Production Plans

There are three datasets available: **Post-Season Production** from the 2021 brood year (i.e., 2022 and 2023 releases), **Post-Season Production** from the 2022 brood year (i.e., 2023 releases, and numbers on hand for 2024 release), and the **2024 Production Plan**, which

includes targets for the upcoming 2024 brood year. These are available at the following website: IFMP SEP Data Tables | Pacific Region | Fisheries and Oceans Canada (dfo-mpo.gc.ca)

13.1.1.2 SOUTHERN BC CHINOOK – SEP PROPOSALS OR UPDATES FOR 2024

Big Bar Response Enhancement

DFO and Upper Fraser River First Nations have jointly developed a proposed production plan to support conservation of stocks impacted by the Big Bar slide. For Chinook, the 2024 enhancement activities will focus on natal stream collection of 10 distinct Spring 5_2 stocks. The brood collection program will be coordinated by the Upper Fraser Fisheries Conservation alliance and implemented by Upper Fraser River First Nations, with technical support from DFO. Given low expectations for Chinook escapement to these systems in 2024, actual numbers of broodstock collected will be managed adaptively based on in-season abundance indicators.

Southern Resident Killer Whale – Chinook Prey Study

Actions taken to protect and recover Southern Resident Killer Whales in 2018 included funding to study Southern Resident Killer Whale diet. As one component of this research, Chilliwack Fall Chinook hatchery production was increased in years 2019 to 2023 (from 1 million to 2 million releases) to test the effectiveness of expanded hatchery programming to support Southern Resident Killer Whale recovery. In 2024, Chilliwack Fall Chinook production is planned to return to the previous level (1 million). Data will be collected from 2022 to 2028 to assess whether this increase in production was detected in the Southern Resident Killer Whale diet.

Fraser Area Chinook

In addition to Big Bar response enhancement, enhancement projects that are currently being implemented to aid in Chinook stock recovery efforts in the Fraser area include:

- Maria Slough Chinook (Chehalis Hatchery)
- Portage Cr Chinook (Tenderfoot Hatchery)
- Bridge R Chinook (N'Quatqua FN Hatchery)
- Nechako R Chinook (Spruce City Wildlife Association)
- Swift Cr Chinook (Spruce City Wildlife Association)

- Spius Cr Chinook (Spius Hatchery)
- Salmon R Chinook (Spius Hatchery)
- Coldwater R Chinook (Spius Hatchery)

DFO continues to assess options to increase the size of Fraser Chinook coded-wire tag release tag groups to support Pacific Salmon Treaty implementation and assessment, given existing constraints on resources, and the increasing need to support conservation and rebuilding requirements.

South Coast Area Chinook

- DFO's Salmonid Enhancement Program (SEP) and Uchucklesaht First Nation are engaged in enhancement activities to support the rebuilding of Hucuktlis Lake Chinook with 100,000 fed fry tagged and released from Nitinat River Hatchery over four years (2021-2024).
- Mass Marking (adipose fin-clipping) pilot projects continue for Burman, Sarita and Conuma stocks. Additional programs proposed for the purposes of hatchery program management as part of the 2023 brood year (2024 marking) include: Gold River, Robertson Creek, Tahsis River, Leiner River, and San Juan River. Operational details of program implementation are under development.
- Big Qualicum Chinook – the delayed release trial is continuing based on early assessment showing higher survival rates compared to other release strategies. The delayed release group is set to 1M for the 2024 Brood Year.
- Quinsam Chinook – release strategies have been re-aligned to support increased survival and harvest provisions.
- DFO Stock Assessment, SEP, and Xwémalhkwu (Homalco) First Nation, along with other community partners successfully collected Chinook brood on the Southgate River in Bute Inlet as part of a new assessment-based pilot program. This program was added to the 2022 brood year production plan and is continuing as Stock Assessment assesses the viability of this prospective indicator program.
- Clayoquot Chinook populations have been identified as stocks of concern and have been raised as a high priority item by local groups and First Nations, as well as DFO Stock Assessment and SEP as part of 2023 and 2024 production planning consultations. SEP will continue to inventory and assess additional enhancement support options for these populations leading up to 2024 returns, and will discuss the options with the aforementioned groups.

13.1.2 WCVI AABM CHINOOK

13.1.2.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

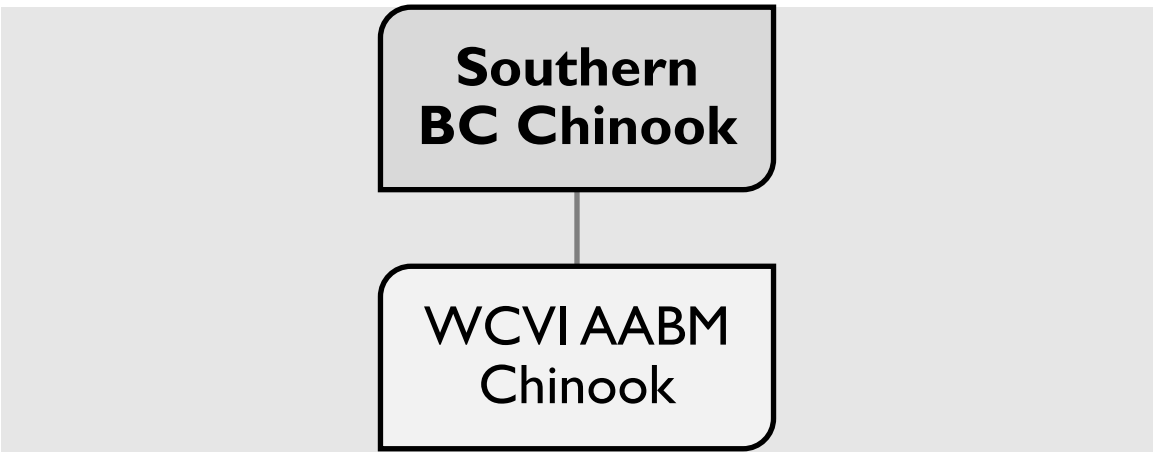


Figure 13.1.2-1: Overview of WCVI AABM Chinook

The AABM fishery includes First Nations, recreational and commercial fisheries targeting Chinook in offshore WCVI Areas 121 to 127 and seasonally (prior to June/July and after September) in inshore Areas 21 and 23 to 27 (including a 1 nautical mile strip seaward of the surfline in the adjacent offshore areas). Catch and effort peaks in Areas 121 to 127 during the months of June – August, and effort is largely abundance driven and weather-dependent.

The WCVI AABM Chinook fishery targets Canadian and U.S. origin wild and enhanced Chinook populations that migrate past the WCVI. The main components of the harvest are U.S.-origin Chinook; however, most southern BC Chinook conservation units can also be encountered in this area. While some Chinook harvested in the WCVI AABM fishery are returning to spawn in WCVI watersheds, most of these Chinook are migrating to Washington, Oregon, or other parts of southern British Columbia to spawn.

13.1.2.2 STOCK ASSESSMENT INFORMATION

13.1.2.2.1 Pre-season

The PST Chinook Technical Committee (CTC) provides a final calibration of the Chinook Model annually. That calibration is provided in April each year, and provides Abundance Indices (AI) for the three AABM fishing areas: WCVI, South East Alaska (SEAK), and Northern BC (NBC). Table 1 in PST Chapter 3 converts the AI to the Total Allowable Catch (TAC) for each AABM

fishing area for the fishing year from the previous October 1 until September 30 in the year of the calibration.

Effective January 1, 2019 the renegotiated PST terms were put into effect including an up to a 12.5% reduction in the West Coast Vancouver Island AABM Total Allowable Catch (TAC). The level of reduction is based on the AI. The allowable catches for the AABM fisheries are included in Table 13-1 below. The 2023/2024 forecasted Abundance Index and allowable catches will not be available until April 2024.

Table 13-1 Pre-season Abundance indices and associated allowable catches for the October 1, 2022 to September 30, 2023 AABM fisheries

	SEAK	NBC	WCVI
Abundance Index	1.42	1.16	1.02
Allowable Catch	206,027	141,700	115,500

13.1.2.2.2 In-season

There is currently no in-season assessment of abundance completed for Canadian AABM fisheries. All Canadian fisheries are managed based on the pre-season AI and associated pre-season TACs.

13.1.2.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

An AABM fishery is an abundance-based regime that constrains catch or total mortality to a numerical limit computed from either a pre-season forecast or an in-season estimate of abundance, from which a harvest rate index can be calculated, expressed as a proportion of the 1979 to 1982 base period.

AABM fisheries are managed annually so as not to exceed the specified TAC. In addition, domestic conservation concerns may reduce overall harvests below the PST allowable TAC.

When there is a TAC identified for the AABM management area, targeted Chinook fisheries are planned for First Nations, recreational, and commercial sectors.

The commercial TAC is calculated by subtracting the expected Food, Social and Ceremonial (FSC) catch of 10,000, the Maa-nulth treaty allocation (calculated annually based on the TAC), a

share for the Five Nations to exercise their Aboriginal right to fish and sell fish (calculated annually based on the Canadian TAC), and the expected recreational catch.

The WCVI AABM recreational catch from the previous 2 years has been between ~31,000 and ~33,000 Chinook. Given the recent performance of the recreational fishery, the 2024/2025 pre-season recreational expected catch for planning purposes remains 35,000.

Adjustments to the commercial harvest level may be made in-season in response to differences between expected and observed recreational catches.

13.1.2.4 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO AABM CHINOOK FISHERIES

AABM fisheries may be managed to avoid domestic stocks of concern outlined in Table 13-.

Table 13-2: Risk of Impact on Stocks of Concern

Fishery Period	Risk of impact on stocks of concern
Nov – Feb	Low risk. Fisheries in October are outside the migration period and area for several stocks of concern, including Interior Fraser River Coho, WCVI Chinook, Fraser River Spring 4_2, Fraser River Spring, Summer 5_2 Chinook, and Interior Fraser River Steelhead. Catch will be comprised of fish returning in subsequent calendar year or later. The majority of the Chinook catch will be of stocks of U.S. and lower Fraser River origin.
Mar – May	High risk. Specific concerns for Fraser River Spring 4_2, Fraser River Spring and Summer 5_2 Chinook. Increased incidence of Lower Strait of Georgia (LGS) Chinook especially in May.
June – July	High risk. Potential concern for impacts on Fraser River Spring 4_2, Fraser River Spring and Summer 5_2 Chinook in June and July. Monitoring of Coho encounters beginning in early to mid-June is required. Stocks of concern, including Interior Fraser River Coho are present. Concerns for impacts on LGS Chinook.
Aug – mid-Sep	High Risk. Concerns for Interior Fraser Coho, and WCVI Chinook. Reduced impacts on Fraser Spring and Summer Chinook populations.
mid-Sep – Oct	High risk. Concerns for Interior Fraser River Steelhead in this period. WCVI Chinook may be avoided by area restrictions. Concerns for impacts on LGS Chinook and Interior Fraser Coho impacts are reduced because they are at the end of their migration out of WCVI area.

Given ongoing declines in Interior Fraser River Steelhead escapement and the designation of the Thompson and Chilcotin River Steelhead as *Endangered* by COSEWIC, DFO is implementing a comprehensive, precautionary approach to the management of all fisheries in southern BC that are likely to impact these stocks of concern. A 27-day rolling window closure will be applied in 2024 to commercial troll fisheries, according to the dates and areas outlined in Table 13- below. 2024 IFR Steelhead measures will not extend to marine FSC/Domestic Treaty harvest, Five Nations sale fisheries or recreational fisheries.

Table 13-3: Summary of management actions anticipated in WCVI AABM Chinook fisheries to limit impacts on stocks of concern.

Stock of Concern	First Nations FSC and Treaty Fishery	Five Nations Multi-Species Fishery	Recreational Fishery	Commercial Fishery
WCVI Chinook	Harvest levels outlined in harvest documents and communal licences	On-going terminal area restrictions for wild stocks of concern Management measures may include a combination of fin fish closures and salmon non-retention areas.	On-going terminal area restrictions for wild stocks of concern Management measures may include a combination of daily limits, annual limits, size limits, fin fish closures and salmon non-retention areas.	WCVI - Time and area closures on WCVI (i.e., avoid inshore fisheries during the time period July to September)

Stock of Concern	First Nations FSC and Treaty Fishery	Five Nations Multi-Species Fishery	Recreational Fishery	Commercial Fishery
Fraser River Spring 4$_2$ Chinook	Harvest levels outlined in Harvest documents and communal licences. Additional biological sampling requested prior to July 15.	Offshore* AABM Chinook directed fisheries closed from April 1 – July 14 *Excluding 1 nm seaward of surfline Maximum 80cm size limit[12] from July 15-July 31.	Offshore* WCVI recreational fisheries closed to Chinook retention from April 1 – July 14 *Excluding 1 nm seaward of surfline	Time and area closures and effort limits Area G: Spring demo fishery will be limited to inshore waters* and a limited TAC of 3,000 pieces. Approval of this fishery for 2025 is dependent on 2024 results. Summer fishery closed until August 1. *Excluding 1 nm seaward of surfline[13]

[12] Five Nations have proposed allowing the sale of Chinook over 80cm (currently FSC retention only under dual fishing) with DNA/CWT sampling.

[13] **For 2024/25,** Area G submitted a change to their existing inshore Chinook CSAF proposal, which is to fish within the existing 1 nm seaward of surfline area.

Stock of Concern	First Nations FSC and Treaty Fishery	Five Nations Multi-Species Fishery	Recreational Fishery	Commercial Fishery
Fraser River Spring and Summer 5$_2$ Chinook	Harvest levels outlined in Harvest documents and communal licences. Additional biological sampling requested prior to July 15.	Offshore* AABM Chinook directed fisheries closed from April 1 – July 14 *Excluding 1 nm seaward of surfline Maximum 80cm size limit[14] from July 15-July 31.	Offshore* recreational fisheries closed to Chinook retention from April 1 – July 14 *Excluding 1 nm seaward of surfline	Time and area closures and effort limits. Area G: Spring demo fishery will be limited to inshore waters* and a limited TAC of 3,000 pieces. Approval of this fishery for 2024 is dependent on 2023 results. Summer fishery closed until August 1 *Excluding 1 nm seaward of surfline[15] **New for 2024/25: Area G has requested an earlier start date for the Area G Troll Chinook summer fishery[16].**

[14] Five Nations have proposed allowing the sale of Chinook over 80cm (currently FSC retention only under dual fishing) with DNA/CWT sampling.
[15] **For 2024/25,** Area G submitted a change to their existing inshore Chinook CSAF proposal, which is to fish within the existing 1 nm seaward of surfline area.
[16] Area G has proposed returning to an August 1 summer fishery start date.

Stock of Concern	First Nations FSC and Treaty Fishery	Five Nations Multi-Species Fishery	Recreational Fishery	Commercial Fishery
Lower Strait of Georgia Chinook	Harvest levels outlined in Harvest documents and communal licences	Offshore* AABM Chinook directed fisheries closed from April 1 – July 14 *Excluding 1 nm seaward of surfline	Offshore* recreational fisheries closed to Chinook retention from April 1 – July 14 *Excluding 1 nm seaward of surfline	AABM harvest rate reductions have reduced impact on LGS Chinook Spring demo fishery will be limited to inshore waters* and a limited TAC of 3,000 pieces. Approval of this fishery for 2025 is dependent on 2024 results. *Excluding 1 nm seaward of surfline[17]
South Coast Coho (Interior Fraser River Coho management objective)	Harvest levels outlined in Harvest documents and communal licences. Bycatch retention may be considered during fisheries for other species.	Coho Retention limited to selective hatchery mark[18] fishery prior to mid September in offshore waters. Retention of wild Coho after September 15 offshore and in inshore areas subject to allocations identified in the Five Nations Multi Species FMP.	Coho retention limited to selective hatchery mark fishery (SHMF) in most areas. Retention of wild Coho in inside waters on the WCVI may be considered subject to presence of IFR Coho and local abundance of WCVI Coho.	Considerations for Coho retention after mid-September in WCVI troll fisheries when stocks of concern have migrated out of the area*. *Superseded by IFR Steelhead measures.

[17] **For 2024/25,** Area G submitted a change to their existing inshore Chinook CSAF proposal, which is to fish within the existing 1 nm seaward of surfline area.

[18] Five Nations have proposed to retain for sale both wild and hatchery Coho (currently only hatchery prior to September 15) from their offshore WCVI salmon fisheries with DNA/CWT sampling.

Stock of Concern	First Nations FSC and Treaty Fishery	Five Nations Multi-Species Fishery	Recreational Fishery	Commercial Fishery
Thompson and Chilcotin River Steelhead	No measures for WCVI FSC fisheries	No measures for Five Nations multi-species sale fishery.	No measures for WCVI recreational fisheries.	27-day moving window closure for Area G troll fisheries in A123 to A127 and portions of Area 26 and Area 27. See Table 13- and Appendix 9 for details

13.1.2.5 ALLOCATION AND FISHING PLANS

13.1.2.5.1 First Nations Fisheries

Food Social and Ceremonial

WCVI FSC fisheries for AABM Chinook will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

Based on 2022 harvest information, 10,000 Chinook are being set aside from the WCVI AABM TAC as an expected catch for WCVI First Nations.

Refer to Section 10.2 for Communal Licence Harvest Target Amounts in southern BC/Fraser River First Nations Fisheries. Note that AABM and ISBM Chinook amounts are combined.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. Catch reporting timelines for First Nations fisheries are outlined in Comprehensive Fisheries Agreements and/or Aboriginal Communal Fishing Licences. Where in-season management requires, catch reports are sought weekly during the respective fishing season.

To improve the collective understanding of stocks of concern, in terms of their migration routes, timing and fisheries impacts, First Nations are 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.

Treaty Fisheries

WCVI Treaty fisheries for AABM Chinook will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

Maa-nulth Fisheries (Domestic)

The Domestic allocations for salmon under the Maa-nulth First Nations Final Agreement are "an amount of Ocean Chinook Salmon equal to 1,875 pieces plus 1.78% of the Ocean Chinook Salmon Canadian Total Allowable Catch."

For the 2022/2023 Chinook year the Maa-nulth allocation of Ocean Chinook was 3,931. The 2023/2024 allocation is not yet available.

The Maa-nulth First Nations provide catch reports to the Department through the Maa-nulth Electronic Reporting Program (MERP). The information recorded on catch reports includes the gear type, fishing time period, location of harvest, harvest count by species, harvest effort, and pieces of salmon harvested.

To improve the collective understanding of stocks of concern, in terms of their migration routes, timing and fisheries impacts, First Nations are 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.

Five Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht / Muchalaht, and Tla-o-qui-aht First Nations) Multi-species Fishery

The Five Nations Multi-species fishery for AABM Chinook will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

Five Nuu-chah-nulth First Nations located on the west coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) – have an Aboriginal right to fish for any species, with the exception of Geoduck, within their court-defined fishing territories and to sell that fish. For further information please see Section 10.3.1.

In 2024, the Five Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht) Multi-species commercial fishery will be delayed until July 15 in areas seaward of 1 nautical mile from the surfline on the West Coast of Vancouver Island. Measures following this

delayed opening will be a maximum 80 cm size limit[19] from July 15 to July 31. Fishing may be authorized in areas shoreward of 1 nautical mile from the surfline prior to July 15.

13.1.2.5.2 Recreational Fisheries

The recreational total annual limit for Chinook from any tidal waters was set at 10 Chinook in April 2019 as part of conservation measures to address the poor status of many Chinook stocks in BC. This annual limit has remained in place since then and will continue with licence issuance for the 2023/2024 season. Recreational anglers must record all Chinook retained catch either on their licence, or if mobile internet access is immediately available, the licence holder may alternatively record catch immediately in their National Recreational Licensing System (NRLS) account.

The AABM recreational fishery includes all catch in northwest WCVI (Areas 25 to 27, 125 to 127) from October 16 to June 30, and the catch offshore outside of one nautical mile seaward of surfline from July 1 to October 15, plus all the catch in southwest WCVI (Areas 21, 23, 24, 121, 123, and 124) from October 16 through July 31, and the catch offshore, outside of one nautical mile seaward of the surfline from August 1 to October 15.

WCVI Areas 121, 123-127 seaward of 1 nautical mile outside of the surfline are Chinook non-retention from April 1 to July 14 in efforts to address conservation concerns for Fraser River Chinook Salmon. Furthermore, a maximum size limit will be in place from July 15 to 31. In 2023 the daily retention limit was reduced from two (2) to one (1) in PFMA's 121 and 123 during this period.

As in all areas, recreational harvesters must purchase a fishing licence from DFO.

Updates to recreational fisheries are provided via Fishery Notice and published on the recreational fisheries website at: http://www.bcsportfishingguide.ca.

[19] Five Nations have proposed allowing the sale of Chinook over 80cm during the July 15-31 period with CWT/DNA sampling.

Allocation

For planning purposes the AABM recreational fishery is expected to catch 35,000 Chinook. If the recreational harvest is forecast in-season to be less than or greater than the pre-season expected catch, the commercial TAC will be adjusted to account for the difference.

Recreational Conservation Measures

WCVI recreational fisheries for AABM Chinook will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

As a result of concerns for WCVI Chinook that emerged in the mid-late 1990s, a suite of management measures was implemented on the WCVI intended to protect wild WCVI Chinook from recreational fishing pressure. These management measures fluctuated yearly with levels and areas of restriction. In 2000, a recreational fishery "Chinook management corridor", extending one nautical mile offshore from the surfline was put in place along the West Coast of Vancouver Island in order to reduce the exploitation rate on adult female Chinook that migrate along the coastline back to their natal WCVI streams. The surfline is defined in Schedule 1 of the *Pacific Fishery Management Area Regulations*, 2007. From 2006 to 2015 the suite of management measures has remained relatively stable with very few local changes.

Management measures were modified in 2016 to focus fisheries on zones of high hatchery production, ensure small systems are provided protection through terminal finfish closures, and simplify regulations for improved compliance, enforceability, assessment, and angler education.

The WCVI Chinook management measures introduced in 2016 remain in effect. Minor modifications may be considered in the pre-season planning process.

Fishery Monitoring and Catch Reporting

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch (iREC) reporting program are the main tools used to capture recreational catch and effort information in this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

13.1.2.5.3 Commercial Fisheries

AABM commercial Chinook fisheries take place annually and may be permitted in Areas 23 to 27, and Areas 123 to 127.

Within the bounds of the PST provisions, commercial troll Chinook fisheries will be managed to limit impacts on domestic stocks of concern, including Fraser River Spring 4$_2$ Chinook, Fraser

River Spring 5_2 and Summer 5_2 Chinook, WCVI wild Chinook, LGS Chinook, and Interior Fraser River Coho, and Interior Fraser River Steelhead.

Fraser River Spring 4_2 Chinook, Fraser River Spring and Summer 5_2 Chinook stocks are present on the WCVI during the spring and summer period, most prevalently when they landfall on their migration back to the Fraser River. To protect returning Fraser Chinook stocks of concern, the Area G troll spring fishery is closed in the offshore waters of the WCVI. **New for 2024/25:** Area G has requested an earlier start date for the Area G Troll Chinook summer fishery.

During April 1 to May 31, 2023, Area G troll conducted a demonstration fishery in the inshore areas of the WCVI in Areas 23-27. The TAC for this fishery was limited to 3,000 and sampling to determine the presence of Chinook stocks of concern was a priority. The results of this fishery are available upon request from Brad Beaith (Brad.Beaith@dfo-mpo.gc.ca). **New for 2024/25:** Area G has submitted a change to their existing proposal, to include the 1 nautical mile corridor in the inshore demonstration fishery.

A 27-day rolling window closure to the Area G troll fishery will also be implemented in 2024 to protect Interior Fraser River Steelhead. Areas and dates for this window closure are listed in Table 13-. Terminal fisheries targeting terminal abundance that are understood to not be on the migration route of IFR Steelhead may be excluded from 2024 conservation measures. See Appendix 9 for details on these terminal areas.

Table 13-4: IFR Steelhead Rolling Window Closure Dates for Area G Troll Fishery

Area Details	Start	End
Area 123	16-Sep	12-Oct
Area 124	13-Sep	9-Oct
Area 125	11-Sep	7-Oct
Area 26-11	8-Sep	4-Oct
Area 126	8-Sep	4-Oct
Areas 27-1 and 27-2 westerly of a line from Cape Parkins (50 26.6395 N, 128 02.8157 W) to Kwakiutl Point (50 21.0552 N, 127 59.4362 W), 27-4 to 27-6)	6-Sep	2-Oct
Area 127	6-Sep	2-Oct

LGS Chinook identified by coded-wire tagged Cowichan River Chinook are broadly distributed in time and area along the WCVI. A number of management approaches have been utilized in

previous troll fisheries to limit impacts on LGS Chinook. It is anticipated that the substantial reduction in commercial harvests under the 2009 and 2019 PST agreements should continue to provide sufficient protection for LGS Chinook.

WCVI wild Chinook continues to be a stock of concern. As a result, management measures consistent with previous years will be implemented to protect this stock. The objective for commercial troll fisheries will be to avoid encounters with WCVI Chinook by restricting the troll fishery to offshore areas during the summer period. Specifically, there will be a 5 nautical mile inside boundary in Areas 123 to 126 and a 2 nautical mile boundary in Area 127 and sub-Area 126-4 during the period when WCVI Chinook return to the West Coast of the island. If further restrictions are required for conservation purposes, zone/area and time closures may be implemented.

Allocation

Table 13-5: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South - WCVI AABM Chinook	23 to 27, 123 to 127	*	*	0.0%	100.0%[g]	0.0%

Notes on Chinook allocations:
[*] bycatch provisions
[g] this is WCVI AABM Chinook fishery

The commercial TAC is calculated by deducting the Maa-nulth treaty allocation (see above for formula), 10,000 expected catch for FSC, the Five Nations Multi-species Fishery share (calculated annually based on the Canadian TAC), and an expected recreational catch of 35,000.

WCVI AABM Commercial Chinook Fishing Plan

Area G Troll Fishing Plan

Pending results of the 2024 demonstration fishery, Area G may conduct a CSAF demonstration fishery in all inside areas of WCVI, inside the surf line[20] from April 1 to May 31, 2025. This fishery will harvest up to 3,000 Chinook to determine the stock composition of

[20] Area G has proposed including a 1nm strip of the adjacent offshore PFMA's.

Chinook in the inside waters of the WCVI during this time period. The full proposal can be found in Appendix 6**.**

Conservation measures for Interior Fraser River Steelhead will continue in 2024 in the form of a 27-day rolling window closure to the Area G troll fishery. See Table 13- for areas and dates. The following fishing plan is subject to change to account for domestic stocks of concern passing the WCVI. Fishery openings are planned to distribute harvests proportionately over all fishery periods subject to constraints to protect stocks of concern.

October 1 to March 15: Stock composition data indicate the majority of fish harvested during this period are U.S.-origin stocks rearing off the WCVI with the exception of LGS Chinook, which may also rear off the WCVI. Other Canadian Chinook stocks of concern are not vulnerable to the fishery during this period. Interior Fraser Steelhead measures are in effect on the WCVI in parts of October. See Table 13- for details.

During the period from October 1 to March 15, a precautionary harvest level will be set to reflect the preliminary nature of the TAC and the low catch per unit effort that typically occurs at this time of year.

March 16 to April 18: Stock composition data indicate the relative abundance of Fraser-bound Chinook in the fishery begins to increase in March and April. Fraser River Spring 4_2 Chinook is a stock of concern. Fraser River Spring 4_2 Chinook appear to migrate off the continental shelf seaward of the WCVI troll harvest area, rather than along the vicinity of the shoreline. However, a portion of the stock is vulnerable to the offshore troll fishery on their return migration.

A time-area closure will be maintained from March 16 to April 18 to avoid interception of Fraser River Spring 4_2 Chinook.

April 19 to June 15: Stock composition data indicate the relative abundance of Fraser and Columbia Chinook in the fishery increases during this period. Many of the Fraser- and Columbia-origin stocks vulnerable to the fishery during this period are relatively abundant. With the exception of LGS Chinook and Fraser River Spring 4_2 Chinook in SWVI though early May, other Canadian Chinook stocks of concern are not generally vulnerable to the fishery at this time. However, from mid- to late June, there is increasing potential for interception of stocks of concern including Fraser River Spring and Summer 5_2 Chinook and Interior Fraser River Coho.

In 2025 an Area G spring time CSAF inshore demonstration fishery may occur. See details above.

June 16 to late July: Through July, stock composition data indicate the relative abundance of Fraser- and U.S.-bound Chinook (Puget Sound, Columbia, Oregon stocks) in the fishery remains high during this period. Many of these stocks are relatively abundant. However, opportunities for harvest in July are limited due to increasing interception of Interior Fraser River Coho. As well, starting in 2007/2008, a time–area closure for the WCVI troll was implemented from June 16 to July 31 to provide protection for Fraser River Spring and Fraser River Summer 5_2 Chinook. In 2011 an impact assessment on Fraser River Spring and Fraser River Summer 5_2 Chinook was undertaken to determine if troll fisheries could be scheduled in the last week of July in WCVI areas. The assessment supported troll opportunities in Areas 125 to 127, commencing July 24. To provide additional protection for Fraser River Chinook stocks in 2023, to the summer opening was delayed until August 16, 2023[21].

Late July to early August: Through August, stock composition data indicate the relative abundance of Fraser- and U.S.-bound Chinook (Puget Sound, Columbia, Oregon) in the fishery remains high during this period.

Fraser River Spring and Fraser River Summer 5_2 Chinook are less vulnerable to the fishery at this time. However, opportunities for harvest in August may be limited due to increasing interception of Interior Fraser River Coho.

During this period, the fishery will be managed to minimize mortality on Interior Fraser River Coho through: i) a maximum interception of Coho and ii) the mandatory use of plugs. The fishery will be managed to minimize mortality of WCVI-origin Chinook through the use of closures during time and areas where WCVI Chinook stocks are prevalent.

To provide additional protection for Fraser River Chinook stocks in 2023 the summer opening was delayed until August 16, 2023[22].

September: Stock composition data indicate the majority of Chinook stocks vulnerable to the fishery during this period are bound for the Fraser River, Puget Sound, and the Columbia River. Vulnerable stocks of concern include Interior Fraser River Coho and WCVI Chinook, which are present until about mid-September. After mid-September, Interior Fraser River Coho are not vulnerable to the fishery and options for the retention of Coho bycatch during the Chinook fishery may be considered. The September fishing period permits the harvest of remaining WCVI AABM TAC, as the Chinook year ends on September 30.

[21] Area G has proposed to revert the summer opening back to August 1, 2024.
[22] Area G has proposed to revert the summer opening back to August 1, 2024.

Any harvest opportunities prior to mid-September may be managed to avoid interception of Interior Fraser River Coho and WCVI Chinook. Interior Fraser River Steelhead measures are in effect on the WCVI during parts of September. See Table 13- for details.

Fishery Monitoring and Catch Reporting

There is a mandatory harvest log and in-season reporting program for catch information for all commercial fisheries.

Mandatory requirement to file fishing reports in all commercial fisheries, including "Start/Pause/Cancel/End" Fishing reports.

Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

There is an Area G troll partial validation program that occurs in conjunction with CWT sampling.

Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required.

Harvest Agreements

There are no Harvest Agreements for AABM Chinook.

Economic Opportunities

There are no EO fisheries for AABM Chinook.

13.1.2.5.4 ESSR Fisheries

There are no ESSR fisheries for AABM Chinook.

13.1.3 WCVI ISBM CHINOOK

13.1.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

This section of the plan covers First Nations, recreational, and commercial fisheries for Chinook Salmon in all waters along the WCVI and terminal areas that are not defined as AABM fisheries under the Pacific Salmon Treaty.

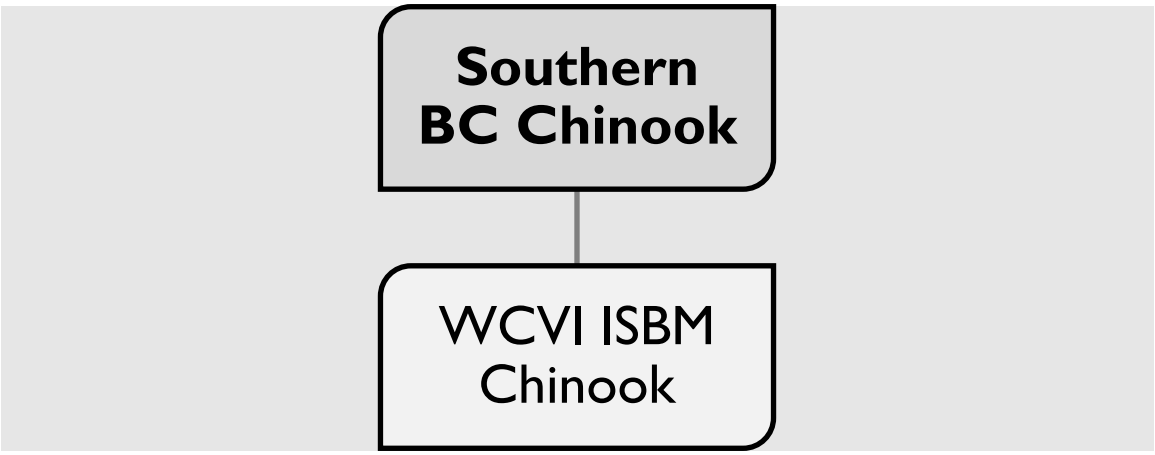


Figure 13.1-13-2: Overview of WCVI ISBM Chinook

13.1.3.2 STOCK ASSESSMENT INFORMATION

The integrated biological status of WCVI Chinook CUs was assessed by CSAS as part of a review of Southern BC Chinook CUs. The integrated biological status of the Nootka and Kyuquot CU was assessed as RED, SW Vancouver Island CU was RED, and NW Vancouver Island CU was "to be determined" pending development of methods where enhanced sites are predominant.

The Science Advisory Report is available at:
http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2016/2016_042-eng.html

13.1.3.2.1 Pre-season

Pre-season forecasts for WCVI Chinook stocks are not yet available but surpluses to the stocks supported by major enhancement facilities (Robertson, Conuma and Nitinat) are anticipated.

However, in most recent years, spawner abundances of wild indicator stocks within WCVI Conservation Units have been below provisional upper biological benchmarks, and in the case of the SWVI Conservation Unit, often below the lower biological benchmarks. Therefore, fisheries within Canada are managed to limit mortality on wild WCVI Chinook.

13.1.3.2.2 In-season

Where available, in-season abundance estimates will be reviewed in a timely manner to permit in-season consideration of additional terminal fishing opportunities for WCVI hatchery Chinook.

13.1.3.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

In response to conservation concerns for Chinook in both countries, several changes were made to PST Chapter 3 (Chinook), including targeted harvest reductions in both Canadian and U.S. fisheries and adoption of a new metric (the calendar year exploitation rate, CYER) to manage and evaluate performance in specific Canadian and U.S. individual stock-based management (ISBM) or "inside" fisheries. The agreement identifies reductions of up to 12.5% from 2009-2015 levels for specified Canadian and U.S. indicator populations in Canadian ISBM fisheries.

The Area 23 Harvest Committee is a forum that includes representatives from the Tseshaht, Hupacasath and Maa-nulth First Nations, the Nuu-chah-nulth Tribal Council, the Area B and D Harvest Committees, the local Sport Fishing Advisory Committee, local municipal governments, the provincial government and DFO. The Area 23 Harvest Committee is developing a Somass Chinook local integrated fishery management plan that will define the escapement targets and harvest rates under various run sizes. The Decision Guidelines in this IFMP will be updated once the detailed local plan has been completed through the Area 23 Harvest Committee.

The Area 25 Harvest Committee is a forum that includes representatives from the Ehattesaht, Mowachaht/Muchalaht, and Nuchatlaht First Nations, the Area D Harvest Committee, the local Sport Fishing Advisory Committee, the Nootka Sound Watershed Society, local municipal governments and DFO. The Area 25 Roundtable is developing a detailed local management plan for Chinook in Area 25. Pre-season planning in 2024 will particularly focus on developing

assessment programs and harvest decision guidelines for Chinook fisheries (Five Nations fishery, recreational and commercial) in Muchalaht Inlet. The Decision Guidelines in this IFMP will be updated once the detailed local plan has been completed through the Area 25 Harvest Committee.

The Chinook mass-marking pilot program will continue and be expanded in Area 25. Due to the COVID-19 pandemic not all 2019 brood-year Conuma hatchery Chinook were marked with an adipose fin clip; however, the subsequent brood year releases were all marked. The target for 2024 is to mark all Conuma, Burman, Gold, and Tahsis Chinook.

New for 2024/25: DFO is considering the potential use of mark-selective fishery regulations for the recreational fishery in Area 25. Implementation decisions will be preceded by evaluation including an analysis of mark rates and stock composition, an evaluation of conservation objectives, and consultations with First Nations, Area 25 Roundtable, and SFAC. Proposals for new MSF opportunities may be submitted by all harvest sectors, or by DFO, and they will evaluated against the key criteria laid out *An Implementation Framework for Mark-Selective Fisheries for Southern British Columbia Chinook Salmon* (Appendix 12).

An enhanced independent recreational monitoring program (i.e., reference fishery) has been approved for 2024/2025. This reference fishery will be used to independently verify at-sea releases, mark rates and stock composition.

ISBM Chinook fisheries will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

13.1.3.4 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO WCVI ISBM CHINOOK FISHERIES

Table 13-6: Actions to protect wild Chinook stocks

First Nations Fishery	Five Nations Multi-Species Fishery	Recreational Fishery	Commercial Fishery
Harvest documents and Communal licence harvest targets Conservation measures under discussion.	Harvest documents and communal commercial licence harvest targets Potential time and area closures during the July to October period Conservation measures under discussion Measures will vary by area	Time and area closures, including: - Finfish closures - Salmon non-retention areas - Chinook non-retention areas - Maximum size limits Daily, possession and annual limits Measures will vary by area	Time and area closures during the July to October period

13.1.3.5 ALLOCATION AND FISHING PLANS

13.1.3.5.1 First Nations Fisheries

Food, Social, and Ceremonial

First Nations target Chinook stocks for FSC purposes throughout the WCVI.

Refer to Section 10.2 for Communal Licence Harvest Target Amounts in Southern BC/Fraser River First Nations Fisheries. Note that AABM and ISBM Chinook amounts are combined.

Specific Conservation Measures for First Nations Fisheries

Mandatory and voluntary measures have been implemented to support prey availability and reduce disturbance to Southern Resident Killer Whales, including within southern BC waters and key foraging areas within Strait of Juan de Fuca and the Gulf Islands. These measures are outlined in Section 5.6.

Protective measures may be considered in terminal areas, particularly Area 24, to reduce harvest impacts on wild Chinook. Potential measures will be the subject of discussion with First Nations communities prior to development of fishing plans.

Treaty Fisheries

Maa-nulth Fisheries (Domestic)

The Domestic allocations for Chinook Salmon under the Maa-nulth First Nations Final Agreement are as follows:

An amount of terminal Chinook Salmon equal to:

200 pieces, when the return of terminal Chinook Salmon is critical;

1,500 pieces, when the return of terminal Chinook Salmon is low;

2,000 pieces, when the return of terminal Chinook Salmon is moderate; and

2,600 pieces, when the return of terminal Chinook Salmon is abundant.

The Maa-nulth First Nations provide catch reports to the Department through the Maa-nulth Electronic Reporting Program (MERP). The information recorded on catch reports includes the gear type, fishing time period, location of harvest, harvest count by species, harvest effort, and pieces of salmon harvested.

Five Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht / Muchalaht, and Tla-o-qui-aht First Nations) Multi-species Fishery

Five Nuu-chah-nulth First Nations located on the west coast of Vancouver Island – Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) – have an Aboriginal right to fish for any species, with the exception of Geoduck, within their court-defined fishing territories and to sell that fish. The fishery monitoring and catch reporting requirements for the Five Nations Multi-species Fishery include 100 per cent independent dockside monitoring to validate catch, as well as fisher-completed logbooks. Catch data is provided to the Department on a weekly basis. Additional details can be found in the Five Nations 2023/24 Multi-species Fishery Management Plan.https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41047977.pdf

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under a communal licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. Catch reporting timelines for First Nations fisheries are outlined in Comprehensive Fisheries Agreements and/or Aboriginal Communal Fishing

Licences. Where in-season management requires, catch reports are sought weekly during the respective fishing season.

13.1.3.5.2 Recreational Fisheries

ISBM recreational Chinook fisheries in the WCVI take place annually in Areas 21 to 24 from August 1 to October 15, and in Areas 25 to 27 from July 1 to October 15. Chinook caught in these areas outside of this time period are accounted for as part of the AABM fishery catch. Catch and effort typically peaks in these areas during the months of July and August, and effort is largely abundance-driven.

The recreational total annual limit for Chinook from any tidal waters was set at 10 Chinook in April 2019 as part of conservation measures to address the poor status of many Chinook stocks in BC. Recreational anglers must record all Chinook retained either on their licence, or if mobile internet access is immediately available, the licence holder may alternatively record catch immediately in their National Recreational Licensing System (NRLS) account. The minimum size limit for Chinook in recreational ISBM fisheries is 45 cm. The maximum daily limit for Chinook is two, and the possession limit is four. Updates to recreational fisheries are provided via Fishery Notice and published on the recreational fisheries website at: http://www.bcsportfishingguide.ca

Recreational Fisheries Specific Conservation Measures

Conservation measures for ISBM fisheries are designed largely to protect wild Chinook returning to the WCVI. Decisions on these management measures are primarily made pre-season and go into effect based on stock outlook and expected returns. In-season management decisions can also be made in response to localized Chinook escapements. Harvests largely target hatchery production and management measures are designed to minimize impact on wild WCVI Chinook populations.

New for 2024/25: DFO is considering the potential use of mark-selective fishery regulations for the recreational fishery in Area 25. Implementation decisions will be preceded by evaluation including an analysis of mark rates and stock composition, an evaluation of conservation objectives, and consultations with First Nations, Area 25 Roundtable, and SFAC. Proposals for new MSF opportunities may be submitted by all harvest sectors, or by DFO, and they will evaluated against the key criteria laid out *An Implementation Framework for Mark-Selective Fisheries for Southern British Columbia Chinook Salmon* (Appendix 12).

Fishery Monitoring and Catch Reporting

Catch monitoring programs, including seasonal creel surveys, logbooks and the internet recreational effort and catch (iREC) reporting program, are the main tools used to capture recreational catch and effort information in this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

New for 2024/25: An enhanced independent recreational monitoring program (i.e. reference fishery) has been approved. This reference fishery will be used to independently verify at-sea releases, mark rates and stock composition.

13.1.3.5.3 Commercial Fisheries

Allocation

Table 13-7: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South-WCVI Inside	21 to 27	5.0%[h]	75.0%[i]	5.0%[i]	15.0%[j]	0.0%

Notes on Chinook allocations (south):
[h]Area 23 sharing arrangement currently 33.3% seine: 66.7% gill net.
[i]Area 25 fishery (potential for future review. 75% fishery to Area D (e.g., Tlupana Inlet fishery); potential 5% to Area E if future surplus at Nitinat; otherwise default to Area D)
[j]winter troll fishery

WCVI ISBM Commercial Chinook Fisheries

Commercial fisheries for WCVI ISBM Chinook do not occur in areas that will be impacted by 2024 Interior Fraser River Steelhead management measures.

Area D Gill Net Potential Fisheries

Mid-August to Mid-September - Area 23: Terminal fisheries on Robertson Creek hatchery Chinook are expected.

Mid-August - Area 25: Terminal fisheries on Conuma hatchery Chinook are expected. Typically, Area D and the Five Nations have agreed to a swap of allocation in which Area D will swap their entire Gold/Burman Chinook allocation for a corresponding quantity of the Five Nation's Conuma Chinook allocation, pre-determining a Conuma Chinook targeted fishery for Area D will occur in Tlupana Inlet only.

New for 2024/25: DFO is evaluating a request from the Area D harvest committee to change their existing mid-August terminal Chinook fishery in Area 25 from TAC-based to effort-based. Detailed fishery planning discussions will occur with the Area 25 Roundtable.

Area B Seine Potential Fisheries

Mid-August to Early September – Area 23: Terminal fisheries on Robertson Creek hatchery Chinook are expected.

Fishery Monitoring and Catch Reporting

There is a mandatory harvest log and in-season reporting requirements for catch information for all commercial fisheries:

- Mandatory requirement to file fishing reports in all commercial fisheries, including "Start/Pause/Cancel/End" Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required.

Any potential Area B fishery in Area 23 would be conducted as a pooled fishery with a 100% dockside monitoring program. Please note that 2024/2025 licence conditions will be updated to include the mandatory dockside monitoring program.

WCVI ISBM Chinook First Nations Economic Opportunity Fisheries

Economic Opportunities

Economic opportunities for Somass First Nations (Tseshaht and Hupacasath First Nations) are expected in 2024. Economic opportunity fisheries will be conducted under agreements that specify provisions for planning fisheries, allocations, catch reporting requirements as well as roles and responsibilities regarding the management of the fishery. The TAC for economic opportunity fisheries is 50% of the commercial TAC, which includes ISBM Chinook Salmon allocated for the FSC fishery. The Department's general approach is that Indigenous commercial harvest opportunities are managed using the same harvest decision guidelines as the commercial fishery. Indigenous commercial harvest opportunities may be implemented with different times, areas, gears and regulations consistent with the overall management approach for the commercial fishery.

Economic opportunity fisheries for WCVI ISBM Chinook do not occur in areas that will be impacted by 2024 Interior Fraser River Steelhead management measures.

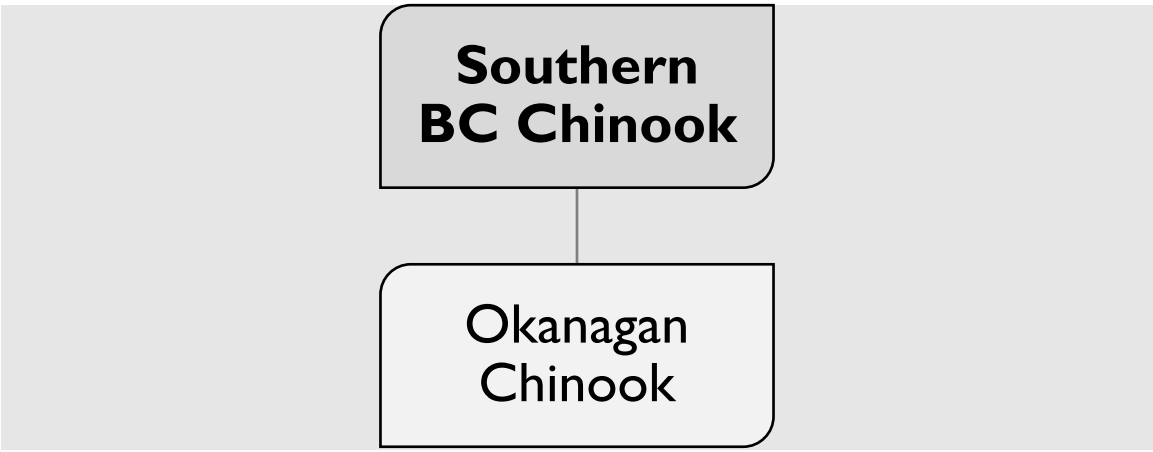
13.1.3.5.4 ESSR Fisheries

There is the potential for ESSR fisheries at the Robertson and Nitinat hatcheries as well as Burman River when broodstock collection targets will be met. These fisheries are implemented in collaboration with local First Nations and DFO hatchery staff. ESSR fisheries for other enhanced streams may be considered where excess escapements can be identified in-season. There is the potential for a Surplus to Escapement fishery on Conuma Chinook for the Five Nations under the Five Nations Multi-Species Fishery Management Plan.

In 2021, 2022 and 2023 there was a mark-selective terminal Chinook fishery on the Sarita River that was licenced as an ESSR fishery. Planning for this fishery, under Maa-nulth treaty provisions, will continue with the Huu-ay-aht First Nation (one of the Maa-nulth Treaty nations) for 2024. In addition to escapement goals, genetic goals using metrics such as Proportion Natural Influence (PNI) are also considered in the fishery planning.

13.1.4 OKANAGAN CHINOOK

13.1.4.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT



Conservation Units

Okanagan

Figure 13.1-13-3: Overview of Okanagan Chinook

The Okanagan Chinook population is the last remaining Columbia basin stock that resides within Canada and it is geographically and genetically distinct from Chinook populations elsewhere in Canada. The Canadian Okanagan population consists of anadromous salmon that migrate to and from the Pacific Ocean through the Columbia River to Canadian portions of the Okanagan River. The average annual number of Chinook spawning in Canada is less than 50 adults.

The Canadian portion of the Okanagan Chinook population likely has a life history similar to the life history of other Upper Columbia River summer stocks.

Rebuilding Plan development for Okanagan Chinook is currently underway, with an expected completion date by April 2024. An initial draft of the rebuilding plan is currently being collaboratively developed with the Okanagan Nation Alliance. Engagement with First Nations and stakeholders on the draft rebuilding plan will continue into 2024.

13.1.4.2 STOCK ASSESSMENT INFORMATION

The Okanagan Chinook stock was reassessed in April 2017 and designated as *Endangered* rather than *Threatened* as previously assessed by COSEWIC.

The WSP biological status of Okanagan Chinook was assessed as in the red zone by CSAS. The Science Advisory Report is available at:
http://publications.gc.ca/collections/collection_2016/mpo-dfo/Fs70-6-2016-042-eng.pdf

13.1.4.2.1 Pre-season

Expectations for 2024 are for continued depressed abundance related to very low parental escapements, low marine and freshwater survival, and low productivity. Okanagan Chinook are part of the Columbia River Summer Chinook aggregate of which the United States produces a formal forecast.

13.1.4.2.2 In-season

An electronic counter at Zozel dam at the outlet of Osoyoos Lake can provide a preliminary indication of adult Chinook returns. A high degree of uncertainty exists with this count, as an unknown number of fish are likely to drop back downstream and spawn in the United States portions of the Okanagan River and/or the Similkameen River. Spawning ground assessments are done on an annual basis by the Okanagan Nation Alliance (ONA) fisheries staff and are comprised of visual/dead recovery surveys to determine spawner abundance in the Okanagan River and Skaha Lake system. In addition to the visual surveys, ONA is developing a PIT tag mark-recapture method to provide a more accurate assessment of spawner abundance.

Decision Guidelines and Management Actions

This stock likely has the same life history pattern as other Upper Columbia summer Chinook populations and could be intercepted in fisheries targeting these stocks. In the terminal area in Canada (Osoyoos Lake), this stock may be intercepted in FSC, commercial and recreational Sockeye-directed fisheries. There are no Canadian directed fisheries on this stock.

13.1.4.3 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO FISHERIES

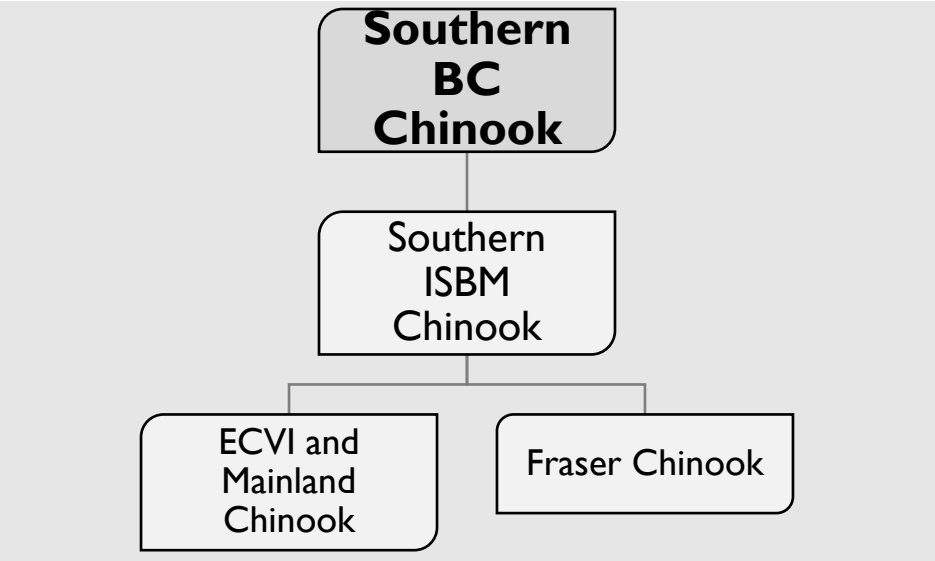
Non-retention measures are in effect in Canadian fisheries.

13.1.4.4 ALLOCATION AND FISHING PLANS

There are no directed fisheries on this stock.

13.1.5 SOUTHERN ISBM CHINOOK

13.1.5.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT



Conservation Units

Homathko Summer

Klinaklini Summer

NE Vancouver Island Fall

Southern Mainland - Southern Fjords Fall

Southern Mainland - Georgia Strait Fall

Boundary Bay Fall

East Vancouver Island Cowichan & Koksilah Fall

East Vancouver Island Goldstream Fall

East Vancouver Island Nanaimo & Chemainus Fall

East Vancouver Island Qualicum Puntledge Fall

Vancouver Island – Georgia Strait Summer

East Vancouver Island – Nanaimo Spring (retired)

Conservation Units

Spring 4₂
STh Bessette Creek
LThom spring age 4₂

Spring 5₂
LFR springs
LFR Upper Pitt
FR Canyon – Nahatlatch
MFR Springs
UFR Spring
NTh spring age 5₂

Summer 5₂
LFR Summer
MFR Portage
MFR Summers
STh summer age 5₂
NTh summer age 5₂

Summer 4₁
Maria Slough
STh summer age 4₁
Shuswap River summer age 4₁
Upper Adams River

Fraser Fall 4₁
LFR fall whites

Figure 13.1-13-4: Overview of Southern ISBM Chinook

ISBM management regimes apply to all Chinook Salmon fisheries subject to the Pacific Salmon Treaty that are not AABM fisheries. These include marine and freshwater salmon fisheries from northern British Columbia to the northern Oregon coast. ISBM fisheries in Southern B.C. include First Nations, recreational, and commercial net fisheries (e.g., Fraser River gill net).

Fraser Chinook

For management purposes, Fraser Chinook stocks will be managed using the Spring 4_2, Spring 5_2, Summer 5_2, Summer 4_1, and Fraser Fall 4_1 management units (MUs) employed under the PST process to align fisheries management objectives with indicator stocks, escapement, catch, and exploitation rate data used in the PST process. The relationship between current PST management units, COSEWIC designatable units (DUs), Wild Salmon Policy conservation units (CUs) and spawning locations is shown in Table 13-. Information on the 2024 management of these MUs is found in Table 13- including current management objectives, recent fishery mortality indices (FMIs), indicator stocks representing the MU, and any management goals currently in place. See section 13.1.2.2.2 for more detailed information on the proposed management objectives. The Summer 4_1 MU does not currently have a management objective, but the Lower Shuswap indicator stock for this MU does have a management objective identified in the PST. The Department, in collaboration with the Fraser Salmon Management Board (FSMB) and with technical support from the Joint Technical Committee (JTC), plans to explore methods to define a management objective for this MU.

The Fraser Salmon Collaborative Management Agreement (FSCMA; Agreement), signed in 2019, establishes a joint process to support the collaborative management and conservation of Fraser River Salmon between DFO and the Fraser Salmon Management Council (FSMC). The FSMC is an Indigenous organization that includes 76 signatory First Nations from the Fraser watershed and marine approach areas with access to Fraser salmon. The Fraser Salmon Management Board (FSMB), the joint FSMC and DFO table established by the FSCMA, has been developing annual workplans and undertaking the work identified therein since the 2020-21 fiscal year.

One workplan item for the 2023/24 fiscal year was to review recent Fishery Mortality Index (FMI) information and consider the development of recommendations for the management of Fraser Chinook. A technical review of the FMI (which combines Fraser run reconstruction plus marine catch/stock composition data) indicates that since more precautionary management measures were introduced in 2019, fishery mortalities for earlier-timed Fraser Spring 4_2 and Spring 5_2 Chinook were reduced to below 5% on average for the 2019-2022 period. However, over that timeframe the average FMI for Summer 5_2 Chinook was only reduced approximately

13.1% (2014-18 average of 25%), due to its later return timing which overlaps with the more abundant Summer 4$_1$ Chinook that was the primary target of Chinook fisheries during this time period. In 2023, a recommendation was passed by the FSMB that a precautionary management approach continue to be in place for Spring 4$_2$ and Spring 5$_2$ Chinook and that DFO and the FSMC, through the FSMB, work to identify and recommend additional fishery management measures for 2023 to further reduce mortalities on Summer 5$_2$ Chinook, as estimated by DFO's Fishery Mortality Index (FMI), from approximately 15% towards 10%, in a manner that respects priority access for First Nations food, social and ceremonial fisheries after conservation measures.

In 2023 the Minister approved additional conservation measures for Fraser River Summer 5$_2$ Chinook to limit Canadian fishing mortality to 14% with additional restrictions taken in recreational and commercial fisheries to strengthen conservation outcomes and further support priority access for First Nations FSC fisheries. In addition, there was a commitment to develop quantitative Canadian fishery mortality limits for Summer 5$_2$ Chinook.

The fishery measures for 2023 were focused on commercial and recreational fisheries, with FSC management approaches similar to those implemented in recent years. This was expected to result in the majority of the available impacts occurring in FSC fisheries. Actual post-season results for the 2023 season will be available in the Fall of 2024 when genetic sample and run reconstruction information are completed. Total fishery impacts for the most recent year of analysis were estimated at 10.2% (2022) with an average from 2019-2022 of 13.2% (range: 10.2%-18.2%). Historically, Summer 5$_2$ escapements averaged around SMSY (23,567), but over the last 20 years there has been a declining trend in escapements. The 2023 preliminary escapement estimate was approximately 18,000, which is near the long-term average (19,518 for 1999-2022) but still below SMSY estimate (based on habitat availability). Summer 5$_2$ escapement dropped to historic lows in 2018 and 2019, but the escapements from 2021-2023 have been higher than the brood year returns.

The Fraser Salmon Management Board (FSMB) recommends the continuation of precautionary fishery restrictions to provide a high degree of protection to at-risk Fraser stream-type Chinook management units (Spring 4$_2$, Spring 5$_2$, and Summer 5$_2$). For Summer 5$_2$ Chinook, the FSMB recommends the continuation of precautionary fishery restrictions in Canadian fisheries to maintain very low fishery mortalities in the range of 10% to 14% to allow as many fish to pass through to the spawning grounds as possible. This approach is intended to support continued rebuilding, mitigate anticipated low returns from populations that were heavily impacted by Big Bar in 2019, protect returns of populations that underwent emergency enhancement, and mitigate anticipated risks from adverse environmental conditions expected this summer (e.g., El Niño, drought conditions). In addition, many First Nations communities continue to face challenges in meeting their Chinook food, social and ceremonial (FSC) allocations, particularly

in the upper Fraser. In 2023, the Department planned fisheries to provide the majority of fishery mortalities in First Nations FSC fisheries to reflect the priority of these fisheries after conservation, with the remaining impacts limited to bycatch and incidental mortality in recreational, commercial, and test fisheries. Impacts in First Nations FSC and Treaty domestic fisheries in the Fraser River are intended to support very limited directed harvests early in the season and communal access to more abundant Chinook stocks (e.g., Fraser Summer 4$_1$) later in the season to help meet First Nations' FSC needs. Additional FSC opportunities may be permitted in terminal areas of the Fraser watershed where abundance permits. Marine FSC fisheries for Chinook are permitted with requests to collect additional genetic samples. The FSMB is continuing discussion on the operationalization of priority for First Nations FSC fisheries, consistent with legal obligations and allocation priorities.

Additional management measures may also be considered to address specific challenges related to environmental conditions (e.g., work to restore access to spawning streams, management measures to protect holding fish, etc.).

Specific fishery management measures for First Nations, recreational and commercial fisheries can be found in Section 13.

Recent indications of below average snow pack levels and expected above average temperatures through the summer will result in challenging environmental conditions for 2024. While the full extent of these impacts will not be understood until later in the year, the Department will continue to monitor these conditions, and may consider implementation of additional actions at a later date. In the interim, the Minister approved changes to the management plan for 2023 which were designed to reduce Canadian fisheries mortality to 14%. 2023 measures focused on commercial and recreational fisheries, with the majority of allowable impacts on Fraser Summer 5$_2$ Chinook being in FSC fisheries. The availability of total fishery impacts for the most recent year of analysis was estimated at 10.2% (2022) for Summer 5$_2$ Chinook, and prior to additional restrictions implemented in 2023. The Department is seeking feedback on management measures for 2024/25 that maintain very low fishery mortalities in the range of 10% to 14% and consistent with salmon allocation priorities for First Nations FSC after conservation.

For reference, management measures identified in this section included existing actions implemented in prior years and new commercial and recreational regulations approved in 2023/24 including:

- Area G Troll Chinook fishery start date of August 16; and

- Reduced recreational daily catch limits to one (1) Chinook per day from July 15 to 31 in Subareas 20-1, 20-2; Areas 111, 121, and the offshore portion of Area 123.

Table 13-8 Management values for all Fraser River Chinook Management Units

	Spring 4$_2$	**Spring 5$_2$**	**Summer 5$_2$**	**Summer 4$_1$**	**Fall 4$_1$**
2024 Management Objective	Allow as many fish to pass through to the spawning grounds as possible	Allow as many fish to pass through to the spawning grounds as possible	Allow as many fish to pass through to the spawning grounds as possible	In Development	Harrison Chinook escapement to exceed 75,100 **or** CYER below ~11.0%*
2019-2022 Average FMI	3.9%	4.9%	13.1%	27.1%	24.5% (Harrison prelim. 3 year avg. (2020-2022) CYER = ~12%)
Indicator Stock	Nicola	n/a	n/a	Lower Shuswap	Harrison
Indicator Stock Escapement Goal	n/a	n/a	n/a	12,300	75,100
PST ER% Obligation	n/a	n/a	n/a	n/a	Canadian ISBM CYER limit of 95% of the 2009-2015 average (below ~11.0%) for Harrison

**The CYER limit applies when the escapement goal is not met*

Fraser Spring 4_2 Chinook

Spring 4_2 Chinook return to spawn from early March through late July, with migration peaking in June in the lower Fraser River. These populations primarily mature as adults at age 4 (90%), with lower numbers maturing at age 5 (7%) and occasionally at age 3 (3%).

Coded-wire tagged (CWT) Nicola River Chinook released from the Spius Creek Hatchery is the PST exploitation rate indicator stock used to assess survival and exploitation rates of Spring 4_2 Chinook in Canadian and U.S. fisheries. Based on CWT recoveries from fisheries, Fraser Spring 4_2 Chinook have historically been encountered in Fraser River First Nations gill net fisheries, Fraser River and tributary recreational fisheries, marine troll fisheries (e.g., WCVI and North Coast), and recreational fisheries in the Strait of Juan de Fuca and Strait of Georgia, with lower rates in other marine recreational fisheries.

There are no in-season abundance forecasts developed for this aggregate.

Fraser Spring and Summer 5_2 Chinook

Spring 5_2 Chinook return to the Fraser River to spawn from early March through late July and migration peaks in late June in the lower Fraser River. Summer 5_2 Chinook have later timing and return to the Fraser River to spawn from late June to August with a peak in late July. These populations primarily mature as adults at age 5 (approx. 70%) and age 4 (approx. 20%) with lower numbers at age 3 and age 6.

There is historical information from past CWT recoveries (e.g., Dome Creek, a discontinued Spring 5_2 indicator) for these populations that indicates Spring 5_2 Chinook have been encountered in many of the same areas as Spring 4_2 Chinook. Summer 5_2 Chinook are also encountered in the same areas, but relative impacts among fisheries may differ given the approximately one month later migration timing of these Summer 5_2 stocks. A PST indicator stock for Summer 5_2 Chinook is currently under development at Chilko River, but data from this indicator is not expected to be useable for management purposes for several years.

There is an in-season projection of the terminal abundance for the combined Spring 5_2 and Summer 5_2 aggregate based on catch per unit of effort (CPUE) in the Albion test fishery and historical terminal abundance in the lower Fraser River. Details of the modelling approach can

be found in a CSAS document published here:
http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2012/2012_150-eng.html

Fraser Summer 4$_1$ Chinook

The Summer 4$_1$ Chinook MU consists of several populations that spawn almost exclusively within the Thompson River watershed and migrate through the lower Fraser River from mid-July to mid-September.

Within this stock group, CWTs from the Lower Shuswap River indicator stock are used to monitor survival and exploitation. Other systems of the aggregate are assessed visually, and work is underway to calibrate their escapement estimates. There are no in-season abundance forecasts developed for this aggregate.

Fraser Fall 4$_1$ Chinook

Fall 4$_1$ Chinook spawn mostly in the Harrison and Chilliwack watersheds and return to the Lower Fraser between mid-August and mid-November, with the majority of the run migrating through this area from mid-September to mid-October.

ECVI and Mainland Inlets

Chinook populations in the upper part of the Strait of Georgia include both ocean- and stream-type Chinook that spawn in systems from Northeast Vancouver Island down to Campbell River and across to the Mainland Inlets.

Within this stock group, CWTs from the Quinsam River indicator stock are used to monitor survival and exploitation rates. In the Mainland Inlets area, Phillips River was monitored as an exploitation rate indicator stock, but has been transitioned to an escapement indicator after hatchery releases were halted in 2019. Only a few other systems are monitored consistently for escapement in this area, including the Nimpkish River. There are no pre-season or in-season abundance forecasts developed for this unit.

Chinook populations in the lower Strait of Georgia are dominated by ocean-type life history (upper Nanaimo Chinook have a stream-type component) and fall run timing (summer runs exist in Puntledge and Nanaimo although some fish enter earlier in the year). A summer run may exist in Cowichan as well but the current status is unknown. Mean generational time is 3 or 4 years. Most populations are enhanced to some level. There are major DFO facilities on the Puntledge, Big Qualicum, Little Qualicum, Tenderfoot and Capilano Rivers. Smaller facilities enhance stocks in the Sliammon, Lang, Chapman, Seymour, Little Campbell, Oyster, Tsolum,

Englishman, Nanaimo, Chemainus, Cowichan and Goldstream systems. Most of these systems are monitored for spawner abundance.

Coded-wire tag indicators include Cowichan and Big Qualicum (Fall run timing) and Puntledge (Summer run timing). Pre-season forecasts are not produced for these systems. Some are monitored in-season and reported weekly in a bulletin.

13.1.5.2 STOCK ASSESSMENT INFORMATION

In November 2018, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) released the results for an assessment of 16 southern B.C. Chinook designatable units (DUs). Of these units, 13 DUs originate in the Fraser River with 7 DUs assessed as *Endangered*, 4 *Threatened* and 1 *Special Concern*; South Thompson Ocean Summer Chinook were deemed *Not at Risk*. For the other 3 DUs outside the Fraser River, 1 DU (East Vancouver Island Stream Spring; Nanaimo River) was assessed as *Endangered* and 2 Southern Mainland DUs were *Data Deficient*. Recovery potential assessments (RPAs) are currently underway for Nanaimo and Puntledge Summer stocks. A proposal to amalgamate the Nanaimo Spring and Summer runs into one CU has been reviewed and the Science response can be found here Proposed Changes to the Conservation Unit for Nanaimo River Watershed Spring Chinook (dfo-mpo.gc.ca). Status information is summarized in Table 13- and at https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/chinook-salmon-2018.html. COSEWIC submitted these assessments to the Government of Canada via the annual report in fall 2019 (https://species-registry.canada.ca/index-en.html#/documents/3543). This initiated the formal process to consider whether or not these DUs would be listed under the *Species at Risk Act* (SARA). COSEWIC assessment of the remaining southern B.C. Chinook populations occurred in November 2020 and were submitted to the Government of Canada via the annual report in fall 2021 (https://species-registry.canada.ca/index-en.html#/documents/1449). Of these populations, 3 DUs originate in the Fraser River and all were designated as *Endangered*. Of the other 9 DUs outside the Fraser River, 1 DU (East Vancouver Island, Ocean, Summer) was designated *Endangered*, 3 DUs were designated as *Threatened*, 1 DU was designated as *Special Concern*, 1 DU was designated *Not at Risk*, and 3 DUs were *Data Deficient*. Status information is summarized in Table 13- and at https://www.cosewic.ca/index.php/en-ca/assessment-process/detailed-version-november-2020.

Table 13-9: Relationship between current Pacific Salmon Treaty fishery management units, COSEWIC designatable units (DUs), Wild Salmon Policy (WSP) conservation units (CUs) and spawning locations.

Fishery Management Unit	Designatable Unit	*COSEWIC Assessment*	CU and WSP Status no colour = TBD gray = Data Deficient orange = red/amber	Spawning Locations
Spring 4₂ Chinook	DU14 BC South Thompson Stream Summer	*Endangered*	CK-16 STh Bessette Creek	Bessette Creek, Creighton Creek; Duteau Creek; Harris Creek
	DU15 BC Lower Thompson Stream Spring	*Endangered*	CK-17 Lower Thompson Spring	Bonaparte River; Coldwater River; Deadman River; Louis Creek; Nicola River; Spius Creek
Spring 5₂ Chinook	DU3 BC Lower Fraser River Stream Spring	*Special Concern*	CK-04 LFR Spring	Birkenhead
	DU4 BC Lower Fraser River Stream Summer (Upper Pitt)	*Endangered*	CK-05 LFR Upper Pitt	Pitt River-Upper
	DU7 BC Middle Fraser River Stream Spring	*Endangered*	CK-08 FR Canyon-Nahatlatch	Anderson, Nahatlatch
	DU9 BC Middle Fraser River Stream Spring	*Threatened*	CK-10 MFR Spring	Cariboo River-upper; Chilako River; Chilcotin River upper; Chilcotin River-lower; Cottonwood River; Horsefly River; Narcosli Creek; Naver Creek; West Road River and others

Fishery Management Unit	Designatable Unit	*COSEWIC Assessment*	CU and WSP Status no colour = TBD gray = Data Deficient orange = red/amber	Spawning Locations
	DU11 BC Upper Fraser River Stream Spring	*Endangered*	CK-12 UFR Spring	Bowron River; Dome Creek; East Twin Creek; Fraser River-above Tete Jaune; Forgetmenot Creek; Goat River; Holliday Creek; Holmes River; Horsey Creek; Humbug Creek; Kenneth Creek; McGregor River; McKale River; Morkill River; Nevin Creek; Ptarmigan Creek; Slim Creek; Small Creek; Snowshoe Creek; Swift Creek; Torpy River; Walker Creek; Wansa Creek; West Twin Creek; Willow River; and others
	DU16 BC North Thompson Stream Spring	*Endangered*	CK-18 NTHOM Spring	Albreda River; Blue River; Finn Creek; Lyon Creek; Mad River
Summer 5₂ Chinook	DU5 BC Lower Fraser River Stream Summer	*Threatened*	**CK-06 LFR Summer**	Big Silver Creek; Chilliwack/Vedder River; Cogburn Creek; Douglas Creek; Green River; Lillooet River; Sloquet Creek; Tipella Cr.
	DU8 BC Middle Fraser River Stream Fall	*Endangered*	CK-09 MFR Portage	Portage
	DU10 BC Middle Fraser River Stream Summer	*Threatened*	CK-11 MFR Summer	Bridge River; Cariboo River lower; Chilko River; Endako River; Kazchek Creek; Kuzkwa River; Nechako River; Quesnel River; Seton River; Stellako River; Stuart River; and others

Fishery Management Unit	Designatable Unit	*COSEWIC Assessment*	CU and WSP Status no colour = TBD gray = Data Deficient orange = red/amber	Spawning Locations
	DU13 BC South Thompson Stream Summer	*Endangered*	CK-14 STh Summer age 5[2]	Eagle River; Salmon River
	DU17 BC North Thompson Stream Summer	*Endangered*	CK-19 NTHOM Summer	Barriere River; Clearwater River; Lemieux Creek; Mahood River; Mann Creek; North Thompson River; Raft River
Summer 4[1] Chinook	DU6 BC Lower Fraser River Ocean Summer	*Endangered*	CK-07 Maria Slough Summer	Maria Slough
	DU12 BC South Thompson Ocean Summer	*Not At Risk*	CK-13 STh Summer age 4[1]	Adams River; Little River; South Thompson River; Lower Thompson River; Lower Shuswap, Middle Shuswap
			CK-15 Shuswap River Summer	
Fraser Fall 4[1] Chinook	DU2 BC Lower Fraser River Ocean Fall	*Threatened*	CK-03 LFR Fall	Harrison
ECVI and Mainland Chinook	DU19 BC East Vancouver Island Stream Spring	*Endangered*	CK-23 East Vancouver Island – Nanaimo Spring	Nanaimo River - Upper
	DU20 BC East Vancouver Island Ocean Summer	*Endangered*	CK-83 Vancouver Island – Georgia Strait Summer	Puntledge River; Chemainus River; Nanaimo River;
	DU21 BC East Vancouver Island Ocean Fall	*Special Concern*	CK-21 East Vancouver Island – Goldstream Fall	Goldstream River; Tod Creek;

Fishery Management Unit	Designatable Unit	*COSEWIC Assessment*	CU and WSP Status no colour = TBD gray = Data Deficient orange = red/amber	Spawning Locations
			CK-22 East Vancouver Island – Cowichan & Koksilah Fall	Cowichan River; Koksilah River; Mesachie Creek; Patricia Creek; Robertson River; Shaw Creek
			CK-25 East Vancouver Island – Nanaimo & Chemanius Fall	Nanaimo River; Chemainus River; Haslam Creek; Napoleon Creek
			CK-27 East Vancouver Island – Qualicum & Puntledge Fall	Englishman River; Qualicum River; Black Creek; Little Qualicum River; Morrison Creek; Nanoose Creek; Nile Creek; Oyster River, Puntledge River; Rosewall Creek, Simms Creek; Tsable River; Tsolum River; Willow Creek; Woods Creek
	DU23 BC East Vancouver Island Ocean Fall (EVI+SFj)	***Not At Risk***	CK-29 East Vancouver Island – North Fall	Campbell River; Nimpkish River; Quinsam River; Salmon River; Adam River; Amor De Cosmos Creek; Cluxewe River; Drew Creek; Eve River; Granite Bay Creek; Keogh River; Kokish River; Mckercher Creek; Menzies Creek; Mohun Creek; Nahwitti River; Quatse River; Tsitika River; White River
West Vancouver Island Chinook	DU24 BC West Vancouver Island Ocean Fall (South)	***Threatened***	CK-31 West Vancouver Island – South Fall	Bedwell System; Kennedy River Upper; Megin River; Mayeha River; Nahmint River; Nitinat River; San Juan River; Sarita River; Somass River; Toquart River; Tranquil Creek; Atleo River; Ayum Creek; Bedwell River; Campus Creek; Canoe Pass Creek; Carnation Creek, Cataract Creek, Caycuse River; Charters River; China Creek; Upper and Lower Clayoquot River; Clemens Creek; Colemans Creek Consinka Creek; Cous Creek; Cypre River; De Mamiel

Fishery Management Unit	Designatable Unit	*COSEWIC Assessment*	CU and WSP Status no colour = TBD gray = Data Deficient orange = red/amber	Spawning Locations
				Creek; Deer Creek; Doobah Creek; Drinkwater Creek; Effingham River; Franklin River; Gordon River; Harrison Creek; Henderson Lake Creek; Ice River; Itatsoo Creek; Kennedy Lake Feeder Streams; Kennedy River Lower; Klanawa River; Lens Creek; Little Toquart Creek; Lucky Creek; Macktush Creek, Maggie River; Mercantile Creek; Muriel Lake; Pipesteam Creek; Renfrew Creek; Rocky Creek; Sand River; Smith Creek; Snug Basin Creek; Somass Sproat GC System; Sooke River; Sugsaw Creek; Sutton Mill Creek; Sydney River; Thorton Creek; Tofino Creek; Twin Rivers West Creek ; Uchuck Creek; Ursus Creek; Wallace Creek; Warn Bay Creek; Watta Creek;
	DU25 BC West Vancouver Island Ocean Fall (Nootka & Kyuquot)	***Threatened***	CK-32 West Vancouver Island – Nootka & Kyuquot Fall	Artlish River; Burman River; Caton Creek; Conuma River; Gold River; Kaouk River; Leiner River; Sucwoa River; Tahsis River; Tahish River; Tlupana River; Tsowwin River; Zeballos River; Amai Creek; Battle Bay River; Brodick Creek; Cachalot Creek; Chamiss Creek; Chum Creek; Clanninick Creek; Cougar Creek; Deserted Creek; Easy Creek; Elaine Creek; Eliza Creek; Espinosa Creek; Hammond Creek; Hoiss Creek; Houston River; Jacklah River; Jansen Lake Creek; Kapoose Creek; Kashuti River; Kauwinch River; Kendrick Creek; Kleeptee Creek; Little Zeballos River; Malkscope River; Mamat Creek; Marvinas Bay Creek; Mccurdy Creek; Mckay Cove Creek 1; Mooyah River; Muchalat River; Narrowgut Creek; Nasparti River; Oktwanch River; Ououkinsh River; Owossitsa

Fishery Management Unit	Designatable Unit	*COSEWIC Assessment*	CU and WSP Status no colour = TBD gray = Data Deficient orange = red/amber	Spawning Locations
				Creek; Park River; Porritt Creek; Power River; Ransom River; Silverado Creek; Tatchu Creek
	DU1 BC Southern Maninland Boundary Bay, Ocean, Fall	***Threatened***	CK-02 Boundary Bay Fall	Lower Campbell River; Nicomekl River; Serpentine River

The integrated biological status of Southern B.C. Chinook CUs has been assessed by CSAS. The Science Advisory Report is available at:
http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2016/2016_042-eng.html

Status evaluations were completed and an integrated biological status designation identified for 15 of the 35 CUs; of these 15 designations, 11 were assigned a Red status, 1 was assigned a Red/Amber status, 1 was assigned an Amber status, and 2 were assigned a Green status. For another 9 of the 35 CUs, an integrated status evaluation was not possible based on the information presented at the workshop; for these CUs, the status designation is "data deficient" and this designation is not expected to change until more information becomes available. For the remaining 11 of the 35 CUs, status evaluations were not completed. Instead, the status of these CUs was classified as "to be determined". These CUs are a component of units where the enhanced sites are predominant; consensus was not reached on how to derive a WSP status assessment for such units.

Integrated status evaluation completed at workshop

Integrated Status	Case #	CU ID	CU Name	Area
RED	1	CK-10	Middle Fraser River_SP_1.3	Fraser
RED	4	CK-18	North Thompson_SP_1.3	Fraser
RED	6	CK-19	North Thompson_SU_1.3	Fraser
RED	11	CK-09	Middle Fraser River-Portage_FA_1.3	Fraser
RED	24	CK-17	Lower Thompson_SP_1.2	Fraser
RED	25	CK-31	West Vancouver Island-South_FA_0.x	WCVI
RED	26	CK-12	Upper Fraser River_SP_1.3	Fraser
RED	29	CK-29	East Vancouver Island-North_FA_0.x	Inner SC
RED	30	CK-32	West Vancouver Island-Nootka & Kyuquot_FA_0.x	WCVI
RED*	3	CK-16	South Thompson-Bessette Creek_SU_1.2	Fraser
RED*	5	CK-01	Okanagan_1.x	Columbia
RED / AMBER	27	CK-14	South Thompson_SU_1.3	Fraser
AMBER	12	CK-11	Middle Fraser River_SU_1.3	Fraser
GREEN(p)	9	CK-03	Lower Fraser River_FA_0.3	Fraser
GREEN	2	CK-13	South Thompson_SU_0.3	Fraser

Integrated status evaluation not possible based on information presented at workshop

Integrated Status	Case #	CU ID	CU Name	Area
DD	7	CK-82	Upper Adams River_SU_x.x	Fraser
DD	8	CK-06	Lower Fraser River_SU_1.3	Fraser
DD	10	CK-05	Lower Fraser River-Upper Pitt_SU_1.3	Fraser
DD	28	CK-28	Southern Mainland-Southern Fjords_FA_0.x	Inner SC
DD	31	CK-08	Middle Fraser-Fraser Canyon_SP_1.3	Fraser
DD	32	CK-20	Southern Mainland-Georgia Strait_FA_0.x	Inner SC
DD	33	CK-34	Homathko_SU_x.x	Inner SC
DD	34	CK-23	East Vancouver Island-Nanaimo_SP_1.x	Inner SC
DD	35	CK-35	Klinaklini_SU_1.3	Inner SC

"(p)" means provisional, and identifies cases where some participants held divergent views.
"*" means that CU definition should be reviewed.

Table 13-10: Biological Status Designation

Integrated status evaluation not attempted at workshop due to unresolved methods

Integrated Status	Case #	CU ID	CU Name	Area
TBD**	13	CK-04	Lower Fraser River_SP_1.3	Fraser
TBD	14	CK-21	East Vancouver Island-Goldstream_FA_0.x	Inner SC
TBD	15	CK-33	West Vancouver Island-North_FA_0.x	WCVI
TBD	16	CK-22	East Vancouver Island-Cowichan & Koksilah_FA_0.x	Inner SC
TBD	17	CK-02	Boundary Bay_FA_0.3	Inner SC
TBD	18	CK-07	Maria Slough_SU_0.3	Fraser
TBD	19	CK-25	East Vancouver Island-Nanaimo & Chemainus_FA_0.x	Inner SC
TBD	20	CK-15	Shuswap River_SU_0.3	Fraser
TBD	21	CK-83	East Vancouver Island-Georgia Strait_SU_0.3	Inner SC
TBD	22	CK-27	East Vancouver Island-Qualicum & Puntledge_FA_0.x	Inner SC
TBD	23	CK-9008	Fraser-Harrison fall transplant_FA_0.3	Fraser

"**" means that CU status should be re-evaluated after review of enhancement level definition.

13.1.5.2.1 Pre-season

See Appendix 10 for the full 2024 Salmon Outlook.

Table 13-11: Stock outlook anticipated in ISBM Chinook fisheries

Management Unit	Final Stock Outlook for 2024
Fraser River Spring 4_2 Chinook	The Outlook is below average (2).
Fraser River Spring and Summer 5_2 Chinook	The Outlook is well below average (2). The majority of Chinook returning in these MUs must migrate past the Big Bar landslide to reach spawning areas.
Fraser River Summer 4_1 Chinook	The Outlook is abundant (4), except for Maria Slough which is anticipated to return well below average (1).
Fraser Lates (Harrison)	The Outlook is below average (2).
Lower Strait of Georgia Chinook	The Outlook is abundant (4).
Middle Strait of Georgia Chinook	The Outlook is abundant for fall run stocks (4) and well below average for summer run populations e (1-2).
Upper Strait of Georgia Chinook	The Outlook is near average to abundant (3-4).
Mainland Inlet Chinook	The Outlook is unknown as the data are deficient.

Fraser Chinook Pre-season Forecast

The 2024 forecast estimates for each Fraser Chinook MU will be available in the final IFMP.

13.1.5.2.2 In-season

Fraser River Spring and Summer 5_2 Chinook

An estimate of terminal abundance for these management units is determined in-season from the relationship between the cumulative catch per unit effort (CPUE) of Chinook caught in the Albion test fishery from early May to mid-June and historical terminal returns to the mouth of the Fraser River.

Updates of the predicted terminal return of Spring and Summer 5_2 Chinook, for informational purposes, are generally released in mid-May and early June, with a final in-season update in the third week of June. Continuing in 2024

, updates of the predicted return will not be used in-season to adjust management measures given conservation concerns for Fraser River Spring and Summer 5_2 Chinook.

13.1.5.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

All ISBM Fisheries

In response to conservation concerns for Chinook in both countries, several changes were made to PST Chapter 3 (Chinook), including targeted harvest reductions in both Canadian and U.S. fisheries and adoption of a new metric (the calendar year exploitation rate or CYER) to manage and evaluate performance in specific Canadian and U.S. individual stock-based management (ISBM) or "inside" fisheries. The agreement identifies reductions of up to 12.5% from 2009 to 2015 average levels for specified Canadian and U.S. indicator populations in Canadian ISBM fisheries.

The Pacific Salmon Strategy Initiative (PSSI) provides new investments to support potential implementation of Chinook mass marking and mark-selective fisheries as part of an integrated management approach. To advance this work, DFO sought input from First Nations and stakeholders during a series of workshops that began in December 2022, leading to DFOs development of *An Implementation Framework for Mark-Selective Fisheries for Southern British Columbia Chinook Salmon* (Appendix 12). The purpose of this framework is to outline a risk-based, transparent and collaborative process for the evaluation, decision making, mitigation

measures, implementation, review and improvements of MSFs targeting adipose fin-clipped hatchery Chinook Salmon in a manner consistent with the regulatory and policy requirements for Pacific salmon management. Proposals for new MSF opportunities may be submitted by all harvest sectors, or by DFO, and they will evaluated against the key criteria laid out in the framework.

Continuing in 2024, all Fraser fisheries will be subject to specific end dates first introduced in 2022. There will be no fishing for salmon in the Fraser mainstem after November 30. Similarly, in tributaries where recreational Chinook and Coho-directed opportunities exist, there will be no fishing for Chum Salmon from December 1 to 31. FSC opportunities will continue to be provided in tributaries until December 31 for those First Nations with access to terminal areas. More information on fishery end dates are provided in the Chum section 13.2.

Fraser Spring 4_2, Spring 5_2 and Summer 5_2 Chinook

The Department is currently engaging with the Fraser Salmon Management Council via the Fraser Salmon Management Board (FSMB) to review the technical information on the distribution of Chinook mortalities from the 2019-2022 seasons and potential management actions to reduce impacts. Details of the recommendations from the FSMB can be found in Section 6.4.

The management measures for Fraser River Chinook conservation implemented for 2023/2024 are outlined in this draft, including additional measures approved by the Minister in 2023. These new measures approved by the Minister for Southern BC fisheries included:

- Commercial Measures: The Area G Troll Chinook fishery will be delayed until August 16th
- Recreational Measures: Daily catch limits will be reduced to one (1) Chinook per day and a maximum size limit of 80 cm from July 15 to July 31 in:
    - Southwest Vancouver Island - Subareas 20-1 and 20-2
    - Portions of offshore West Coast Vancouver Island (Areas 121, 123)
        - Area 123 : seaward of the 1 nautical mile Boundary Line
    - Northern Vancouver Island - Area 111

New for 2024/25: The Department is seeking feedback on management measures that maintain very low fishery mortalities in the range of 10% to 14% and consistent with salmon allocation priorities for First Nations FSC after conservation. See Section 13.1.5.1 for more details.

Fraser Chinook management units contain most of the at-risk stocks (i.e., 7 *Endangered*, 3 *Threatened*, and 1 *Special Concern*) and stocks that spawn above the Big Bar landslide. These populations have been affected by very poor productivity, which has resulted in steep declines

in spawner abundances. A suite of highly-precautionary fishery restrictions are intended to provide a high degree of protection to at-risk Fraser Spring 4_2, Spring 5_2, and Summer 5_2 Chinook returning in 2024. See management objectives for Fraser Spring 4_2, Spring 5_2, and Summer 5_2 Chinook in Section 6.4.

Additionally, five-year-old Chinook returning in 2024 are the brood of the 2019 fish that were significantly impacted by the Big Bar landslide. An estimated 80% of Spring 5_2 and 50% of Summer 5_2 Chinook stocks that migrate over the slide died enroute to the spawning grounds. In 2020, approximately 20% of these Spring 5_2 stocks died due to migration challenges over the slide.

The majority of Spring and Summer 5_2 Chinook returning in 2024 will have to pass the site of the Big Bar landslide. If the river discharge is high for a long period of time during the migration, then those populations may experience mortality. Monitoring programs are planned to assess 2024 survival through the landslide area.

Fraser Summer 4_1 Chinook

South Thompson Chinook were identified by COSEWIC as Not At Risk and Lower Fraser Summer Ocean Chinook (Maria Slough) were identified as *Endangered*. The migration of Summer 4_1 Chinook overlaps with other Fraser Chinook stocks of conservation concern, particularly Summer 5_2 Chinook.

Additional reductions in commercial and recreational fishery harvest opportunities implemented in recent years are proposed to continue and are intended to support priority access for First Nations FSC fisheries in the Fraser River given expectations for restricted FSC Chinook fishery opportunities early in the season in 2024. See Section 13.1 for specific conservation measures for each sector.

Under the PST, the Department has implemented an MSY escapement objective of 12,300 for the Lower Shuswap River, which is the CWT indicator stock for the Fraser River South Thompson 4_1 Chinook aggregate. This value corresponds to the spawning escapement that would produce the maximum sustained yield (S_{MSY}). The estimate of spawning escapement in 2023 will be available in the final IFMP.

Limited directed fishing opportunities may occur on this stock group, provided that fisheries can be designed to limit impacts on potentially co-migrating stocks of concern, including: Spring 4_2 Chinook, Spring/Summer 5_2 Chinook, Fraser Fall 4_1 Chinook, Fraser River Sockeye, Interior Fraser Coho, and Interior Fraser Steelhead.

Fraser Fall 4$_1$ (Harrison) Chinook

Harrison Chinook has been identified as *Threatened* by COSEWIC. The PST-approved escapement goal for Fall 4$_1$ (Harrison) Chinook is 75,100 spawners. This escapement goal has been achieved three times in the last decade (2015, 2022, and 2023). The preliminary spawning escapement estimate in 2023 suggests it was above the escapement goal for Harrison Chinook. Management measures in Canadian ISBM fisheries in 2020-2022 were expected to further reduce fishery mortalities compared to 2019. A review of fishery mortalities using the CTC's exploitation rate analysis suggests a reduction of approximately 25% occurred in 2020, 20% in 2021[23], and 77% in 2022 (compared to 2019). The 2023 estimated ISBM exploitation rate will be available in the final IFMP.

Under Chapter Three of the PST, in response to not meeting the escapement goal for three consecutive years, Canada is obligated to reduce the ISBM CYER on this stock to below the running three-year average from years that meet the specific inclusion criteria. The average ISBM CYER for Harrison Chinook (2020-2022) was 11.96%. The 2023 estimate will be available in the final IFMP. No additional management actions are planned at this time, given escapements in 2022 and 2023 met the PST escapement objective. Additionally, actions aimed at achieving Summer 5$_2$ objectives may provide additional protection to co-migrating Harrison Chinook and further reduce exploitation rates in 2024.

Lower Strait of Georgia (LGS) Chinook

The Cowichan River Chinook stock is an indicator stock of marine survival and exploitation for the LGS fall Chinook. Escapement trends for Cowichan Chinook have shown an upward trend since the low point in 2009, meeting or exceeding adult escapement targets since 2016. Returns of Fall run stocks to other LGS systems such as Puntledge and Qualicum have also increased over the same period. Focus has now shifted to Summer run stocks in the Nanaimo and Puntledge rivers where escapement trends have remained low or declined. Following a recent COSEWIC assessment as *Endangered* in November 2020, a recovery potential assessment (RPA) is currently underway in both watersheds as well as a rebuilding plan for Nanaimo. Objectives for LGS Chinook now include the recovery of these ocean-type Summer run populations.

[23] https://www.psc.org/publications/technical-reports/technical-committee-reports/chinook/ctc-data-sets/

13.1.5.4 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO INSIDE CHINOOK ISBM FISHERIES

ISBM fisheries are constrained in order to meet PST obligations and domestic management objectives. In some cases, full harvest targets may not be harvestable due to conservation concerns and management considerations that are identified in-season.

Given ongoing declines in Interior Fraser River Steelhead escapement and the designation of the Thompson and Chilcotin River Steelhead as *Endangered* by COSEWIC, DFO is implementing a comprehensive, precautionary approach to the management of all fisheries in southern B.C. that are likely to impact this stock of concern. Within the Fraser River (including sub-Areas 29-6, 29-7, 29-9, and 29-10), a 42-day closure will apply to commercial gill net, purse seine, beach seine, and shallow seine fisheries (including EO fisheries) and a 27-day closure will apply to commercial troll fisheries. Further, a 42-day closure will apply to Fraser River recreational fisheries and a 27-day closure will apply to Fraser River FSC fisheries. Areas and dates for the window closure are identified in Appendix 9.

13.1.5.5 ALLOCATION AND FISHING PLANS

13.1.5.5.1 First Nations Fisheries

The Department consults with First Nations on specific fishing plans for FSC fisheries.

First Nations Food, Social and Ceremonial

Marine Waters

First Nations target local and passing salmon stocks for FSC purposes throughout the Inner South Coast. FSC fisheries for Southern ISBM Chinook in marine areas will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

South Coast First Nations fisheries opportunities for mixed Chinook stocks will be permitted in marine areas with the exception of the approaches to the Fraser River (sub-Areas 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 are 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.

Non-tidal Waters (excluding Fraser River)

Some First Nations Chinook-directed fisheries occur in freshwater systems throughout Southern Inside waters.

FSC fisheries for Southern ISBM Chinook in freshwater areas outside of the Fraser River system will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

Fraser River

First Nations target Fraser River Chinook for FSC purposes throughout the Fraser River mainstem and in many tributary areas.

FSC fisheries in the Fraser River, including sub-Areas 29-6, 29-7, 29-9, and 29-10, will be affected by 2024 Interior Fraser River Steelhead conservation measures. A 27-day rolling window closure will be applied to FSC fisheries according to the times and areas outlined in Appendix 9. These measures will not extend to marine FSC fisheries.

Refer to Table 10- for Communal Licence Harvest Target Amount in southern B.C./Fraser River First Nations Fisheries. Note that AABM and ISBM Chinook amounts are combined.

Specific Conservation Measures for First Nations Fisheries

Lower Strait of Georgia Chinook

Protective measures may be considered in terminal areas to reduce harvest impacts. Potential measures will be the subject of discussion with First Nations communities, and include processes such as the Cowichan Fisheries Roundtable prior to development of fishing plans.

Fraser River Chinook

Fraser River First Nations FSC fisheries will be restricted to unplanned events or first fish ceremonies until approximately July 15 followed by opportunities to target abundant Summer 4_1 Chinook primarily in August. DFO will be working with Fraser River First Nations on specific fishing opportunities with the objective of maintaining overall very low fishing pressure when at-risk stocks may be impacted. This will result in limited and reduced fisheries openings or fishing times; actual plans will be announced in-season.

Mandatory and voluntary measures have been implemented to support prey availability and reduce disturbance to Southern Resident Killer Whales, including within southern B.C. waters and key foraging areas within the Strait of Juan de Fuca and the Gulf Islands. These measures are outlined in Section 5.6.

Treaty Fisheries

Treaty fisheries targeting Chinook within the Fraser River (including sub-Areas 29-6, 29-7, 29-9, and 29-10) will be subject to closures to protect Interior Fraser River Steelhead as outlined in Appendix 9. These measures do not extend to marine Treaty fisheries.

Tsawwassen First Nation (TFN) Fisheries (Domestic)

In any year, the TFN Fishing Right Allocation for Chinook Salmon will be determined by an abundance-based formula, based on Canadian TAC that produces an average annual harvest of 625 Fraser River Chinook Salmon based on Fraser River Chinook Salmon returns for the 1982 to 2004 time period. The Tsawwassen First Nation Final Agreement (TFN FA) is available at: Tsawwassen First Nation Final Agreement (rcaanc-cirnac.gc.ca)

Tla'amin Nation Fisheries (Domestic)

The Domestic allocations for Chinook under the Tla'amin Final Agreement are as follows:

In any year, the Tla'amin Fish Allocation for Chinook Salmon is:

Non-terminal Chinook: A maximum of 200 Chinook Salmon, that are not of terminal origin, caught in the Tla'amin Fishing Area. The allocation will be determined by an abundance-based formula. The Tla'amin Fishing Area for all species of Fish and Aquatic Plants is within portions of Pacific Fisheries Management Areas 13, 14, 15, and 16.

Terminal Chinook: A number of Chinook Salmon equal to 25% of the Available Terminal Harvest for Chinook Salmon stocks that originate from a Terminal Harvest Area, if the Minister determines that there is an Available Terminal Harvest for those stocks.

The Tla'amin Final Agreement is available at:

https://www.rcaanc-cirnac.gc.ca/eng/1397152724601/1542999321074

Fishery Monitoring and Catch Reporting

Marine Waters

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations are asked to keep records of harvest and provide catch information to DFO in a variety of formats. Under this licence, if a commercial vessel is used for fishing, First Nations are asked to provide information respecting the species and quantity of fish harvested by this vessel, to the DFO Catch Reporting Officer within 24 hours from landing harvested catch. In addition, catch reporting timelines for First Nations fisheries are outlined in Comprehensive Fisheries Agreements and/or Aboriginal Communal Fishing Licences. Where

in-season management requires, catch reports are sought weekly during the respective fishing season.

The Tla'amin Nation provides catch reports to the Department through the Aboriginal Harvest Management System (AHMS). The information recorded on catch reports includes the gear type, fishing time period, location of harvest, harvest count by species, harvest effort, and biological samples.

Fraser River

In the Fraser River watershed, catch monitoring programs are managed through Activity Funding or Comprehensive Fisheries Agreements.

In the lower Fraser River (below Sawmill Creek), monitoring programs implemented typically include landing site or vessel-based collection of catch and effort information paired with validation of effort by vessel patrols or overflights. Specific focus has also been placed on sampling of Chinook Salmon for mark rate information and coded-wire tags (CWTs) to support the Salmon Head Recovery Program. Catch reports are received by DFO from catch monitoring programs on a weekly basis, within 48 hours of a fishery closing.

For fisheries above Sawmill Creek, catch monitoring programs range from basic census type to more enhanced programs that include collecting effort and catch rate information in creel sample programs.

13.1.5.5.2 Recreational Fisheries

Recreational Conservation Measures for Southern Inside ISBM Fisheries

Significant Chinook non-retention measures will be implemented in most South Coast Areas to address conservation concerns for wild Southern B.C. (including Fraser River) Chinook Salmon. A full list of the management measures implemented by Area is provided below.

ISBM recreational Chinook fisheries in inside waters normally take place from Queen Charlotte Strait south to the Strait of Juan de Fuca throughout the year. Significant amounts of catch and effort occur in waters near Port Hardy, Campbell River, the Strait of Georgia and Southern Vancouver Island including the Juan de Fuca Strait, with both catch and effort peaking during the summer months.

The recreational total annual limit for Chinook from any tidal waters was set at 10 Chinook in April 2019 as part of conservation measures to address the poor status of many Chinook stocks in B.C. Recreational anglers must record all Chinook retained either on their licence, or if mobile internet access is immediately available, the licence holder may alternatively record catch immediately in their National Recreational Licensing System (NRLS) account. The minimum

size limit for Chinook in the Queen Charlotte Strait, Johnstone Strait and the Strait of Georgia is 62 cm. The minimum size limit in waters south of Cadboro Point through Juan de Fuca Strait (Subareas 19-1 to 19-4 and 20-5 to 20-7) is 45 cm. A maximum size limit of 80 cm was introduced in 2019 as part of a suite of measures to provide further protection to Fraser stream type Chinook although areas and times have varied.

Since 2020 the Department approved a small number of recreational Chinook mark selective fishery (MSF) opportunities, along with two new MSF in 2023, that are planned to continue in 2024/2025, pending the post-season review of the available fisheries information. Details can be found below in Table 13.1-12 : Approved MSF Openings – Southern ISBM.

The Pacific Salmon Strategy Initiative (PSSI) provides new investments to support potential implementation of Chinook mass marking and mark-selective fisheries as part of an integrated management approach. To advance this work, DFO sought input from First Nations and stakeholders during a series of workshops that began in December 2022, leading to DFOs development of *An Implementation Framework for Mark-Selective Fisheries for Southern British Columbia Chinook Salmon* (Appendix 12). The purpose of this framework is to outline a risk-based, transparent and collaborative process for the evaluation, decision making, mitigation measures, implementation, review and improvements of MSFs targeting adipose fin-clipped hatchery Chinook Salmon in a manner consistent with the regulatory and policy requirements for Pacific salmon management. Proposals for new MSF opportunities may be submitted by all harvest sectors, or by DFO, and they will evaluated against the key criteria laid out in the framework.

Table 13-12: Approved MSF Openings - Southern ISBM

Location*	Fishery Type	Date Range	Size Restrictions	Daily Retention	Possession
Area 12 (Broughton Archipelago) **Area 13 (Bute Inlet and Ramsay Arm)** **Area 15 (Homfray Channel and Toba Inlet)** **^Area 16 (Sechelt and Jervis Inlets)**	Mixed-bag MSF	April 1 to July 14	80 cm maximum unmarked; 62 cm minimum all	1 (Marked or unmarked)	2
Areas 17, 18 and 19 (Gulf Islands and Saanich Inlet)	Pure Mark Selective	April 1 to July 14 (Area 17) or July 31 (Areas 18 and 19)	62 cm minimum marked	1 (Marked only)	2
Area 19 **(Haro Strait)**	Pure Mark Selective	April 1 to May 31	45 cm minimum (Subareas 19-1, 19-3 to 19-4) or 62 cm minimum (Subareas 19-5 and 19-6)	1 (Marked only)	2
Area 20 (Beecher Bay)	Pure Mark Selective	April 1 to July 31	45 cm minimum marked	1 (Marked only)	2

* Note: Fisheries have been grouped according to similar fishery characteristics. Each area represents a separate fishery and was evaluated independently.

The fishery openings in the above table will continue for the duration of the 2024/2025 IFMP, subject to evaluation of available post-season information and potential adjustments may be made prior to reopening in April.

New for 2024/25: The Department is consulting on reverting the MSF regulation in portions of Area 16 back to the mixed-bag MSF regulation that was first introduced in 2021. This is a result of the preliminary 2023 data indicating the estimated mark-rate was lower than estimated when the regulation moved to pure MSF in Spring 2023. The Department will continue to collect data from this area and further adjustments may be made in future years as we take an adaptive management approach to MSF implementation.

A full list of the Fraser River Chinook management measures for 2024 (based on the 2023 fishing plan) are as follows (excluding the approved MSFs listed above or any terminal fishery openings/closures):

Queen Charlotte Sound - Area 111

- *April 1 to July 14: Two (2) Chinook per day*
- *July 15 to July 31: One (1) Chinook per day, max 80 cm*
- *August 1 to March 31: Two (2) Chinook per day*

Seymour Inlet - Subareas 11-3 to 11-10

- *April 1 to June 30: Two (2) Chinook per day*
- *July 1 to August 31: No retention of Chinook*
- *September 1 to March 31: Two (2) Chinook per day*

The Department is working to further understand stock composition and abundance of Chinook Salmon inside Seymour Inlet (Area 11) to support informed management decisions for fisheries in the area. In line with the precautionary approach and the requirement to be cautious when scientific information is uncertain, Chinook non-retention will be implemented in Subareas 11-3 to 11-10 in July and August, to avoid mortality on local Chinook stocks while gathering data to support future management. Additional sampling is planned to further assess the stock composition of Chinook stocks during recreational fisheries in Subareas 11-1 and 11-2.

Queen Charlotte Strait and Johnstone Strait – Area 12 (excluding Subarea 12-14):

- *April 1 to July 14: No retention of Chinook*
- *July 15 to August 16: One (1) Chinook per day, max 80 cm*
- *August 17 to August 31: One (1) Chinook per day*
- *September 1 to March 31: Two (2) Chinook per day*

For clarity, Chinook daily limits remain at two (2) per day all year in Subarea 12-14.

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

- *April 1 to July 14: No retention of Chinook*
- *July 15 to August 31: One (1) Chinook per day, max 80 cm*
- *September 1 to March 31: Two (2) Chinook per day*

In portions of Area 13, in those waters as defined by tidal Conditions of Licence (COL) and known as the Campbell River Special Management Zone (CRSMZ), there is no maximum size limit on Chinook. Chinook retained in this area must be recorded on the tidal licence as caught in 13 SMZ per the COL.

Strait of Georgia – South, and Juan de Fuca – Areas 18 and 19 (excluding Subarea 19-2 which is closed to all fishing activity) , Subareas 20-3 to 20-7, Area 28, and Subareas 29-3 to 29-5 (with the exception of those portions of Areas 28 and 29 listed below), and Subarea 29-8:

- *April 1 to July 31: No retention of Chinook*
- *August 1 to August 31: One (1) Chinook per day, max 80 cm*
- *September 1 to March 31: Two (2) Chinook per day**

For the month of March, in Subareas 19-1, 19-3, 19-4, and Subareas 20-4 to 20-7 (those waters near Victoria between Cadboro Point and Sombrio Point), the daily limit of Chinook is two (2) per day, hatchery-marked only, greater than the minimum length of 45 cm.

Subarea 28-9 (Tidal waters proximal to the Capilano River mouth):

- *August 12 to August 31: One (1) Chinook per day*

Portions of Southern Strait of Georgia, Howe Sound and Burrard Inlet – Subareas 28-7 to 28-9; Subarea 28-1; and that portion of Subarea 28-2 that lies southerly of a line drawn due east from Halkett Point on Gambier Island (49° 26.735'N, 123° 19.302'W) to a point (49° 26.550'N, 123° 14.317'W) on the mainland corresponding with the southeast point of the Lions Bay RCA; and those portions of 29-3 to 29-5 that lie east of a line from Gower Point (49° 23.021'N, 123° 32.166' W) near Gibsons to Shah Point on the southern tip of Valdes Island (49° 01.695'N, 123° 35.721'W):

- *April 1 to Aug 31: No fishing for Chinook (Notwithstanding above-noted retention opportunities in Subarea 28-9)*
- *Sept 1 to March 31: Two (2) Chinook per day*

Juan de Fuca Strait (West) Subareas 20-1 and 20-2:

- *April 1 to July 14: No retention of Chinook*
- *July 15 to July 31: One (1) Chinook per day, max 80 cm.*

- *August 1 to March 31: Two (2) Chinook per day*

Additional opportunities for Chinook retention may be announced in local areas and/or terminal locations when in-season abundance permits and potential hatchery surpluses have been identified. Similarly, increased fishery restrictions may also be announced in-season to provide additional protections for local stocks (e.g. Puntledge summer Chinook) as needed.

The Department intends to ensure that any updates to actions for the 2024 season can be implemented beginning in spring 2024 to coincide with the return of Southern Resident Killer Whales in typically greater numbers to the Salish Sea. Further discussion on the potential measures that may be considered will occur as part of the Southern Resident Killer Whale TWGs and IMAG, and consultation with Indigenous groups and stakeholders, including the Salmon IFMP process.

Fraser River Mouth (Subareas 29-6, 29-7, 29-9 and 29-10), Fraser River tidal waters (29-11 to 29-17) and the Fraser River in Region 2:

In addition to the measures to protect Chinook outlined below, Interior Fraser River Steelhead conservation measures will be implemented to the Fraser River recreational fishery following the Coho window closure. A 42-day rolling window closure will apply to Fraser River recreational fisheries in the areas and dates listed in Appendix 9 (including sub-Areas 29-6, 29-7, 29-9, and 29-10). These measures do not extend to other marine recreational fisheries seaward of identified Fraser River mouth sub-Areas.

In all areas, unless otherwise specified there is *no fishing for salmon*. If Pink-directed fisheries proceed in these areas in 2024, there will be no fishing for Chinook Salmon until stocks of concern are unlikely to be encountered.

Fraser River: some exceptions listed below under tributaries directed on Summer 4$_1$ Chinook in terminal areas.

Fraser River, Region 3

In all areas, unless otherwise specified there is *no fishing for salmon*. There will be no fishing for Chinook Salmon except for the following areas and times:

South Thompson River: August 16 to Sept. 22 – Four (4) per day, two (2) over 50 cm

Kamloops Lake: August 28 to Sept. 22 – Four (4) per day, one (1) over 50 cm

Thompson River: August 28 to Sept. 22 – Four (4) per day, none (0) over 50 cm

Fraser River, Region 5A – Fraser Watershed

In all areas, unless otherwise specified there is *no fishing for salmon*.

Fraser River, Region 7

In all areas, unless otherwise specified there is *no fishing for salmon*.

Fraser River, Region 8

In all areas, unless otherwise specified there is *no fishing for salmon*. There will be no fishing for Chinook Salmon except for the following areas and times:

Mabel lake: August 16 to September 12 – Four (4) per day, only two (2) over 50 cm.

Lower Shuswap River: August 16 to September 12 – Four (4) per day, only two (2) over 50 cm (lower) upstream from white triangular fishing boundary signs upstream of Mara Bridge to Mabel Lake. No fishing 50 meters upstream and downstream of the Trinity Valley Road Bridge from June 15 to November 15.

Lower Georgia Strait (LGS) Chinook

Management measures are in place to protect Lower Strait of Georgia Chinook, including the Nanaimo, Chemainus, and Cowichan River Chinook stocks. In the past, seasonal time and area closures in specific locations in the northern Strait of Georgia were implemented; however, these were lifted in 2019. The management measures, including finfish closures and Chinook non-retention areas in the approach waters, Nanaimo to Saanich Inlet have remained in place in recent years..

Since 2016, the Cowichan River Chinook stock has exceeded the annual escapement target of 6500 adult spawners. As a result, the Department will be evaluating and consulting on modifications to the remaining Cowichan Chinook management measures in the approach waters including portions of Subareas 17-4 to 17-7, 17-9, 17-11 to 17-13, 17-15 to 17-20, 18-6 to 18-8, 18-10, 19-7 to 19-12.

Updates to recreational fisheries are provided via Fishery Notice and published on the recreational fisheries website at: http://www.bcsportfishingguide.ca

Fishery Monitoring and Catch Reporting

Marine Waters

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch (iREC) reporting program are the main tools used to capture recreational catch and effort information in this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

Fraser Watershed

Creel surveys are conducted in portions of the lower Fraser River and select tributaries in order to estimate recreational catch and effort for the times and areas surveyed. Typically, the creel survey in the lower Fraser River mainstem begins when the mainstem is opened to recreational

salmon fishing; however, over the last number of years, the survey end date has been variable (mid-September to end of November). The creel surveys conducted on the Chilliwack River and Nicomen-Norrish recreational fisheries have remained stable over the last number of years both in times and areas (Chilliwack is surveyed from mid-September to mid-November and Nicomen-Norrish is surveyed from early October to the end of November).

Similar to recent years, catch monitoring programs in the Fraser watershed upstream of Alexandria will range from no monitoring to fisher-reported catch to highly-intensive creel surveys. The expected effort and catch in a fishery, harvest rate, potential bycatch, and any biological sampling requirements will be taken into account when planning the catch monitoring program for these areas.

13.1.5.5.3 Commercial Fisheries

There are no directed commercial Chinook fisheries in Southern Inside marine waters and Chinook non-retention is in place in most times and areas in fisheries directed on other species.

Allocation

Table 13-13 Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South - Inside	11 to 20, 29	1.0%[a]	3.0%	90.0%[b]	0.0%	6.0%

Notes on Chinook allocations (south):
[a]subject review pending completion of southern B.C. Chinook initiative
[b]directed Fraser River Chinook fishery

Southern ISBM Commercial Chinook Fisheries

Due to concerns for wild southern B.C. (including Fraser River) stocks, no directed Chinook fisheries are planned and there will be non-retention in fisheries directed at other species.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Area B Seine

There will be no directed Chinook fisheries and non-retention is in effect in fisheries directed at other species.

Area D Gill Net

There will be no directed Chinook fisheries and non-retention is in effect in fisheries directed at other species.

Area E Gill Net

There are no directed Chinook demonstration fisheries in the Fraser River due to conservation concerns for Fraser River Chinook stocks. Chinook non-retention will be in effect for fisheries directed on other species.

Area H Troll

There will be no directed Chinook fisheries and non-retention is in effect for fisheries directed at other species.

Fishery Monitoring and Catch Reporting

There is a mandatory harvest log and in-season reporting program for catch information for all commercial fisheries.

- Mandatory requirement to file fishing reports in all commercial fisheries, including "Start/Pause/Cancel/End" Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

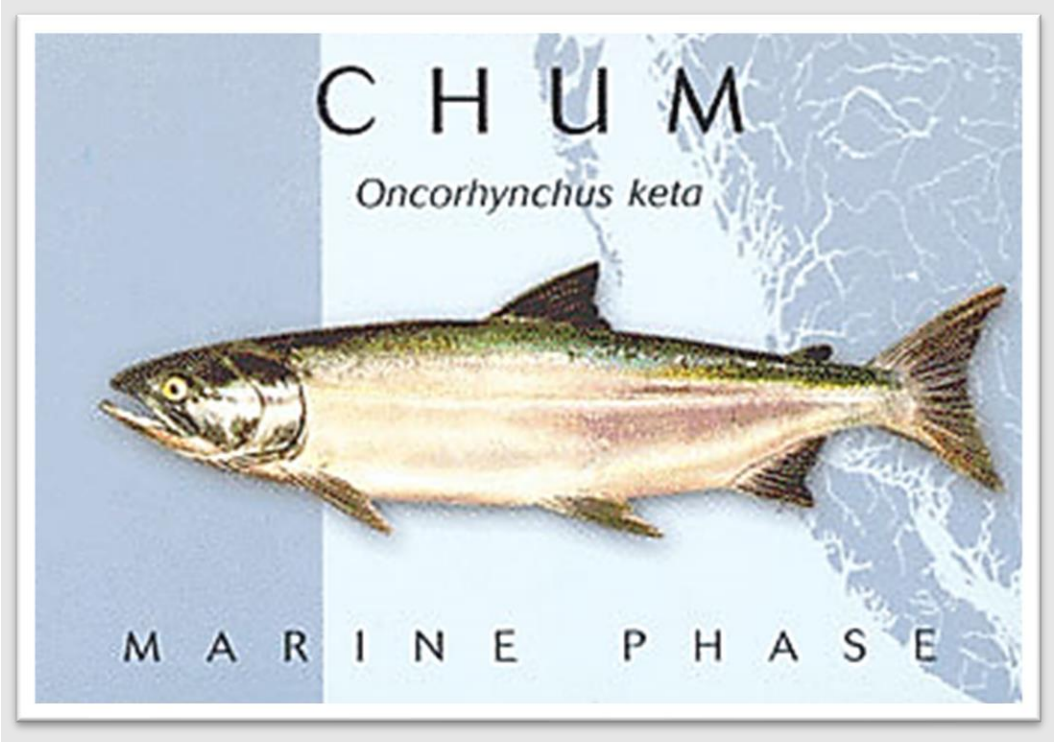
Catch reporting requirements are specific to each licence group and are detailed in the Conditions of Licence for each gear type. Additional requirements are in place for providing biological samples as required.

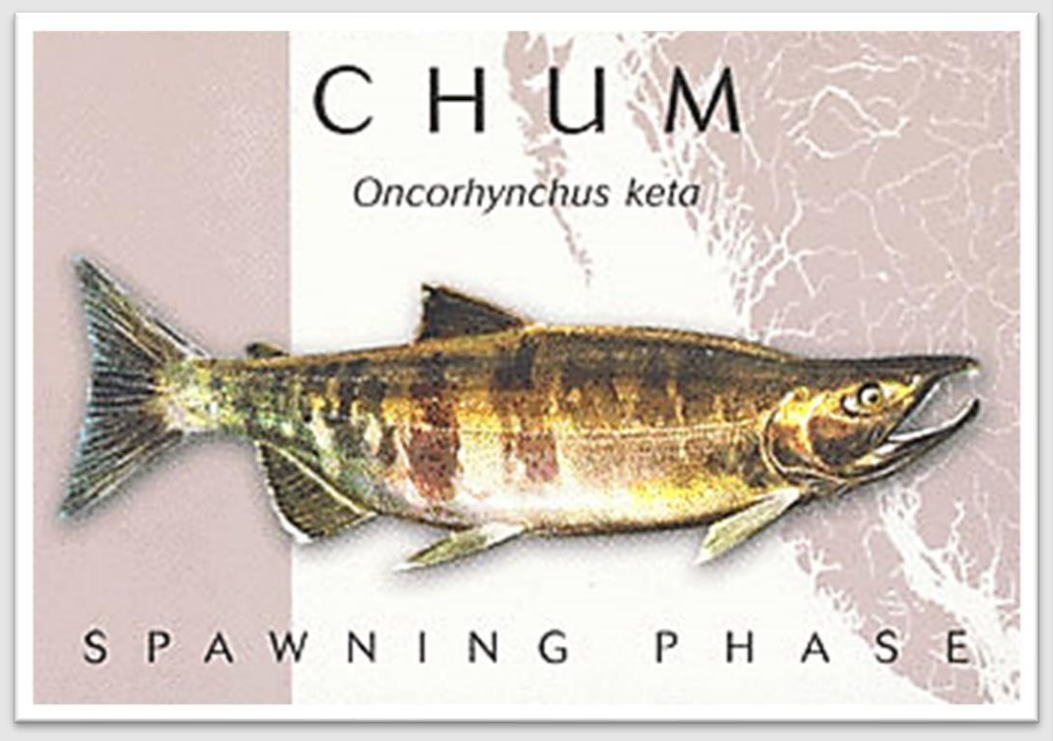
13.1.5.5.4 ESSR Fisheries

ESSR fisheries may occur at DFO hatchery facilities that have a surplus of returning hatchery Chinook. In past years, ESSR fisheries have taken place at:

- Capilano Hatchery – Mainland B.C.
- Chilliwack River Hatchery – Lower Fraser
- Chehalis Hatchery – Lower Fraser
- Puntledge Hatchery – Strait of Georgia
- Qualicum Hatchery – Strait of Georgia
- Nanaimo River – Strait of Georgia

13.2 SOUTHERN CHUM SALMON FISHING PLAN





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13.2.1 SOUTHERN CHUM - OVERVIEW

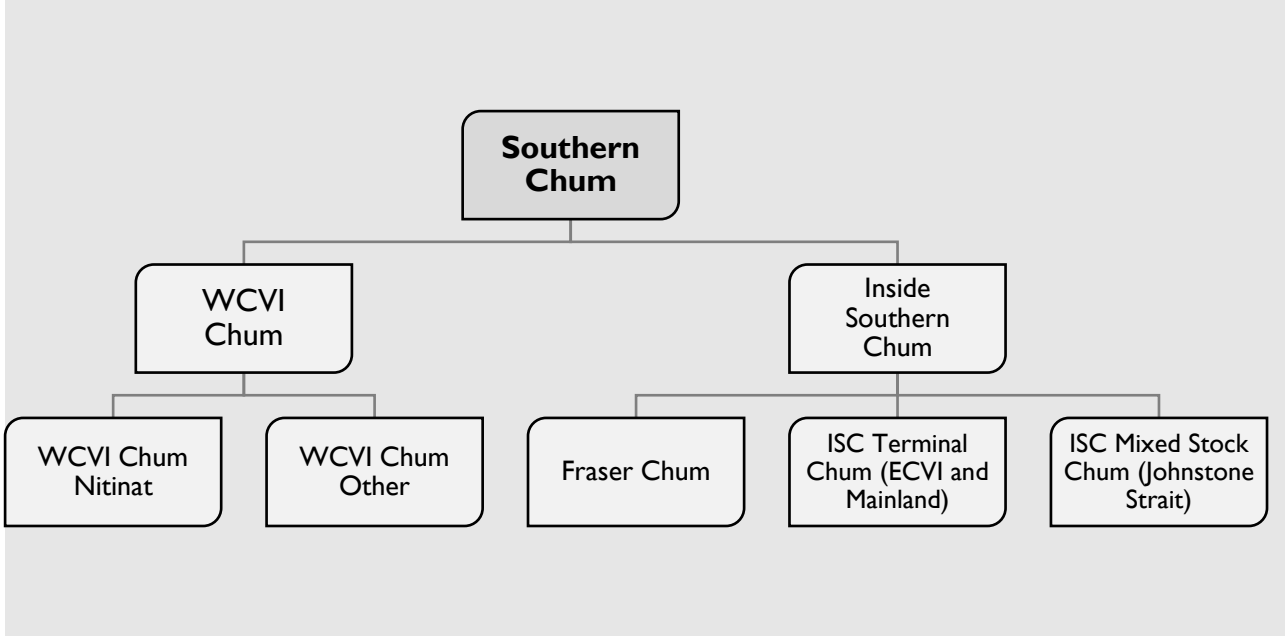


Figure 13.2-1: Overview of Southern Chum

13.2.1.1 SOUTHERN CHUM ENHANCEMENT INFORMATION:

The major DFO operation enhancement facilities that produce Chum are:

South Coast Area:

- Big Qualicum River Spawning Channel
- Conuma River hatchery
- Nitinat River hatchery
- Puntledge River hatchery

Fraser River Area:

- Capilano River hatchery
- Chehalis River hatchery
- Chilliwack River hatchery
- Inch Creek hatchery
- Tenderfoot Creek hatchery
- Weaver Spawning Channel

SEP Production Plans

There are three datasets available: Post-Season Production from the 2021 brood year (i.e., 2022 and 2023 releases), Post-Season Production from the 2022 brood year (i.e., 2023 releases, and numbers on hand for 2024 release), and the 2024 Production Plan, which includes proposed targets for the upcoming 2024 brood year. These are available at the following website:

https://www.pac.dfo-mpo.gc.ca/sep-pmvs/data-donnees/index-eng.html

13.2.1.2 SOUTHERN CHUM – SEP PROPOSALS OR UPDATES FOR 2024

Nitinat River Hatchery production is under assessment, and consultations on options for alignment of hatchery production with objectives and future fisheries are ongoing.

Big Qualicum Chum – A Pacific Salmon Commission Southern Endowment funded project has been initiated to assess survival rates of fed fry compared to channel fry production. The fed fry release target has been set to 500k for Brood Year 2024.

13.2.2 INSIDE SOUTHERN CHUM - OVERVIEW

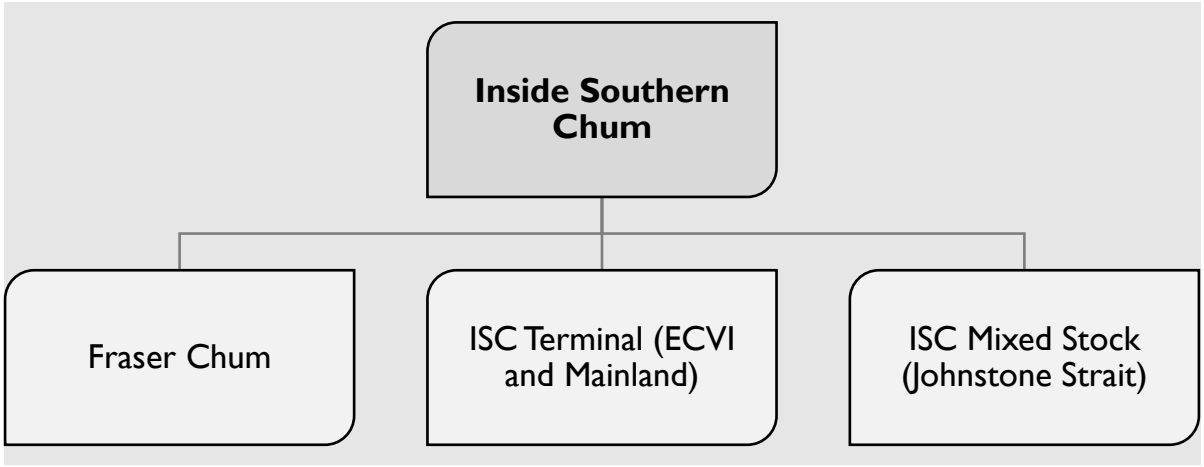


Figure 13.2-2: Overview of Inside Southern Chum

Inside Southern Chum (ISC) Salmon spawn throughout Inner South Coast and in the Fraser River watershed, with Fraser stocks typically making up a significant portion of the returning abundance. ISC are managed in two distinct fall-timed (mid-September into December) groups: Fraser Chum with two Conservation Units (CUs) and ISC Terminal with 7 CUs. The three groups of fisheries targeting these stocks are ISC mixed-stock (Johnstone Strait), ISC Terminal (ECVI and Mainland), and the Fraser River (Figure 13). In addition to these fall-timed populations, there are summer-timed Chum within the ISC which have distinct timing (late July

through to mid-September). In general, summer-timed Chum are passively managed as bycatch in Fraser River fisheries directed on Sockeye and Pink Salmon. Due to the absence of scientific information on the impacts of Fraser Sockeye and Pink fisheries on summer-timed Chum populations, the Department will follow the precautionary approach and not permit the retention of Chum bycatch during Fraser Sockeye and Pink fisheries. The use of at-sea observers will be required to gather samples during these fisheries.

The Johnstone Strait mixed-stock fishery targets the ISC aggregate and is managed to a 20% exploitation rate. Fisheries target individual stocks in terminal fisheries throughout the ISC area and in the Fraser River. ISC terminal fisheries are managed to spawning goals at a more local level than the Conservation Units identified under the Wild Salmon Policy. The Fraser River terminal Chum Salmon fishery is managed under an abundance-based harvest plan built around an aggregate spawning goal and a terminal run size, specified in the Pacific Salmon Treaty.

Assessment of Inside Southern Chum relies on in-season test fisheries (in Johnstone Strait and the Fraser River), which provide indications of relative Chum abundance, migration timing, stock compositions, and other biological information. Terminal river escapements for Inside Southern Chum populations are typically estimated through visual surveys of index systems with some higher-quality estimates from other key systems (i.e. Harrison River Chum mark-recapture and DIDSON fixed-site programs on the Cowichan and Nanaimo Rivers). Coverage of visual surveys has declined since the 1980s in terms of the number of surveyed systems, but the remaining surveys still cover most of the production for the aggregate.

Hatchery programs for ISC are mostly done to supplement harvest (Chehalis River, Chilliwack River, Inch Creek, Weaver Creek, Big Qualicum River, Little Qualicum River, Puntledge River), but there are also some rebuilding programs (e.g. Nimpkish Chum).

13.2.3 INSIDE SOUTHERN CHUM MIXED-STOCK FISHERIES

13.2.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

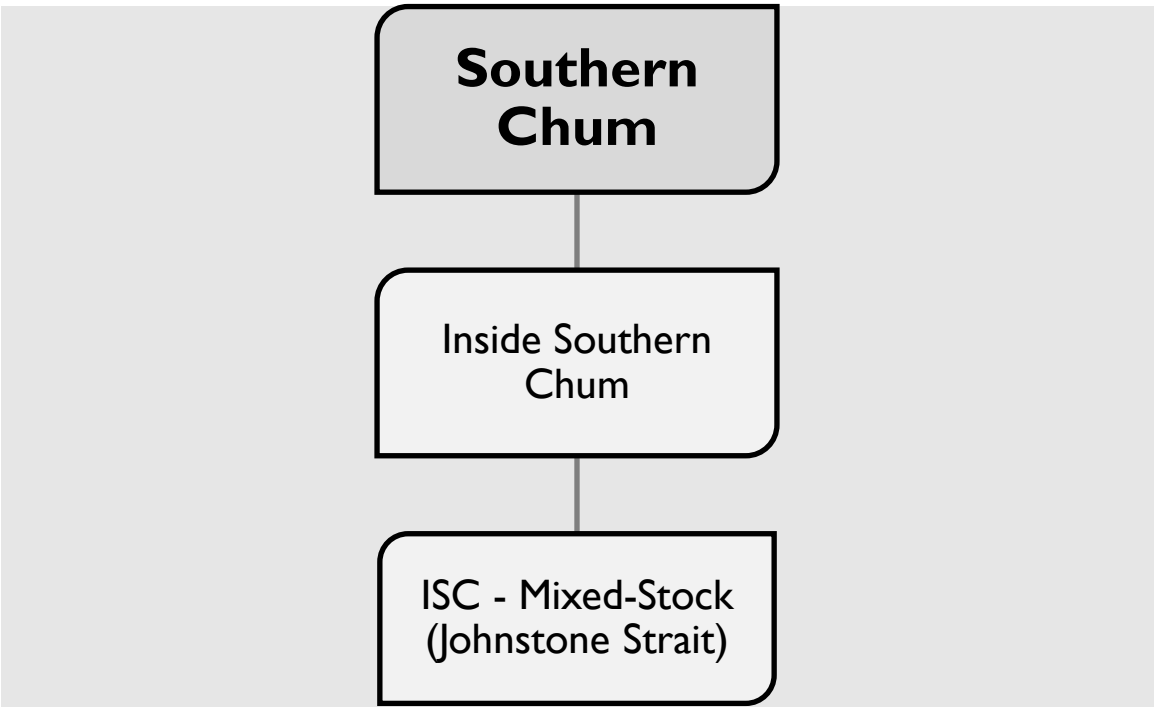


Figure 13.2-3: Overview of Inside Southern Chum Mixed Stock Fisheries

The Inside Southern Chum mixed stock fishery targets fall run Chum stocks that migrate through Johnstone Strait. Most of these fish spawn in systems adjacent to Johnstone Strait, the Strait of Georgia, and in the Fraser River, though a small component is bound for Washington State systems. The main components of the harvest are the Mid-Vancouver Island (MVI) and the Fraser River stock groupings. This fishery intercepts enhanced Chum from Big Qualicum hatchery, Little Qualicum hatchery, Puntledge hatchery, Chehalis hatchery, Chilliwack hatchery, Inch Creek hatchery, and Weaver Creek spawning channel.

The migration timing of these Fall Chum stocks in the Johnstone Strait fishing area ranges from September to November with the peak typically early to mid-October. Mixed-stock fisheries occur in Areas 12 and 13, with terminal opportunities where surpluses are identified. Harvesters include First Nations (FSC fisheries), recreational, and commercial (seine, gill net and troll).

Canadian conservation units that may be encountered in this fishery include:

- Fraser Canyon (F)
- Lower Fraser (F)
- Bute Inlet
- Loughborough
- Northeast Vancouver Island
- Southern Coastal Streams
- Upper Knight
- Howe Sound - Burrard Inlet
- Strait of Georgia

13.2.3.2 STOCK ASSESSMENT INFORMATION

13.2.3.2.1 Pre-season

Table 13.2-113-14: ISC Mixed Stock 2024 Salmon Outlook

Management Area	Stock Outlook
Johnstone Strait and Mainland Inlet (Area 11 to 13)	Expectations for Fall Chum in 2024 will likely be below average (Outlook Category '1-2'). This is based on below average parental brood abundances in 2019, 2020, and 2021, and an ongoing decline in Chum productivity. Expect continued variability in Chum returns on a north-south gradient favoring higher survival in southern systems. Small improvements in Summer Chum abundance are likely in 2024, as marine survival appears to have improved but brood year abundance was generally poor across the South Coast.
Strait of Georgia	For 2024, Mid-Island systems (Puntledge, Little Qualicum, Big Qualicum) are expected to remain well below target levels. Abundance of stocks in the southern Strait of Georgia such as Cowichan, Nanaimo, and Goldstream is uncertain: expectations are for Cowichan and Nanaimo to come in below escapement targets if low survivals persist or near target if survival returns to normal. Jervis/Narrows Inlet stocks are forecast to be below target abundance in 2024.

Management Area	Stock Outlook
Fraser River **(CUs: Fraser Canyon and Lower Fraser)**	2024 Outlook Category '2'. Fraser River Chum Salmon spawning escapement has failed to reach the management goal in six of the last seven years (2017-2021, 2023). Returns in 2024 will be dominated by 4-year-old brood from the 2020 escapement of 610,000 spawners (contribution of 3-year-old fish is expected to be minimal due to extreme flooding during the 2021 spawning season. Spawning escapements have failed to outperform brood in five of the past seven years (2017-2021), with 2022 and 2023 returns outperforming brood.

13.2.3.2.2 In-season

The upper Johnstone Strait (Area 12) Chum seine test fishery uses standardized methods of test fishing, based on specific set locations. Two vessels, one fishing the Blinkhorn area (Subareas 12-3 & 12-4) of the Vancouver Island shoreline and the other fishing the Double Bay area (Subareas 12-5 & 12-6) are used to assess abundance and biologically sample the stocks passing through the upper Johnstone Strait area. Test fishery information is used to determine whether stocks are at or above the Lower Fishery Reference Point (LFRP) and is also used for post-season representation of the timing and spread of the aggregate return.

Table 13.2-2: Planned Chum Test Fisheries

Test Fishery	Proposed Proponent	Test Fishery Purpose	Potential Dates (preliminary[a])	
			Start	End
Area 12	'Namgis/A-Tlegay	ISC Mixed Stock Chum	Sept 15	Nov 3

[a] All dates subject to change based on in-season factors. In-season information from initial TFs important to determining timing of subsequent TFs.

13.2.3.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Conservation measures implemented in 2021 are proposed for 2024 to reduce the impact of commercial Chum fisheries on co-migrating Interior Fraser River Steelhead. These actions are

described generally in Section 13.2.5.4 and detailed measures are provided for specific fisheries contained in Section 13.2.5.5.3.

Harvest Approach for Mixed-Stock Chum Fisheries in Johnstone Strait

In Johnstone Strait, a fixed harvest rate approach was initiated in 2002. It was agreed that the exploitation would be limited to a more cautious level of 20% implemented through a fixed effort approach, with two seine openings and limited gill net and troll opportunities through the month of October. This implementation approach was assessed through modeling and testing of assumptions by in-season mark-recapture (conducted in 2000-2002) to estimate harvest rates, fleet efficiencies, and migration rates of Chum through the mixed stock fishing area. Many of the parameters (run-timing and spread) required for the planning of these fisheries were obtained through the existing Chum test fishery. While cautious in the mixed stock areas, this approach provides a more stable opportunity compared to the previous stepped harvest rate approach (also known as Clockwork).

The level of exploitation in Johnstone Strait and a critical abundance threshold of 1.0 million Inside Southern Chum used to manage both Canadian and U.S. fisheries is identified within the Pacific Salmon Treaty (PST) revised Annex IV Chapter 6. The critical abundance threshold for the ISC aggregate including Fraser stocks provides a reference point to either initiate (>1.0 million) mixed stock fisheries in Johnstone Strait and U.S. waters or suspend (<1.0 million). Of the overall 20% exploitation rate, 5% is set aside for FSC, test, and recreational fisheries, as well as a commercial harvest buffer; while the remaining 15% of passing stocks is targeted by commercial fisheries, which are organized using historical catch and effort fishing data. The 15% commercial harvest is allocated between the purse seine, gill net and troll fisheries following commercial salmon allocation arrangements. The implementation of the management strategy in Johnstone Strait has three distinct benefits:

1. To minimize potential impacts on less productive stocks that are not following the aggregate abundance pattern;
2. To improve stability and predictability for harvesters; and
3. In periods of high abundance, increased terminal opportunities will develop focusing harvest on those abundant stocks.

The harvest plan is designed to achieve the provisions of the PST, which specifies a run size reference point of 1 million for the Inside Southern Chum aggregate (Johnstone Strait, Strait of Georgia and Fraser). The PST defines this as a critical threshold, and it is used as a Limit Reference Point (LRP) for commercial fisheries.

Table 13.2-3: Fishery Reference Points and Harvest Plan for Mixed-Stock Chum Fisheries in Johnstone Strait

Management Zone	Run Size Range*	Harvest Guideline	Exploitation Rate Range**
1 – Critical	0 – 1 Million	Non-commercial fisheries only. Refer to Table 13.2.13 and Section 13.2.5.5.2 for recreational decision-making guidelines. Refer to Section 13.2.5.5.1 for FSC decision-making guidelines.	up to 5%
Limit Reference Point for Commercial Fisheries = 1 Million run size			
2 – Very Low **3 – Low** **4 – Moderate** **5 – High**	More than 1 Million	Commercial harvest up to 15% ER, and non-commercial fisheries at 5% ER.	up to 20%

* Run size is defined as aggregate abundance of Chum.

** Exploitation rate is defined as % of the aggregate abundance caught in Canadian fisheries.

Table 13.2-4: Summary of key decision points for the management of the ECVI recreational Chum fishery when Critical Abundance Threshold <1 Million

JST Chum Abundance	Fraser River Run Size	ECVI Monitored Systems* (Puntledge River, Qualicum River, Little Qualicum River, Nanaimo River, Cowichan River, Goldstream River)	Marine Recreational Fishery
<1 Million Critical Threshold not achieved	916,000 to 1,050,000	50% or less of currently assessed ECVI systems tracking below escapement	Open full limits
		Greater than 50% of currently assessed ECVI systems tracking below escapement	
	800,000 to 916,000	50% or less of currently assessed ECVI systems tracking below escapement	Consider reduced Chum retention limits
		Greater than 50% of currently assessed ECVI systems tracking below escapement	
	500,000 to 800,000	50% or less of currently assessed ECVI systems tracking below escapement	Consider reduced Chum retention limits
		Greater than 50% of currently assessed ECVI systems tracking below escapement	Chum non-retention
	<500,000	50% or less of currently assessed ECVI systems tracking below escapement	Chum non-retention
		Greater than 50% of currently assessed ECVI systems tracking below escapement	

*The Department will consider available information from systems that are monitored in season. However, it may or may not include those systems that encounter operational or weather issues that impact assessments (e.g., high water events; failure of in-river equipment).

The harvest guidelines for mixed-stock fisheries in Johnstone Strait are used for pre-season planning, in-season implementation, and post-season review:

Pre-Season: The pre-season planning model takes into account average migration timing and spread of the Inside Southern Chum aggregate, historical gear efficiencies and anticipated effort and distribution of effort by gear type (Area B purse seine, Area D gill net, and Area H troll).

- Outputs from the model illustrate the exploitation (differing harvest strategies) by gear type and are presented as scenarios to the Chum Working Group. Participants in the Chum Working Group finalize a pre-season fishing plan.
- New decision rules and fisheries plans for the mixed-stock Chum commercial fisheries taking place in Johnstone Strait will take into account the delayed start due to the 2024 IFR Steelhead measures and associated reduced ER approach will be developed in consultation with local First Nations and stakeholders.

In-season: Test fishing catch per unit effort data is tracked daily and compared to previous years of estimated run sizes. Fisheries are conducted as per the pre-season fishing plan if test fishery catches indicate a run size greater than the LFRP.

Post-Season: Test fishery information is used for post-season representation of the timing and spread of the aggregate return.

13.2.3.4 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO ISC MIXED STOCK FISHERIES

For Inside Southern Chum Salmon, a critical threshold (or Lower Fishery Reference Point), where little or no harvesting occurs, is defined as 1.0 million in Chapter 6 of the PST.

Commercial opportunities for Chum may be constrained prior to late September to achieve Coho management objectives.

Given ongoing declines in IFR Steelhead escapement, and the recent designation of the Thompson and Chilcotin River Steelhead as *Endangered* by COSEWIC, DFO is implementing a precautionary approach to the management of those fisheries in Southern B.C. that are likely to impact this stock of concern. In Johnstone Strait, a rolling window closure of 42 days will apply to all commercial gill net and purse seine fisheries and a 27-day closure will apply to commercial troll fisheries.

New for 2024: the Area H Harvest Committee has submitted a Commercial Salmon Allocation Framework (CSAF) demonstration fishery proposal for a small, limited entry Chum-directed fishery in PFMA 13 during the latter period of the 27-day IFR Steelhead window closure. 100%

at-sea monitoring would be required, and the demonstration fishery would stop immediately upon encounter of a Steelhead.

The implementation of the management strategy minimizes impacts on less productive stocks that are not tracking the aggregate abundance pattern.

Schedules and fishing dates will be confirmed pre-season following consultation with industry, First Nations, and stakeholders through the Chum Working Group process.

13.2.3.5 ALLOCATION AND FISHING PLANS

13.2.3.5.1 First Nations Fisheries

Food, Social and Ceremonial

FSC fisheries for mixed stock Chum will not be impacted by 2024 Interior Fraser River Steelhead conservation measures.

First Nations target local salmon stocks for FSC purposes throughout the Inner South Coast. Inner South Coast First Nations harvest of Chum salmon is typically small with an aggregate communal licence harvest target of 155,000 for the South Coast, including the West Coast of Vancouver Island.

FSC mixed stock Chum fisheries may be reduced if the JST critical abundance threshold is less than 1 million and Fraser River escapement is less than 500,000. Discussions will occur in-season with local First Nations if the Inside Southern Chum abundance is tracking low.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations are asked to keep records of harvest and provide catch information to DFO in a variety of formats. Under this licence, if a commercial vessel is used for fishing, First Nations are asked to provide information respecting the species and quantity of fish harvested by this vessel, to the DFO Catch Reporting Officer within 24 hours from landing harvested catch. In addition, catch reporting timelines for First Nations fisheries are outlined in Comprehensive Fisheries Agreements and/or Aboriginal Communal Fishing Licences. Where in-season management requires, catch reports are sought weekly during the respective fishing season.

Treaty Fisheries

Tla'amin Fisheries (Domestic)

Tla'amin Domestic fisheries for mixed stock Chum will not be impacted by 2024 Interior Fraser River Steelhead conservation measures.

The Tla'amin Fishing Area for all species of Fish and Aquatic Plants is within portions of Pacific Fisheries Management Areas 13, 14, 15, and 16.

The Domestic allocation for Chum Salmon under the Tla'amin Final Agreement is a maximum of 2,000 Chum Salmon, that are not of terminal origin, caught in the Tla'amin Fishing Area. An abundance-based formula has not yet been determined.

The Tla'amin Nation provides catch reports to the Department through the Aboriginal Harvest Management System (AHMS). The information recorded on catch reports includes the gear type, fishing time period, location of harvest, harvest count by species, harvest effort, and biological samples.

13.2.3.5.2 Recreational Fisheries

Marine recreational fisheries will not be impacted by 2024 conservation measures to protect Interior Fraser River Steelhead.

Chum recreational fisheries are typically open year-round, with the majority of marine recreational Chum harvest occurring in lower Area 13 (Deepwater Bay) from late September to late October. The normal daily limit is four Chum per day. In some years, due to low in-season abundance and/or poor escapement trends, the daily limits have been reduced or fisheries have closed to the retention of Chum salmon.

For 2024, given the expectations presented in the Preliminary 2024 Salmon Outlook, where South Coast systems are at Category 1 or 2, and not expected to reach their management targets; and the Lower Fraser Chum Outlook is at Category 2, the Department is proposing that both recreational and commercial salmon fisheries will start the 2024 season with Chum non-retention regulations in place across Southern BC. Should in-season estimates of abundance indicate a sufficient harvestable surplus of Chum, fisheries will be considered and announced by Fishery Notice.

For 2024, the Department will continue an in-season management approach to guide retention limits for Chum salmon in marine recreational fisheries. Additional decision guidelines are outlined in section 13.2.5.3 (Table 13.2-13) and are intended to be used in conjunction with the existing in-season decision guidelines for all sectors (Table 13.2-12) in years when the mixed-

stock Chum abundance in Johnstone Strait is estimated to be below the 1 million limit reference point. In this circumstance (and if the mixed-stock commercial fisheries are not proceeding), the Department will review other in-season data in sequence, considering the Fraser River in-season run size estimate, followed by the escapement trends for various monitored systems in the Strait of Georgia, to make a determination on what management measures to implement in the marine recreational Chum fishery. As outlined in Table 13.2-13, these measures may include full limits, reduced limits, or non-retention, depending on how low the Chum abundance is in the Fraser River and throughout the Strait of Georgia.

Updates will be provided via Fishery Notice and published on the recreational fisheries website (http://www.bcsportfishingguide.ca). For 2024 in Southern B.C. tidal waters, it is anticipated that normal Chum opportunities will be provided for Southern B.C. Chum.

Fishery Monitoring and Catch Reporting

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch (iREC) reporting program are the main tools used to capture recreational catch and effort information in this fishery. South Coast Stock Assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

13.2.3.5.3 Commercial Fisheries

Allocation

Canadian commercial fisheries are managed to try and achieve allocation targets between fleets for all Inside Southern Chum harvests (Table 13-). Commercial fishery allocations take into account catches from: Johnstone Strait mixed-stock fisheries and terminal area fisheries in inside waters, including the Fraser River. Commercial allocation sharing arrangements in Johnstone Strait are: seine Area B – 77%; gill net Area D – 17%; and troll Area H – 6%. The Johnstone Strait Chum allocations are used to guide pre-season fishing effort inputs into the fishery planning model. As the fishery is managed based on effort, actual catch has not been used to adjust fisheries for the mixed stock Johnstone Strait Chum fishery. Where abundance permits, terminal area fishing opportunities are used to try and balance the overall ISC allocations below.

Table 13.2-5 Commercial Allocation Implementation Plan (from the 2015–current period)

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Inside	11 to 19, 28 to 29	63.0%	19.2%	12.0%	0.0%	5.8%

Inside Southern Chum - Mixed-Stock (Johnstone Strait) Commercial Fisheries

ISC mixed-stock fisheries (Areas 12/13): Target fall run Chum, with seine, gill net and troll gear. Specific fishing plans will be determined pre-season following consultation with the Chum Working Group. A Chum Working Group meeting will be scheduled pre-season to begin this planning process. The fishing plan for Johnstone Strait mixed-stock fishery usually follows the general outline:

Area B Seine

- A 42-day rolling window closure will be implemented in 2024 to protect co-migrating IFR Steelhead.
- Openings may be scheduled following the IFR Steelhead closure (preliminary fishing dates will be determined at the pre-season Chum Working Group meeting).
- In 2024, the harmonized window closure approach may be implemented for seine in JST (see description below).

Area D Gill Net

Since 2022, this fishery is closed to protect IFR Steelhead which is a stock of conservation concern. These closures are expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. For any commercial fisheries that are closed, the allocations will remain with the original fleet and fish will be allowed to pass to spawning grounds. Opportunities for additional commercial harvest may be considered in locations where stocks of concern will not be encountered.

See Appendix 8 for a complete list of longer-term fishery closures.

Area H Troll

- A 27-day rolling window closure will be implemented in 2024 to protect co-migrating IFR Steelhead.
- Troll fisheries may be scheduled following the IFR Steelhead closure (preliminary fishing dates will be determined at the pre-season Chum Working Group meeting).
- This fishery is planned to occur as an Individual Transferable Effort (ITE) demonstration fishery (see details below in demonstration fishery section)
- Troll fisheries in Johnstone Strait are not planned during regular Area B seine openings when and where possible.
- In 2024, the harmonized window closure approach may be implemented for troll in JST.
- **New for 2024:** the Area H Harvest Committee has submitted a Commercial Salmon Allocation Framework (CSAF) demonstration fishery proposal for a small, limited entry

Chum-directed fishery in PFMA 13 during the latter period of the 27-day IFR Steelhead window closure. 100% at-sea monitoring would be required, and the demonstration fishery would stop immediately upon encounter of a Steelhead.

Appendix 8 *Inside Southern Chum – JST Harmonized Window Closure*

The harmonized window closure is a combined fishing area comprised of the lower portion of Area 12 and the upper portion of Area 13. The purpose of the harmonized window closure is to maintain fishing opportunity in JST while aligning with the intent of the IFR Steelhead rolling window closure. Fishing opportunities within the harmonized fishing area commence October 12 for troll gear and October 21 for net gear (Table 13.215).

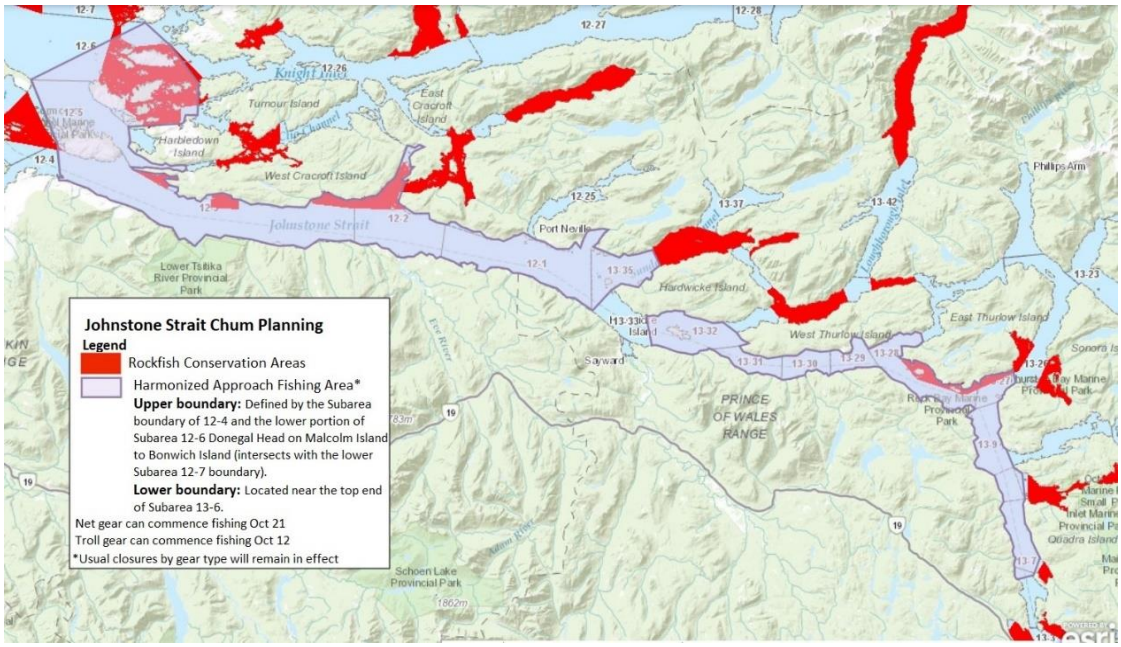


Figure 13.2-4 Map of the harmonized fishing area in portions of Areas 12 and 13.

Table 13.2-6 Overview of troll and net IFR Steelhead rolling window closure dates and the harmonized window closure dates in the JST mixed stock areas.

	27 day troll window closure		42 day net window closure	
	Start	End	Start	End
Area 13	17-Sep	13-Oct	11-Sep	22-Oct
Area 12	12-Sep	8-Oct	6-Sep	17-Oct
Area 11	11-Sep	7-Oct	5-Sep	16-Oct
Area 111	10-Sep	6-Oct	4-Sep	15-Oct
Area 12/13 Harmonized*	15-Sep	11-Oct	9-Sep	20-Oct

Inside Southern Chum - Mixed-Stock Demonstration Fisheries *Area H Troll Johnstone Strait Chum Individual Transferable Effort (ITE) Demonstration Fishery*

Region: South Coast

Participants: All Area H troll licence holders

Location of Fishery: Johnstone Strait (portions of Areas 12 and 13).

This fishery will be subject to the 27-day rolling window closure to be implemented in 2024 to protect co-migrating IFR Steelhead.

Gear Type: Troll, barbless hooks and revival tanks are mandatory

Time Frame of Fishery: Fishing plans and start dates will be confirmed prior to the season through the Chum Working Group consultation process.

Allocation: Boat day allocations are based on the anticipated amount of effort and the distribution of that effort in order to stay within the Area H share of the harvest rate.

New for 2024: The Area H Harvest Committee will be conducting a poll of all Area H troll licence holders to determine whether the current process for boat day allocations will remain the same (divided equally amongst licence holders and issued as ITE) for the Johnstone Strait mixed-stock Chum fishery, or if the total number of Area H boat days will be issued to the fleet instead, starting in 2024. The final decision will be made by the majority vote of licence holders and will be outlined in the final IFMP.

The target species is Chum; retention of Pink is permitted. There will be non-retention of Sockeye, Coho, Chinook and Steelhead.

Monitoring Plan: Start, end, pause and daily catch reports will be required by phone-in or electronic logbook. Over flights will be conducted and charter patrol will monitor the fishery.

Mixed-Stock First Nations Commercial Chum Harvest

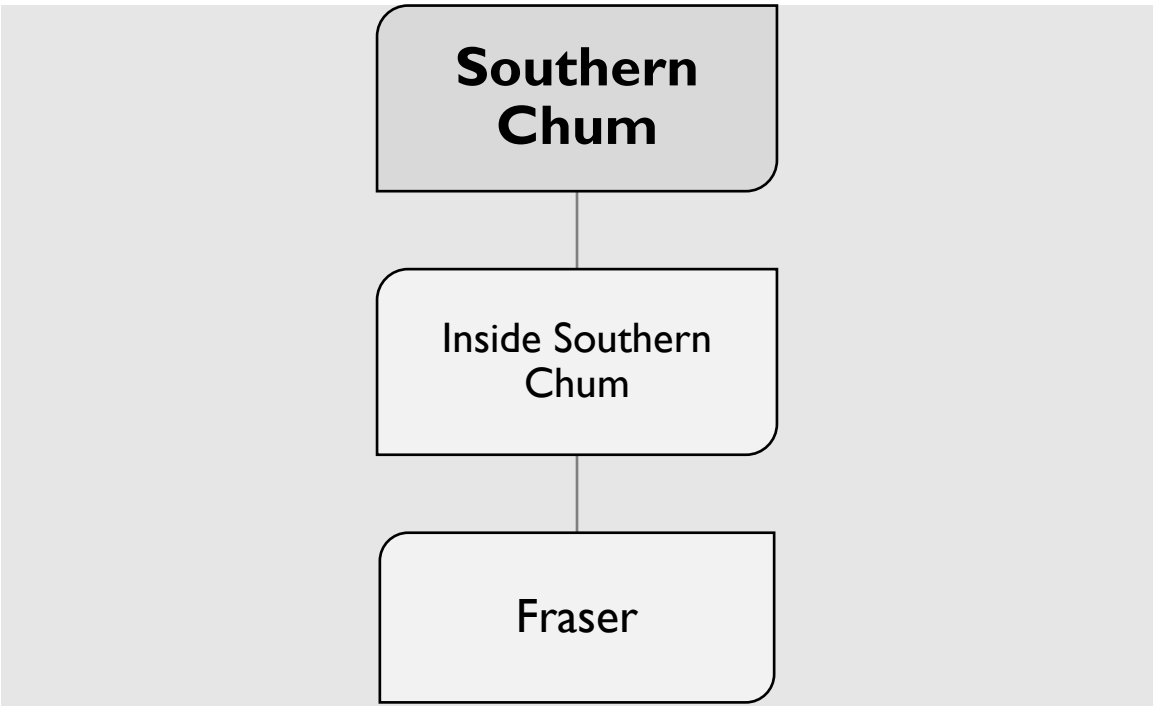
There are no First Nations commercial fisheries for mixed-stock Chum.

13.2.3.5.4 ESSR Fisheries

ESSR fisheries are identified in the Fraser and ECVI/Mainland Chum sections.

13.2.4 FRASER CHUM

13.2.4.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT



Conservation Units

Fraser Canyon (F)

Lower Fraser (F)

Figure 13.2-5: Overview of Fraser Chum

The Fraser Chum Management Unit includes all Chum that return to spawn in the Fraser River mainstem and Fraser River tributaries and is comprised of the WSP Lower Fraser Chum Conservation Unit (CU) and the Fraser Canyon Chum CU. The vast majority of Chum returning to the Fraser River are part of the Lower Fraser Chum CU, and spawn in the mainstem and tributaries of the Fraser River downstream of Hope. Major spawning aggregations occur 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. Chum Salmon return to the Fraser River from September through December, with the typical peak of migration through the lower river occurring from mid- to late October.

Chum-directed fisheries that harvest Fraser Chum include mixed-stock fisheries in Johnstone Strait, mixed-stock fisheries in the U.S. Strait of Juan de Fuca and San Juan Islands, and Fraser Chum-targeted fisheries occurring within the Fraser River.

Fraser Chum are assessed in-season using Albion test fishery data to estimate Chum abundance, migration timing, and other biological information. Escapement estimates provided post-season rely on visual surveys of some systems, as well as mark-recapture estimates in the Harrison River and Chilliwack River. Coverage of visual surveys has declined since the 1980s in terms of the number of surveyed systems, but the remaining surveys still cover most of the key production areas for Fraser Chum.

DFO hatchery programs in the Lower Fraser River produce Chum to supplement harvest (Chehalis River, Chilliwack River, Inch Creek, and Weaver Creek), but hatchery production is also used for population rebuilding, such as helping to establish spawning populations in areas that have benefitted from habitat improvement projects. Chum are also produced at smaller-scale community-run hatcheries for educational and stewardship purposes.

13.2.4.2 STOCK ASSESSMENT INFORMATION

13.2.4.2.1 Pre-season

Formal quantitative forecasts are not prepared for Fraser River Chum, but the qualitative Salmon Outlook for 2024 is "below average". Returns in 2024 will be based largely on the brood from the 2020 escapement; assessed escapement in 2020 was estimated at approximately 520,000 spawners. The 2024 outlook is considered "below average" due to the low escapement in 2020, and the low Fraser River Chum returns observed since 2017, which reflected a coast-wide trend of low Chum returns. Environmental conditions have remained generally poor for salmon survival and recent productivity has been below long-term averages. Directed fisheries may be possible for the 2024 season, subject to in-season assessments.

The preliminary estimate of the 2023 spawning escapement will be available in the final IFMP.

13.2.4.2.2 In-season

Terminal abundance of Fraser River Chum Salmon is estimated based on in-season information on Chum catch from the Albion Chum test fishery and a Bayesian model that incorporates prior information on terminal run size and migration timing.

The Albion Chum test fishery has operated annually since 1979 on the lower Fraser River in Area 29 at Albion (near Fort Langley). The test fishery is conducted with a drifted gill net at a specific site near the old Albion ferry crossing. On each day of operation, the boat fishes two

sets, timed to coincide with the daily high tide. The Albion Chum test fishery normally fishes every other day from September 1st through October 20th, alternating days with the Albion Chinook test fishery (which fishes an 8" mesh gill net during this period). From October 21 through mid-November, the Chum Salmon test fishery operates daily, then every other day until late November. The gill net used in the Albion Chum test fishery is 150 fathoms long, constructed from uniform 6.75" mesh.

The first in-season estimate of terminal Fraser River Chum Salmon abundance is typically provided in mid-October. Decisions regarding fishing opportunities are based on the Albion test fishery in-season information.

Table 13.2-7: Planned Chum Test Fisheries

Test Fishery	Proposed Proponent	Test Fishery Purpose	Potential Dates (preliminary[a])	
			Start	End
Albion Gill Net	DFO	Fraser Chum abundance and biological information	01-Sep	23-Nov

[a] All dates subject to change based on in-season factors.

13.2.4.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

The current Interior Fraser Steelhead window closure overlaps with the majority of the Fraser Chum return; therefore, when FSC openings are being contemplated, or later if commercial and recreational openings are being planned, approximately one third to one quarter of the terminal Fraser Chum run size will likely be accessible to these fisheries, respectively. Consideration of the potential long-term consequences of fishing pressure on the tail end of the run may include: a shift to earlier peak timing of the entire return; shorter overall duration of the return; and, loss of genetic diversity and capacity to withstand environmental change.

To minimize the above concerns in 2024, the Department will continue to implement decision rules for Fraser River Chum fisheries to consider the delayed start of fisheries caused by the Interior Fraser Steelhead window closure.

Specifically, for all commercial gill net fisheries (including EO/Demo fisheries), only a portion of the TAC will be released. The proportion of the TAC released will be based on the expected terminal return remaining available to fisheries after the Interior Fraser Steelhead window

closure ends. Using average run timing information, the amount of TAC that would be released ranges from approximately 22-34% of the full amount and varies by area due to the offset timing of the IFR Steelhead window closure by area. In-season information on return timing will be used when estimating the terminal return remaining available to fisheries. This change will not affect TAC for commercial fisheries using selective gear (purse seine, beach seine, shallow seine) or FSC allocations.

In addition, the fishery end dates for all FSC, commercial, and recreational fisheries that were introduced in 2022 will be implemented in 2024 for Fraser River mainstem fisheries. The intent of this measure is to ensure fisheries are only occurring when and where salmon are present. Based on the average run timing at the Albion test fishery and spawning grounds, there will be no fishing for salmon in the Fraser mainstem after November 30. This end date may be revised if in-season information suggests the return timing differs significantly from average. In tributaries with Chinook and Coho-directed recreational opportunities, there will be no fishing for Chum Salmon from December 1 to 31. FSC opportunities will continue to be provided in tributaries until December 31 for those First Nations with access to terminal areas.

Conservation measures that were implemented starting in 2019 to reduce the impact of Fraser River Chum fisheries on co-migrating Interior Fraser River Steelhead are planned to continue in 2024. These actions are described generally in Section 13.2.4.4 and detailed measures are provided for specific fisheries contained in Section 13.2.4.5.

Management of Fraser River Chum fisheries is based upon in-season information. As described in detail in the previous section, Albion test fishing data will be used to identify the abundance of Chum Salmon returning to the Fraser River. The first in-season terminal run size assessment is announced in mid-October once the peak of the return has been identified.

The in-season estimate of abundance for Fraser River Chum is used for international as well as domestic management, as outlined in Chapter 6 of the Pacific Salmon Treaty (PST). The PST stipulates that if Fraser River Chum in-season abundance (terminal run size) is estimated to be less than 900,000, the Canadian commercial Chum Salmon fisheries within the Fraser River and in associated marine areas (Area 29) will be suspended. Domestic management, however, stipulates the terminal run size required to initiate these fisheries is 916,000. In U.S. Areas 7 and 7A, catch is restricted to different levels depending on how the Fraser River Chum terminal run size relates to the benchmarks of 1,050,000 or 1,600,000.

Current decision points and management actions for domestic management of Fraser River Chum Salmon are outlined in Table 13.2 below. These decisions points are linked to the in-season terminal run size estimate and relate to key amounts supporting specific conservation and harvest levels:

500,000: Habitat-based escapement goal (Palmer 1972[24]); minimum escapement level, below which is considered a conservation concern for Fraser River Chum Salmon.

800,000: The aggregate escapement goal for Fraser River Chum Salmon is 800,000 spawners. This objective is based on a stock-recruit analysis (Ryall et al. 1999[25]) that estimated the number of spawners required to maximize recruits per spawner (S_{MSY}).

916,000: Minimum terminal run size needed to meet the escapement goal (800,000) and provide full FSC and Treaty allocations (72,000), test fishery catch (9,000), and a minimum 35,000 TAC to support a commercial fishery.

1,050,000: Derived from old Clockwork management strategy, where a minimum run size of 550,000 for the early Chum run and 500,000 for the late Chum run was required to enable a 15% commercial TAC. Note that evidence for different run timings of Fraser Chum stocks has not been observed since approximately 2003, so Fraser Chum are managed as an aggregate with one run timing.

Implementation of the WSP will require developing of biological benchmarks and associated biological status zones for Fraser River Chum. When these benchmarks are identified, corresponding decision breakpoints and management actions may be reviewed. Analyses have not yet been initiated on benchmark identification for Fraser River Chum.

[24] Palmer, R.N. (1972) Fraser River chum salmon. Dept. Env. Fish. Ser. Pacific Region Tech. Rep. No. 1972-1: 284p.
[25] Ryall, P. Murray, C., Palermo, V., Bailey, D., and Chen, D. (1999) Status of Clockwork Chum Salmon Stock and Review of the Clockwork Management Strategy. CSAS Res. Doc. 99/169: 134 p.

Table 13.2-8: Summary of key decision points for the management of the Fraser River Chum fishery

Fraser River Terminal Run Size	Harvest Plan	Lower Fraser First Nations	Commercial	Recreational
<500,000	Reduced directed harvest of Chum Salmon in FSC and test fisheries. Harvest rate not to exceed 10% of the terminal run size for Fraser Chum.	Reduced allocation and limited fisheries (reduced hours and days/week fishing)	Closed	Mainstem Fraser River and tributaries closed to fishing for Chum Salmon.
500,000 to 800,000	Directed harvest of Chum Salmon limited to FSC and test fisheries. Catch not to exceed 91,800 (82,800 First Nations* and 9,000 test fishing).	Normal	Closed	Mainstem Fraser River closed to fishing for Chum Salmon. Non-retention of Chum Salmon in tributaries.

Fraser River Terminal Run Size	Harvest Plan	Lower Fraser First Nations	Commercial	Recreational
800,000 to 916,000	Directed harvest of Chum Salmon limited to FSC, test fisheries, and reduced recreational fisheries. Catch not to exceed 91,800 (82,800 First Nations* and 9,000 test fishing).	Normal	Closed	Mainstem Fraser River and tributaries open to retention of Chum Salmon. Consider reduced daily Chum retention limits.
916,000 to 1,050,000	Directed harvest of Chum Salmon. Commercial catch not to exceed 10% of the terminal run size for Fraser Chum.	Normal	Open (TAC 35,000-105,000)	Mainstem Fraser River and tributaries open to retention of Chum Salmon, subject to regular daily limits.
>1,050,000	Directed harvest of Chum Salmon. Commercial catch not to exceed 15% of the terminal run size for Fraser Chum.	Normal	Open (minimum TAC 105,001)	Mainstem Fraser River and tributaries open to retention of Chum Salmon, subject to regular daily limits.

* Note: Tsawwassen and Tla'amin Treaty domestic fishery allocations are not included here.

Commercial fishing opportunities (including First Nations Economic Opportunities) are contingent upon the identification of a commercial TAC:

1 At terminal run sizes less than 916,000, no commercial TAC is available.

2 At terminal run sizes from 916,000 to 1,050,000, the commercial TAC is a maximum of 10% of the terminal run size. A minimum commercial TAC of 35,000 Chum has been identified as a requirement to support Area E gill net fishery openings.

3 At terminal run sizes greater than 1,050,000, the commercial TAC is a maximum of 15% of the terminal run size.

The Department intends to work with participants in the Fraser commercial Chum fisheries, including First Nations, to outline considerations that will guide planning and scheduling of in-season commercial fishery openings.

Specific details of the fisheries and target allocations will be determined as part of the in-season planning process. The involvement of the Area B seine fleet in the Fraser River Chum fishery is dependent on the Area B Seine Harvest Committee developing and implementing a limited participation fishing plan that limits the harvests of Chum to identified target allocations.

The recreational fishery within the Fraser River was historically open from mid-July or early August to December 31 annually. For 2024, the Fraser mainstem will remain closed to fishing for Chum Salmon until open, and recreational opportunities in tributaries will have non-retention of Chum Salmon until the in-season terminal run size estimate of Fraser Chum Salmon is available in mid- to late October. Management actions will then be determined according to the guidelines below (and subject to aforementioned end dates):

- At terminal run sizes below 500,000 the recreational fishery on the Fraser mainstem and tributaries will be closed to fishing for Chum Salmon.
- At terminal run sizes below 800,000 the recreational fishery on the Fraser mainstem will remain closed and openings on tributaries targeting other species will continue with non-retention of Chum Salmon.
- At terminal run sizes from 800,000 to 916,000 the recreational fishery will open on the Fraser River mainstem. Retention opportunities on tributaries would be limited to those where a surplus of hatchery-produced Chum Salmon is likely to occur. A surplus may be identified if and when the hatchery facility determines broodstock requirements are likely to be met. Daily limits of Chum Salmon on the Fraser mainstem and in tributaries will be reduced.
- At terminal run sizes greater than 916,000, the recreational fishery will open in the Fraser River mainstem and tributaries, subject to regular daily limits.

For 2024, management of the recreational fishery will also be subject to management measures implemented to conserve IFR Steelhead. Please note general information on IFR Steelhead management measures in 13.2.4.4 and 13.2.4.5.2.

First Nations FSC fisheries typically occur in October and November, but these opportunities will be subject to management measures implemented to conserve IFR Steelhead. Please note general information on IFR Steelhead management measures in 13.2.4.4 and 13.2.4.5.1. If in-season information indicates that the Fraser Chum return is less than 500,000, fisheries targeting Fraser Chum will be limited to a maximum harvest rate of 10% or lower (includes FSC and test fisheries).

13.2.4.4 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO FRASER CHUM FISHERIES

Chum fisheries within the Fraser River will be managed to minimize bycatch of co-migrating stocks of concern, including Lower Fraser River Coho, Interior Fraser River (IFR) Coho, and IFR Steelhead. In some cases, full harvest targets may not be harvestable due to conservation concerns and management considerations that are identified in-season.

For Chum-directed fisheries within the Fraser River, a "window closure" has been the primary tool applied in First Nations, commercial, and recreational fisheries to protect IFR Coho from non-selective fishing gear (e.g., gill nets, rod and reel fishing with bait). Selective fishing gear (e.g., beach seines, rod and reel fishing with no bait, dip nets) has been allowed to fish within these window closure dates, which span the period from early September to mid-October in the Lower Fraser River. Additional details on IFR Coho management are outlined in the Southern Coho Species Plan section (13.3) of Section 13.

Given ongoing declines in IFR Steelhead escapement and the designation of the Thompson and Chilcotin River Steelhead as Endangered by COSEWIC, DFO is continuing with a comprehensive, precautionary approach to the management of all fisheries in Southern BC that are likely to impact this stock of concern. Within the Fraser River (including sub-Areas 29-6, 29-7, 29-9, and 29-10), a 42-day closure will apply to commercial gill net, purse seine, beach seine, and shallow seine fisheries (including EO fisheries) and a 27-day closure will apply to commercial troll fisheries. Further, a 42-day closure will apply to Fraser River recreational fisheries and a 27-day closure will apply to Fraser River FSC fisheries. Areas and dates for the window closure are identified in Appendix 9.

Following the window closure, set gill net gear will be further restricted to operate during daylight hours only, while attended by a harvester at all times.

In addition to the window closure, established approaches to reduce Steelhead encounters and minimize IFR Steelhead mortality will continue. For Area E Chum fisheries, this includes using shorter nets and reducing soak times—practices which have been in place since 2002. The use of revival tanks is also mandatory for commercial fisheries.

The Department continues to have an interest in finding additional ways to further reduce incidental impacts of salmon fisheries on IFR Steelhead. Discussions concerning modifications to gear or fishing methods in order to achieve such reductions are ongoing and may result in additional conservation measures in the 2024 season.

13.2.4.5 ALLOCATION AND FISHING PLANS

13.2.4.5.1 First Nations Fisheries

Food Social and Ceremonial Fisheries

FSC fisheries for Fraser Chum are culturally significant for First Nations communities in the lower Fraser River. Current proposed communal licence harvest targets for these communities total 91,800 Fraser Chum.

Refer to Section 10.2 for Table 10- Communal Licence Harvest Target Amounts for Southern BC/Fraser River First Nations Fisheries.

At terminal run sizes below 500,000 Chum, FSC fishing opportunities may be reduced and a maximum harvest rate of 10% (including FSC and test fisheries) will be implemented. For planning purposes, returns less than 500,000 will be considered to be a conservation concern. This value may be revised in the future based on subsequent analyses.

Typically, Fraser River First Nations are provided FSC fishing opportunities for Chum as the Interior Fraser River Coho window closure ends in each area, beginning in early October. Starting in 2019, an additional closure period was implemented to protect IFR Steelhead (in Appendix 9. Again in 2024, Chum-directed FSC fisheries will be initiated following the end of the IFR Steelhead closure in each area. Area staff will work with local First Nations communities to develop specific fishing plans that meet these conservation objectives.

Fishery Monitoring and Catch Reporting

In the lower Fraser River, catch monitoring programs are managed through Activity Funding or Comprehensive Fisheries Agreements. Monitoring programs implemented vary between Nations but typically include landing site or vessel-based collection of catch and effort information paired with validation of effort by vessel patrols or overflights. Specific focus has also been placed on sampling bycatch of Chinook and Coho Salmon for mark rate information and coded-wire tags (CWTs) to support the Salmon Head Recovery Program. Catch reports are

received by DFO from catch monitoring programs on a weekly basis, within 48 hours of a fishery closing.

Treaty Fisheries

Tsawwassen First Nation Fisheries (Domestic)

In 2024, a 27-day rolling window closure will be in place to protect Interior Fraser River Steelhead that will impact Treaty fisheries in the Fraser River, as per areas and dates outlined in Appendix 9.

Area staff will work with the Tsawwassen First Nation (TFN) to develop specific fishing plans that meet these conservation objectives.

As per the Tsawwassen First Nation Fisheries Operation Guidelines (TFN FOG), each year the TFN will develop a Tsawwassen Annual Fishing Plan (TFN AFP) for the harvest of salmon as per the Tsawwassen First Nations Final Agreement (TFN FA). The TFN AFP will include the TFN preference for stocks and species to be harvested, locations, timing, access to specific runs, method of harvest, catch monitoring and reporting, enforcement, etc. The TFN AFP is then presented to the Joint Fisheries Committee (JFC) for their review. The JFC is made up of representatives of Canada (DFO), the Province of BC and the Tsawwassen First Nation. The JFC considers the TFN AFP in making its recommendations to the Minister of Fisheries and Oceans about the issuance of Harvest Document(s), which in effect licence the fishing of FSC salmon during the season. Multiple harvest documents will be issued over the course of a season for each salmon species. Harvest Documents may include: species and quantity, use of fish, gear type, dates and times, area, designations, monitoring and reporting, etc.

The domestic allocation for Chum Salmon under the TFN FA will be 2.58% of the Terminal Surplus of Fraser River Chum Salmon to a maximum of 2,576 Fraser River Chum Salmon.

Fishery Monitoring and Catch Reporting

The monitoring program for TFN Domestic fisheries includes fisher logs supplemented by validations of catch through on-water patrols and/or observations of landings and effort through on-water patrols. Details of monitoring programs in place can be found in the TFN FOG.

13.2.4.5.2 Recreational Fisheries

Chum retention in the Fraser River mainstem is subject to co-migrating salmon stocks and species of concern. In the tidal portion of the Fraser River (Area 29 downstream of the CPR bridge at Mission), the full daily limit is 4 Chum. In non-tidal portions of the Fraser River (Region 2, from Mission to the Hope Bridge), the full daily limit is 2 Chum. The fishery does not

occur upstream of the Hope Bridge in order to reduce impacts on Fraser Canyon Chum. Daily limits may be adjusted depending on in-season abundance estimates.

Continuing in 2024 (see Section 13.2.5.3): Recreational fisheries in the Fraser River mainstem are subject to fishery end dates, and recreational opportunities targeting species other than Chum Salmon in tributaries will not be authorized to fish for or retain Chum Salmon until the in-season terminal run size estimate of Fraser Chum Salmon is available in mid- to late October.

The Department has received feedback for 2024 that given the relatively poor outlook for Fraser Chum Salmon, all recreational fisheries targeting Chum Salmon in the Lower Fraser River and tributaries remain closed until the in-season run size estimate is available.

As part of the IFR Steelhead conservation measures continuing in 2024, a 42-day rolling window closure will be applied to recreational fisheries in the Fraser River mainstem (including sub-Areas 29-6, 29-7, 29-9, and 29-10). No fishing for salmon will be permitted in the areas and dates outlined in Appendix 9.

Fishery openings are published on the recreational fisheries website, http://www.bcsportfishingguide.ca/. Updates are provided in-season via fishery notices.

Fishery Monitoring and Catch Reporting

Creel surveys are conducted in portions of the lower Fraser River and select tributaries to estimate recreational catch and effort for the times and areas surveyed. Typically, the creel survey in the lower Fraser River mainstem begins when the mainstem is opened to recreational salmon fishing; however, over the last number of years, the survey end date has been variable (mid-September to end of November). The creel surveys conducted on the Chilliwack River and Nicomen-Norrish recreational fisheries have remained stable over the last number of years both in times and areas (Chilliwack is surveyed from mid-September to mid-November and Nicomen-Norrish is surveyed from early October to the end of November).

13.2.4.5.3 Commercial Fisheries

The commercial licence groups that can access Fraser Chum in the terminal area (i.e., Area 29) are Area E, Area H and Area B. Additionally, Fraser Chum are harvested in mixed-stock fisheries in Johnstone Strait by a number of commercial licence groups (see Johnstone Strait Mixed Stock Chum Section 13.2.2). Other commercial opportunities to harvest Fraser Chum include Economic Opportunity fisheries for First Nations in the Lower Fraser River and demonstration fisheries for First Nations and commercial licence groups.

Allocation

The following table describes the overall allocation for all Inside Southern Chum, which includes Fraser Chum (refer to Figure 13 in Section 13.2 - Inside Southern Chum). These allocations are used to balance overall harvest amounts in the Johnstone Strait mixed-stock, East Coast Vancouver Island and mainland, and Fraser River commercial fisheries.

Table 13.2-9: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
Inside Southern Chum	11 to 19, 28 to 29	63.0%	19.2%	12.0%	0.0%	5.8%

Fraser Commercial Chum Fisheries

Beginning in 2022, the Areas E gill net fishery was closed to protect stocks of conservation concern. These closures are expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 8 for a complete list of longer term fishery closures.

Area B (Area 29)

Seine fishing opportunities for Chum Salmon will be confirmed in-season, based upon in-season assessment of the abundance of the Chum Salmon returns and management objectives for IFR Steelhead (see Section 6.10).

As part of the IFR Steelhead conservation measures continuing in 2024, a 42-day rolling window closure will be applied to the Fraser River commercial seine Chum fisheries. No commercial seine Chum fisheries will be permitted within the IFR Steelhead window closure in Area 29 within the areas and dates outlined in Appendix 9.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Area H Troll (Area 29)

Mid- to Late October/Early November - Area 29

A 27-day rolling window closure will be applied to commercial troll fisheries as part of the 2024 IFR Steelhead conservation measures. No commercial troll fisheries will be permitted within the window closure in Area 29 within the areas and dates outlined in Appendix 9.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Fishery Monitoring and Catch Reporting

Fishery Monitoring and Catch Reporting includes the following:

- Mandatory requirement to file fishing reports in all commercial fisheries, including "Start/Pause/Cancel/End" fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest log or electronic transmission with an electronic harvest log (E-log) is required in all commercial fisheries. (Catch Reporting requirements specific to each licence group are detailed in the conditions of licence for each gear type).
- Vessel counts conducted to verify number of vessels (effort) in each Area E gill net opening.
- Roving on-water observer coverage (DFO catch monitoring coverage and charter patrols) in each Area E gill net opening to conduct net haul observations and gather independent information on encounters of non-target species.
- Partial independent on-board/at-sea observer coverage for Area B seine fisheries.
- Dockside validation for Area B seine fisheries.

Demonstration Fisheries

Area B Seine Area 29 Chum Fishery

The Area B Harvest Committee has expressed an interest in continuing to explore an Area 29 directed Chum seine fishery similar to that of 2015.

Region: South Coast

Participants: All Area B licence holders (coordinated by ABHC/Area B Seine Society)

Location of Fishery: The fishing areas that may be considered are portions of Area 29 off the Fraser River mouth.

For 2024, this fishery is to be operated in times and areas outside of the rolling window closure identified to protect IFR Steelhead.

Gear Type: Seine gear using both regular seine and shallow seine nets, and the use of power skiffs is permitted. Selective fishing measures are mandatory; specified by licence conditions.

Time Frame: The fishery would occur after the IFR Steelhead window closure in November

Allocation: Fishing opportunities will be based on catch levels in relation to the overall allocation of Inside Southern Chum

The target species is Chum, retention of Pink is permitted. There will be non-retention of Sockeye, Coho, Chinook and Steelhead.

Monitoring Plan: Start, end, pause and daily catch reports will be required by phone-in or electronic logbook. There will be a requirement for observer coverage on vessels participating in this fishery. In addition to monitoring catch, observers will be available to collect any DNA sampling that is required and identified.

Area B Seine Fraser River Chum Demonstration Fishery in the Lower Fraser River

The purpose of this experimental fishery project is firstly to demonstrate the effectiveness of harvesting Fraser River Chum Salmon within the confines of the Fraser River employing the selective capabilities of a purse seine, and secondly to continue the harvest of Chum Salmon that may not be available in marine areas, due to other constraints.

Region: Lower Fraser River Area – Fraser River mainstem

Participants: All Area B licence holders will be eligible; however, as this is an experiment, effort controls will be in place to limit participation to a maximum of eight to ten vessels fishing on any given day

Location of Fishery: Area 29 in-river; Area B has indicated there are a number of potential locations around New Westminster, Glenrose, the Cement Plant, and down to the Deas Tunnel that would be suitable for seining and out of the shipping lanes

This fishery is to be operated in times and areas outside of the rolling window closure identified to protect IFR Steelhead.

Gear Type: Seine gear using shallow seine nets, the use of power skiffs and selective fishing measures are mandatory and are specified by licence conditions

Time Frame: The fishery would occur between mid-October and early November.

Consideration of other fisheries in the area will be taken into account when planning Area B in-river fishing activities. Specific fishing times would be confirmed in-season through an integrated planning process. The amount of available fishing days for this experiment will be confirmed in-season.

Allocation: Fishing opportunities will be based on catch levels in relation to the overall allocation of Inside Southern Chum.

The target species is Chum, retention of Pink is permitted. There will be non-retention of Sockeye, Coho, Chinook and Steelhead.

Monitoring Plan: Start, end, pause and set-by-set catch reports will be required by phone-in or electronic logbook. There will be a requirement for observer coverage on all vessels participating in this fishery. In addition to monitoring catch, observers will collect any biological samples (including DNA samples) that are required and identified.

13.2.4.5.4 Fraser First Nations Commercial Chum Harvest

Demonstration Fisheries

2024 Harrison-Fraser River Demonstration Fishery

Region: Lower Fraser Area

Participants: Sts'ailes and Scowlitz First Nations

Location of Fishery: The waters of the Harrison River located between the outlet of Harrison Lake downstream to the orange boundary signs labelled 'Fishing Boundary HFA' approximately 1,000 meters below the CN Railway Bridge; and

The waters of the Fraser River bounded on the west by a line from a white boundary sign on the upstream side of the Fraser River at the mouth of the Sumas River, thence true north to a white boundary sign on the opposite shore and bounded on the east by the downstream side of the bridge across the Fraser River at Agassiz.

For 2024, this fishery is to be operated in times and areas outside of the rolling window closure identified to protect IFR Steelhead.

Gear Type: Chum: Beach seines only. Beach seines not to exceed a maximum mesh size of 2 ¾ inches and a length of 50 fathoms or 360 feet.

Allocation:

a. Chum: To be determined but will be expressed as a percentage (%) share of the Fraser River Terminal Commercial Total Allowable Catch (FRTCTAC) utilizing relinquished licences from the PICFI program

b. Fraser Chinook: Fraser Chinook bycatch retention may be permitted subject to abundance.

c. Hatchery Marked Coho: Hatchery-marked Coho bycatch retention may be permitted subject to abundance.

Time Frame: All fishery time frames are estimates and final dates will be determined according to in-season migration timing information.

- Chum: Mid–October to mid-November

Monitoring Plan: During any beach seining activity, a Monitor must be present with every beach seining crew during all fishing activity and provide set-by-set updates to the Sts'ailes Fishery Manager before the beach seine crews deploy their next set to ensure there is TAC available. The Sts'ailes Fishing Authority will collect all catch statistics via these monitors and report this information to DFO within 24 hours after the fishery closes.

Harvest Agreement Fisheries

Continuing in 2024, the TFN fishery (using gill net gear) will be closed to protect stocks of conservation concern. These closures are expected to remain in place until there is clear evidence ofstock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. Use of other selective gear types may be permitted. See Appendix 8 for a complete list of longer term fishery closures.

*Tsawwassen First Nation (TFN) Fisheries (Commercial)**

In addition to the allocation of salmon for domestic harvests, TFN have an allocation for commercial catch outside of the Treaty as identified via the Tsawwassen First Nations Harvest Agreement (TFN HA). The allocation in the TFN HA does not affirm Aboriginal or Treaty rights. Fishing undertaken via the TFN HA will be comparable to the requirements of the current Fraser River commercial fishery (First Nations economic opportunity (EO) fishery), or a general commercial fishery (e.g., Area E). For 2023, this means that this fishery will not operate within the period identified for the IFR Steelhead window closures for gill net, purse seine, beach seine, and shallow seine gear (see Appendix 9 for dates). TFN fishers will be expected to operate under the same rules that apply to other fishers taking part in that Fraser River commercial fishery. TFN also prepare an Annual Fishing Plan for review by the JFC approval prior to the season's commencement. Each year that the Minister authorizes a Fraser River commercial fishery in the TFN's fishing area, or a general commercial fishery, the Minister will issue a communal commercial harvest document for the TFN. The TFN will draft an Annual Report for approval by the JFC. TFN commercial Chum Salmon allocation under the TFN HA:

3.27% of the Terminal Commercial Catch for Fraser River Chum Salmon for that year.

Fishery Monitoring and Catch Reporting

The monitoring program for TFN HA fisheries includes a mandatory landing program (MLP) using 2 to 4 landing sites at which all fishers must land and have their catch validated and is supplemented by effort validation by vessel patrols. If selective gear is used (e.g., purse seines, modified shallow seines, fish trap) monitors are to be present during all fishing activity to record catch information on a set-by-set basis. Catch reports are received by DFO within 24 hours of the fishery close.

Economic Opportunity Fisheries

Continuing in 2024, the EO gill net fishery will be closed to protect stocks of conservation concern. These closures are expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. Use of other selective gear types may be permitted. See Appendix 8 for a complete list of longer term fishery closures.

Negotiations to provide economic opportunities to First Nations in the lower Fraser River are expected to be similar to recent years. Economic opportunity fisheries will be conducted under agreements that specify provisions for planning fisheries, allocations, catch reporting requirements as well as roles and responsibilities regarding the management of the fishery. The Department's general approach is that Indigenous commercial harvest opportunities are managed using the same harvest decision guidelines as the commercial fishery and opportunities are only afforded if commercial TAC is available.

Indigenous commercial harvest opportunities may be implemented with different times, areas, gears and regulations consistent with the overall management approach for the commercial fishery, including considerations to protect co-migrating stocks of concern. For 2024, these considerations include the continuation of the 42-day rolling window closure for gill net, purse seine, beach seine, and shallow seine gear to protect IFR Steelhead. No economic opportunity Chum fisheries will be permitted within the IFR Steelhead window closure (see Appendix 9 for dates). In the lower Fraser, DFO will work with First Nations and commercial harvesters to develop an approach to an integrated commercial fishery based on the principles of transparency, accountability and collaboration.

In addition to economic opportunity fisheries, the Department continues to support the development of inland fisheries with First Nations. For 2024, as in previous years, the focus with First Nations will be on experimenting mainly in terminal areas on abundant stocks. These fisheries will be conducted separately from FSC fisheries, under the same harvest decision

guidelines as the commercial fishery and fish harvested will be off-set with licences that have been voluntarily relinquished from the commercial fishery.

Fishery Monitoring and Catch Reporting

While details will be finalized prior to fisheries occurring, the monitoring programs in place for 2024 are expected to be similar to recent years as follows:

- Non-selective (e.g., gill net) EO fisheries will be monitored using a mandatory landing program (MLP) with packer and land-based sites where all fishers must land and have their catch validated. This program is supplemented by effort validation by vessel patrols and overflights.
- Selective (e.g., beach seine and purse seine) EO fisheries require monitors to be present during all fishing activity to record catch information on a set-by-set basis.
- Catch reports for these Economic Opportunity fisheries are received by DFO from the catch monitoring programs within 24 hours of the fishery closure.

13.2.4.5.5 ESSR Fisheries

ESSR fisheries may occur at DFO hatchery facilities that have a surplus of returning hatchery Chum. In past years, ESSR fisheries have taken place at:

- Chehalis River Hatchery – Lower Fraser
- Inch Creek Hatchery – Lower Fraser
- Chilliwack River Hatchery – Lower Fraser
- Weaver Creek Spawning Channel – Lower Fraser

13.2.5 INSIDE SOUTHERN CHUM TERMINAL FISHERIES

13.2.5.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

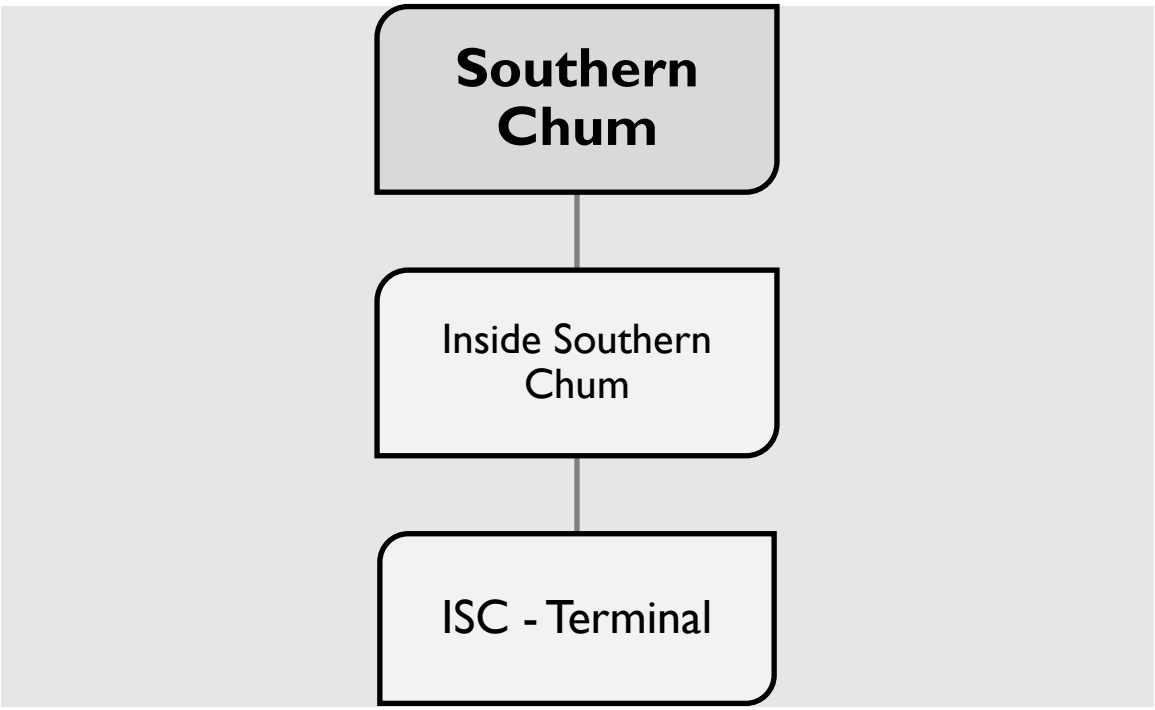


Figure 13.2-6: Overview of Inside Southern Chum Terminal

ISC Terminal includes all Chum Salmon spawning in watersheds adjacent to Johnstone Strait and the Strait of Georgia (i.e., Areas 11 to 19), plus Fraser River approach areas (Howe Sound, Burrard Inlet; Area 28), but not the Fraser River mainstem and tributaries. The major ISC terminal systems, grouped by CU, management and PFMA are included in the following table:

- Bold font indicates systems for which four or more annual escapement observations are available over the period 1998 to 2006.
- Underlined fonts are Summer run timed populations.
- Italicized font with an asterisk* marks systems with active hatchery enhancement.

Methods for identifying Conservation Units (CUs) are documented in Holtby and Ciruna (2007). A complete list of sites for each CU is available here.

Table 13.2-10: Population Structure of the ISC Terminal Chum conservation units

Conservation Unit	Management Area	Spawning Sites
Southern Coastal Streams	Johnstone Strait	Driftwood Creek (Area 11), Waldon Creek (Area 12)
	Kingcome	Bughouse Creek, Charles Creek, Cohoe Creek, Embley Creek, Hauskin Creek, Jennis Bay Creek, Kenneth River, Kingcome River, Mackenzie River, Nimmo Creek, Scott Cove Creek, Shelter Bay Creek, Simoom Sound Creek, Sullivan Bay Creek, Wakeman River
	Bond/Knight	Ahta River, Ahta Valley Creek, Gilford Creek, Hoeya Sound Creek, Kakweiken River, Kamano Bay Creek, Lull Creek, Maple Creek, Matsiu Creek, Mcalister Creek, Shoal Harbour Creek, Viner Sound Creek, Wahkana Bay Creek
Upper Knight	Bond/Knight	Ahnuhati River, Franklin River, Klinaklini River, Kwalate Creek, Sim River
Loughborough	Bond/Knight	Boughey Creek, Call Creek, Cracroft Creek, Glendale Creek, Port Harvey Lagoon Creeks, Protection Point Creek, Shoal Creek
	Johnstone Strait	Fulmore River, Potts Lagoon Creek, Robbers Knob Creek, Tuna River
	Loughborough to Bute	Apple River, Bachus Creek, Cameleon Harbour Creek, Chonat Creek, Elephant Creek, Fanny Bay Creek, Frazer Creek, Frederick Arm Creek, Granite Bay Creek, Grassy Creek, Gray Creek, Hanson's Creek, Hemming Bay Creek, Heydon Creek, Kanish Creek, Knox Bay Creek, Owen Creek, Phillips River, Read Creek, St. Aubyn Creek, Stafford River, Thurston Bay Creek, Village Bay Creek, Waiatt Bay Creek, Willow Creek, Wortley Creek
	Upper VI	Cluxewe River, Keogh River, Nahwitti River, *Quatse River**, Shushartie River, Songhees Creek, Stranby River, Tsulquate River

Conservation Unit	Management Area	Spawning Sites
Northeast Vancouver Island	Johnstone Strait	Adam River, Hyde Creek, Kokish River, Mills Creek, New Vancouver Creek, *Nimpkish River**, Tsitika River,
		Amor De Cosmos Creek, Hyacinthe Creek, Salmon River
	Mid-VI	Pye Creek
Strait of Georgia	Mid Vancouver Island	Campbell River, Kingfisher Creek, Menzies Creek, Mohun Creek, Quinsam River, Simms Creek
	Loughborough to Bute	Bird Cove Creek, Drew Creek, Open Bay Creek, Quatam River, Whiterock Pass Creek
Bute Inlet	Loughborough to Bute	Cumsack Creek, Homathko River, Orford River, Southgate River, Teaquahan River
Strait of Georgia	Mid Vancouver Island	Bob Creek, Brooklyn Creek, Chef Creek, Cook Creek, Cowie Creek, Hart Creek, Kitty Coleman Creek, McNaughton Creek, Millard Creek, Morrison Creek, *Oyster River**, Portuguese Creek, *Puntledge River**, *Rosewall Creek**, Roy Creek, Sandy Creek, Storie Creek, Trent River, Tsable River, Tsolum River, Waterloo Creek, Wilfred Creek, Woods Creek
		Annie Creek, Englishman River, French Creek, *Little Qualicum River**, Nile Creek, *Qualicum River**
	Toba Inlet	Black Lake Creek, Brem River, Brem River Tributary, Filer Creek, Forbes Bay Creek, Forbes Creek, Klite River, Little Toba River, Okeover Creek, Pendrell Sound Creek, Refuge Cove Creek, Store Creek, Tahumming River, Theodosia River, Toba River, Twin Rivers
	Jervis Inlet	*Lang Creek**, Lois River, *Sliammon Creek**, Whittall Creek
		Albion Creek, Angus Creek, Baker Creek, Brittain River, Burnet Creek, Carlson Creek, Cranby Creek, Deighton Creek, Deserted River, Doriston Creek, Earle Creek, Frock Creek, Gray Creek, Halfmoon Creek, High Creek, Hunaechin Creek, Jefferd Creek, Mill Creek, Mouat Creek, Park Creek, Pender Harbour Creeks, Ruby Creek, Sechelt Creek, Skwawka River, Snake Bay Creek, Storm Creek, Tsuahdi Creek, Tzoonie River, Vancouver River, West Creek

Conservation Unit	Management Area	Spawning Sites
Strait of Georgia (cont.)	Howe Sound / Sunshine Coast	Dakota Creek, Mcnab Creek, Mcnair Creek, Potlatch Creek, Rainy River, Twin Creeks,
	Lower Vancouver Island	Beck Creek, Bloods Creek, Bonell Creek, Bonsall Creek, Bush Creek, Chase River, Departure Creek, Haslam Creek, Holland Creek, Knarston Creek, Millstone River, *Nanaimo River**, Nanoose Creek, Napoleon Creek, Porter Creek, Stocking Creek, Tyee Creek, Walker Creek
	South Vancouver Island	*Chemainus River**
		Cowichan River, Fulford Creek, Koksilah River, Shawnigan Creek
		*Goldstream River**
Howe Sound – Burrard Inlet	Jervis Inlet	Bishop Creek, Shannon Creek
	Howe Sound / Sunshine Coast	Wilson Creek
		Avalon Creek, Centre Creek, Eagle Creek, Hutchinson Creek, Langdale Creek, Long Bay Creek, Mannion Creek, Nelson Creek, Ouillet Creek, *Terminal Creek**, West Bay Creek, Whispering Creek
	Burrard Inlet	Brothers Creek, *Capilano River**, Hastings Creek, Indian River, Lynn Creek, Mackay Creek, Maplewood Creek, McCartney Creek, Mosquito Creek, Mossom Creek, Noons Creek, Richards Creek, Seymour River
Strait of Georgia	Howe Sound / Sunshine Coast	Chapman Creek, Chaster Creek, Flume Creek, Roberts Creek, Wakefield Creek,
		Ashlu Creek, B.C. Rail Spawning, Branch 100 Creek, Brennan Channel, Brohm River, *Cheakamus River**, Chuk-Chuk Creek, Dryden Creek, Fries Creek, Hop Ranch Creek, July Creek, Lower Paradise Channel, Mamquam River, Mashiter Creek, Mashiter Spawning Channel, Meighan Creek, Mission Creek, Moody Channel, Pillchuck Creek, Raffuse Creek. Shovelnose Creek, Spring Creek, Squamish River, Stawamus River, Stawamus Spawning Channel, Tenderfoot Creek, Thirty Seven Mile Creek, Thirty-Six Mile Creek, Tiempo Spawning Channel, Twenty Eight Mile Creek, Upper Paradise Channel, Wildwood Spawning Channel
	Boundary Bay	*Serpentine River**

ISC Terminal fry emerge from the gravel as early as February and migrate downstream shortly after emergence, primarily in March and April. The juvenile Chum rear near the estuary and in near-shore areas until approximately late May, and subsequently enter the major marine water bodies (i.e., Strait of Georgia) where they gradually migrate northward through Johnstone Strait. The juvenile migration continues to more offshore waters and towards the Gulf of Alaska beginning in June and July and continues through the summer months. In the first year, Chum are primarily located along the coast of North America and into the Gulf of Alaska (Salo, 1991).

Return migrations are of considerable distance, and the beginning of return migrations is not well documented. For ISC populations, some Summer Chum are first observed in streams in August (Ahnuhati River) while the vast majority of Fall Chum spawn starting in early October with the peak of spawning occurring mid to late October and ending as late as mid-December.

13.2.5.2 STOCK ASSESSMENT INFORMATION

13.2.5.2.1 Pre-season

Table 13.2-11: Inside Southern Chum Terminal 2024 Salmon Outlook

Management Area	Stock Outlook
Johnstone Strait and Mainland Inlets (Area 12 and 13)	Expectations for Fall Chum in 2024 will likely be below average (Outlook Category '1-2'). This is based on below average parental brood abundances in both 2020 and 2021 combined with an ongoing decline in Chum productivity. Expect continued variability in Chum returns on a north-south gradient favoring higher survival in southern systems. Small improvements in Summer Chum abundance are likely in 2024, as marine survival appears to have improved but brood year abundance was generally poor across the South Coast.
Areas 14 to 19	Escapement enumeration data for 2023 indicated well below target escapements for systems in mid to northern Strait of Georgia and Jervis/Narrows Inlets. For 2024, Mid-Island systems (Puntledge, Little Qualicum, Big Qualicum) are expected to remain well below target levels. Abundance of stocks in the southern Strait of Georgia such as Cowichan and Nanaimo, and Goldstream is uncertain: expectations are for Cowichan and Nanaimo to come in below escapement targets if low survivals persist or near target if survival returns to normal. Jervis/Narrows Inlet stocks are forecast to be well below target abundance in 2024.

13.2.5.2.2 In-season

Refer to Table 13.2 and Table 13.2 and Table 13.2 for in-season assessment information. There are no planned Chum test fisheries in ISC terminal areas.

13.2.5.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

13.2.5.3.1 Structure of Harvest Management Decision

Overall, Inside Southern Chum Terminal are managed under a precautionary harvest approach to fisheries management, with a focus on identifying fishing opportunities in terminal areas of Johnstone Strait, Strait of Georgia and Mainland Inlets based on in-season abundance estimates and observed escapements into the natal streams. In terminal fisheries, smaller stocks are protected through time and area closures, and targeted stocks are managed to escapement goals.

The primary management tool is to control fishing effort and catch through restricting the area, the duration of the fishery, the number of licensed vessels fishing within an area (i.e., limited participation) and recently, through share-based demonstration fisheries (some areas and gear types). Other tools include altering gear efficiency or fishing power through manipulation of permitted gears (e.g., net length or depth, mesh sizes). Any available surplus stocks are harvested by nets and troll terminally, adjacent to natal streams using knowledge of run timing as a management tool to limit bycatch of non-target stocks and species. Time and area closures, as well as selective fishing techniques, are used to protect specific non-target populations or species of concern.

13.2.5.3.2 Harvest Approach for ISC Terminal Fisheries

Management escapement goals (MEG) are in place for most Chum-bearing systems within the ISC terminal area. All terminal Chum fisheries are managed under a general fixed escapement strategy (i.e., target harvest is any surplus to the MEG), but implementation details differ by area.

Table 13.2 and Table 13.2 summarize the fishery reference points and harvest guidelines for the Strait of Georgia terminal fisheries.

Annual implementation of the harvest guidelines follows the general approach below:

- Terminal fisheries are managed based on escapement with fisheries initiated to harvest abundances in terminal areas.

- Terminal Chum fisheries are generally implemented with shorter, low impact openings early in the run, and then expanded as warranted by in-season information. For example, terminal Chum fisheries in the Strait of Georgia typically have short initial openings, and are either extended or closed depending on in-season escapement data and catch information from the initial opening.
- Harvest opportunities in terminal fisheries are typically based on the lower quartile of the probability distribution for the abundance estimate (i.e., estimated 3 out of 4 chance that abundance is larger; 25th percentile).

Table 13.2-12: Management Escapement Goals (MEG) and Harvest Plans for Terminal Chum Fisheries in the Strait of Georgia

	Area 14 (Puntledge, Little Qualicum and Big Qualicum)	**Area 16 (aggregate escapement Goal)**
MEG	240,000 (includes 10K hatchery broodstock)	85,000
Based on	These are interim targets based on stock recruit relationships for each of these populations	Habitat area and Chum spawning densities in the various rivers, combined for the aggregate
Major Systems	Puntledge (60K goal), Little Qualicum (85K goal), Big Qualicum (85K goal)	Tzoonie, Deserted, Brittain, Vancouver and Skwawka Rivers
In-season Assessment	Early catches, visual observations at river estuaries and escapement counts in the three river systems completed by hatchery and stock assessment staff.	Visual surveys by DFO Stock Assessment and shishalh Nation Resource Management staff.

	Area 14 (Puntledge, Little Qualicum and Big Qualicum)	Area 16 (aggregate escapement Goal)
Implementation strategy	Manage early-season fisheries to meet aggregate spawner goal but also avoid large surpluses (>100K). If forecast exceeds 340K (240K escapement goal plus 100K to account for forecast uncertainty), then target for early fisheries is 65% of the surplus, and remaining fisheries occur once abundance is confirmed in-season. If forecast falls below 240K, then river-specific escapement levels for the 3 major systems must be almost achieved (70% of Puntledge, 75% of Little Qualicum and of Big Qualicum).	Fisheries would occur after aggregate goal is achieved (i.e., fish observed in-river and inside a designated sanctuary area), but there have been no commercial openings in recent years. Potential implementation of a weekly assessment fishery with limited fleet size (3-5 vessels) in conjunction with river escapement assessments is being explored.

Table 13.2-13: Management Escapement Goals (MEG) and Harvest Plans for Terminal Chum Fisheries in the Strait of Georgia

	Area 17 (Nanaimo River)	Area 18 (Cowichan River)	Area 19 (Goldstream River)
MEG	40,000	160,000	15,000
Based on	This is an interim target based on stock recruit relationship	Habitat area and Chum spawning densities in the Cowichan River	Habitat area and Chum spawning densities in the Goldstream River
Major Systems	Nanaimo River	Cowichan River	Goldstream River
In-season Assessment	Historically, a variety of visual survey methods were employed to estimate escapement into the Nanaimo. Since 2013, a joint Snuneymuxw/DFO fixed site DIDSON counter program has been used. If weather permits, hatchery staff conduct swim surveys to help validate and provide species composition for the DIDSON program, as well as enumerate Chum spawning below the DIDSON site.	In past approaches, Chum abundance has been evaluated through a variety of techniques from a test fishing program to over flight visual surveys. In-river Chum escapement estimates are provided by a DIDSON counter ran jointly by the Cowichan Tribes and DFO located in the lower river since 2006.	Visual surveys via stream walks by hatchery staff.

	Area 17 (Nanaimo River)	Area 18 (Cowichan River)	Area 19 (Goldstream River)
Implementation strategy	Commercial openings occur only if in-season observations indicate high probability of meeting the spawning goal. A small TAC fishery is considered after 15,000 Chum have passed the DIDSON counter dependent on date. Further commercial opportunities are based on abundance/date triggers.	Commercial openings occur only if in-season observations indicate high probability of meeting the spawning goal. A small TAC fishery is considered after approx. 40,000 Chum have passed the DIDSON counter dependent on date. Further commercial opportunities are based on abundance/date triggers as discussed and agreed upon at the Cowichan Harvest Roundtable.	Commercial openings occur only if in-season observations indicate high probability of meeting the spawning goal. A small TAC fishery is considered at 10,000 Chum in-river dependent on date. Further commercial opportunities are based on abundance/date triggers as discussed and agreed upon with Harvest Committees and local First Nations.

13.2.5.4 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO INSIDE SOUTHERN CHUM FISHERIES

Refer to Table 13.2 for management actions specific to ISC terminal fisheries. If there are fisheries proceeding in 2024, they will be occurring in terminal areas outside of the migratory path of IFR Steelhead and thus will not be impacted by 2024 IFR Steelhead conservation measures. The areas are outlined in Appendix 9.

Table 13.2-14: Incidental Harvest, Bycatch and Constraints to ISC Terminal Fisheries

Area	Incidental Harvest, Bycatch and Constraints to Inside Southern Chum Fisheries
Nimpkish (Area 12-19)	Observations in recent years have shown consistently low abundance of Chum returning to the Nimpkish River. In 2018, fry releases from transplanted Puntledge Chum Salmon began, and have continued annually. These Chum return earlier than the natal Nimpkish River stocks, potentially increasing the likelihood of interacting with the ISC mixed stock fishery, although the openings occur South of the Nimpkish River, and the terminal/approach areas are closed. The first year of returns from the transplanted Chum was 2021 for 3-year-old fish, and a small number of Chum were observed in the Nimpkish River. In 2023, an estimated 3,000 adults were observed in the river, and hatchery crews were able to collect ~500,000 eggs, which were further supplemented by 1.5million eggs transplanted from the Puntledge for release in 2024. The status of the natal Nimpkish Chum population continues to be poor, although their run-timing will likely allow for separation from the transplanted Puntledge Chum returns, and potential for rebuilding should conditions improve.

Area	Incidental Harvest, Bycatch and Constraints to Inside Southern Chum Fisheries
Area 14	Fishery boundaries are in place during the Steelhead window closure to protect migrating IFR Steelhead. Beach boundaries are generally in effect to protect Coho and Chinook. Boundaries may range from zero to one and a half miles depending upon bycatch concerns and time of year. A Fillongley Creek radius boundary and Baynes Sound closures are in effect to protect wild Chum and Coho stocks. Coho conservation measures are in effect until November 10, including non-retention, maximum soak times for gill nets, barbless hooks for trollers and mandatory brailing and sorting for seines. The gill net fishery may be restricted to daylight hours only if there are significant levels of non-target species catch (e.g., Coho). The presence of sea lions in Area 14 appears to have reduced net and troll CPUE, reduced escapement in some streams, and altered migration and holding behaviour which has impacted assessment capabilities. These impacts will be considered in the management of the fishery, and may include exploring new assessment techniques.
Area 16	There is mandatory non-retention of Coho. Fishing is limited to terminal areas to minimize impacts on passing stocks.
Area 17	Fishery boundaries are in place to protect migrating stocks such as Fraser River Chum and IFR Steelhead and to confine the fishery to the Nanaimo River stock. Coho and Chinook conservation measures in effect until November 10 include non-retention and barbless hooks for troll. The gill net fishery may be restricted to daylight hours and maximum soak times if Coho encounters are high. Restrictions would be implemented after consultation with the Chum Advisory Committee. The gill net fleet will be allowed to use 90 mesh Alaska twist in Area 17 based on previous work conducted in Area 14. The two areas are similar with respect to target species and incidental catch issues, and therefore the results from Area 14 are applicable to Area 17.

Area	Incidental Harvest, Bycatch and Constraints to Inside Southern Chum Fisheries
Area 18	There is a half a nautical mile boundary in effect off Cherry Point to protect Coho holding in this area. Beach boundaries may be in effect to protect Coho and Chinook. Cowichan Bay is usually closed to protect Coho and Chinook and to provide a refuge for holding Chum; however, if Chum escapement targets are reached and timing is such that Chinook escapement is complete, this area could be opened to access surplus Chum. This would occur following consultation with the Cowichan Roundtable and the Chum Advisory Committee. Other Coho conservation measures in effect include non-retention, barbless hooks for troll, and mandatory brailing and sorting for seines. The gill net fishery is restricted to daylight hours. Maximum soak times for gill nets could be implemented if high Coho bycatch occurs.
Area 19	Subarea boundaries may be put into effect to protect Chinook and Coho holding in Squally Reach. Coho and Chinook conservation measures in effect until November 10 include non- retention and barbless hooks for troll. The gill net fishery is restricted to daylight hours and maximum soak times if Coho encounters are high. Restrictions would be implemented after consultation with the Chum Advisory Committee.

13.2.5.5 ALLOCATION AND FISHING PLANS

13.2.5.5.1 First Nations Fisheries

Food Social and Ceremonial Fisheries

FSC fisheries for local Chum stocks will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

First Nations target local salmon stocks for FSC purposes throughout the Inner South Coast. First Nations harvest of Chum Salmon can fluctuate depending on individual areas, preference, strength of Chum return, as well as status and availability of other salmon species annually. Refer to Section 10.2 for Table 10- - Communal Licence Harvest Target Amounts in Southern B.C./Fraser River First Nations Fisheries.

Mandatory and voluntary measures have been implemented to support prey availability and reduce disturbance to Southern Resident Killer Whales, including within Southern B.C. waters and key foraging areas within the Strait of Juan de Fuca and the Gulf Islands. These measures are outlined in Section 5.6.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations are asked to keep records of harvest and provide catch information to DFO in a variety of formats. Under this licence, if a commercial vessel is used for fishing, First Nations are asked to provide information respecting the species and quantity of fish harvested by this vessel, to the DFO Catch Reporting Officer within 24 hours from landing harvested catch. In addition, catch reporting timelines for First Nations fisheries are outlined in Comprehensive Fisheries Agreements and/or Aboriginal Communal Fishing Licences. Where in-season management requires, catch reports are sought weekly during the respective fishing season.

Treaty Fisheries

Tla'amin Fisheries (Domestic)

Tla'amin Domestic fisheries for local Chum stocks will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

The Tla'amin Fishing Area for all species of Fish and Aquatic Plants is within portions of Pacific Fisheries Management Areas 13, 14, 15, and 16.

The Domestic allocations for Chum Salmon under the Tla'amin Final Agreement are as follows:

Sliammon River Chum

> When the Available Terminal Harvest for Sliammon River Chum Salmon is less than or equal to 7,400, a number of Sliammon River Chum Salmon equal to the Available Terminal Harvest for Sliammon River Chum Salmon; or
> When the Available Terminal Harvest for Sliammon River Chum Salmon is greater than 7,400, then 7,400 Sliammon River Chum Salmon plus 25% of that portion of

the Available Terminal Harvest of Sliammon River Chum Salmon that is greater than 7,400.

Terminal Chum

- A number of Chum Salmon equal to 25% of the Available Terminal Harvest for the Chum Salmon stocks that originate from a Terminal Harvest Area, other than Sliammon River Chum Salmon stocks, if the Minister determines that there is an Available Terminal Harvest for those stocks.

The Tla'amin Nation provides catch reports to the Department through the Aboriginal Harvest Management System (AHMS). The information recorded on catch reports includes the gear type, fishing time period, location of harvest, harvest count by species, harvest effort, and biological samples.

13.2.5.5.2 Recreational Fisheries

Marine recreational fisheries will not be impacted by 2024 conservation measures to protect Interior Fraser River Steelhead.

Recreational fisheries targeting ISC terminal stocks take place in tidal and non-tidal waters and angler effort is focused on terminal Chum returning to the Puntledge, Qualicum, Nanaimo and Cowichan River systems.

Chum recreational fisheries are typically open year-round, with the majority of marine recreational Chum harvest occurring in Areas 13 and 18 from late September to late October. The normal daily limit is four, however this may be reduced in years of low abundance.

For 2024, given the expectations presented in the Preliminary 2024 Salmon Outlook, where South Coast systems are at Category 1 or 2, and not expected to reach their management targets; and the Lower Fraser Chum Outlook is at Category 2, the Department is proposing that both recreational and commercial salmon fisheries will start the 2024 season with Chum non-retention regulations in place across Southern BC. Should in-season estimates of abundance indicate a sufficient harvestable surplus of Chum, fisheries will be considered and announced by Fishery Notice.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in section 5.6.

In non-tidal waters, Chum retention is typically permitted based on observed abundances, and primarily occurs in hatchery systems. Subject to in-season assessment information, freshwater recreational fisheries can retain Chum in several of the watersheds (e.g., Puntledge, Cowichan, and Nanaimo). Total (marine and freshwater) recreational harvests have been less than 5,000 fish in recent years.

Fishery Monitoring and Catch Reporting

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch (iREC) reporting program are the main tools used to capture recreational catch and effort information in this fishery. South Coast Area Stock Assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

13.2.5.5.3 Commercial Fisheries

Canadian commercial fisheries are managed to try and achieve allocation targets in the commercial allocation implementation plan. Commercial fishery allocations take into account catches of Inside Southern Chum including: Johnstone Strait Mixed-Stock fisheries, terminal area fisheries, and the Fraser River fisheries. In the ISC Terminal, fishing effort focuses on terminal harvests in a few larger systems (some of them with substantial hatchery supplementation).

Allocation

Table 13.2-15: Commercial Allocation Implementation Plan (from the 2015–current period).

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Inside	11 to 19, 28 to 29	63.0%	19.2%	12.0%	0.0%	5.8%

ISC Terminal Commercial Chum Fisheries

For 2024, a below average return is expected for most Strait of Georgia systems due to low returns in the 2019, 2020 and 2021 brood years, combined with ongoing poor productivity. Stocks in the southern part of the Strait of Georgia (Cowichan, Nanaimo, Goldstream) are forecast near escapement targets, and mid-Island and mainland stocks well below target abundance. However, recent declines in productivity suggest all systems may fall below escapement targets if conditions remain similar to the previous year.

Chum fishing opportunities in terminal areas will be determined in-season and discussed through pre-season meetings and the in-season Chum Advisory Committee. The following

opportunities may be available but will be subject to additional conservation measures being implemented in 2024 to protect IFR Steelhead. For Johnstone Strait and Strait of Georgia, a 42-day rolling window closure will apply to commercial gill net and purse seine fisheries and a 27-day rolling window closure will apply to commercial troll fisheries. Closure dates and areas are outlined in Appendix 9. Terminal fisheries targeting terminal abundances that are understood to not be on the migratory route of IFR Steelhead will remain open. Proposed areas for exclusion are also described in Appendix 9.

The fisheries in each area are managed as follows:

Mainland Inlet terminal fisheries: Any Mainland Inlet terminal fisheries targeting Chum would be managed in-season based on terminal abundance, and harvesting would be by seine, gill net or troll gear. Fishery openings would be confined to minimize incidental harvest of other passing Chum stocks and species.

Johnstone Strait terminal fisheries: No fishing opportunities directed at Nimpkish River Chum are anticipated due to both recent trends of poor returns and 2024 management measures for IFR Steelhead. In-season assessment will confirm the potential for any harvest opportunities; however, there have been no opportunities in recent years.

Strait of Georgia terminal fisheries: Managed in-season based on terminal abundance. Chum harvests focus on terminal stocks listed below; however, there may be incidental retention of some other minor local stocks in the terminal areas as well. The major systems are:

Area 14 - Puntledge, Qualicum and Little Qualicum: The fishery is directed at the enhanced stocks of these three river systems. Chum returning to this area have been enhanced since the late 1960s and terminal fisheries have occurred in October and November since the 1970s. ESSR fisheries are possible on enhanced stocks. Terminal Chum fisheries in Area 14 will take place only in those waters exempt from the IFR Steelhead conservation measures as described in Appendix 9.

- Area D gill net openings are possible starting in October. Further gill net openings are subject to overall abundance in Area 14 and escapements in the Puntledge, Qualicum and Little Qualicum Rivers.
- Area B seine limited effort opportunities may be available in late October dependent on escapement levels, abundance and allocation status. Full fleet opportunities may also be available.
- Area H troll openings are possible starting in October. Further troll openings are subject to overall abundance in Area 14 and escapements in the Puntledge, Qualicum and Little Qualicum Rivers.

Area 15 – Malaspina Strait: No targeted commercial fisheries for Chum are anticipated.

Area 16 - Jervis Inlet: The terminal fishery targets wild Chum stocks returning to river systems in the Jervis Inlet area. The main systems are Tzoonie, Deserted and Skwawka Rivers. Commercial opportunities are not anticipated due to the continued recent trend of poor returns; this will be confirmed in-season. Openings in this area generally take place in late-October to mid-November.

Area 17 – Nanaimo: The fishery is directed primarily at Nanaimo River stocks. The Nanaimo River Chum stocks are supplemented by the Nanaimo River Hatchery on poor return years. Openings usually occur in October and early November. Terminal Chum fisheries in Area 17 will take place only in those waters exempt from the 2024 IFR Steelhead conservation measures as described in Appendix 9.

Area 18 – Cowichan: The fishery is directed primarily at Cowichan River stocks. Cowichan Chum, and to some extent Goldstream Chum, are harvested. Chemainus River stocks are also impacted but likely to a lesser extent. Openings generally occur in late October to late November. Commercial net fisheries in Satellite Channel are possible. Openings are subject to in-season abundance estimates for the Cowichan River. Terminal Chum fisheries in Area 18 will take place only in those waters exempt from the 2024 IFR Steelhead conservation measures as described in Appendix 9.

Area 19 – Goldstream (Saanich Inlet): The fishery is directed primarily at Goldstream River Chum stocks, but some Cowichan River Chum are harvested incidentally. Openings generally occur in late October to early December with possible commercial net fisheries in Satellite Channel and Saanich Inlet. Openings are subject to in-season abundance estimates for the Cowichan and Goldstream Rivers.

Other Considerations:

- Area E gill net opportunities are subject to in-season abundance estimates and licence area allocation status.
- Area B seine opportunities are subject to in-season abundance estimates and licence area allocation status.
- Area H troll opportunities are subject to in-season abundance estimates and licence area allocation status.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and to reduce physical and acoustic

disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in section 5.6.

Fishery Monitoring and Catch Reporting

There is a mandatory harvest log and in-season reporting program for catch information for all commercial fisheries.

- Mandatory requirement to file fishing reports in all commercial fisheries, including "Start/Pause/Cancel/End" Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required.

Demonstration Fisheries

The Area H Harvest Committee has demonstration fishery proposals for Mainland Inlet Pink and Chum in Jervis Inlet, Mainland Inlet Pink and Chum in Broughton Archipelago and Bute Inlet Chum under the Commercial Salmon Allocation Framework process. See Appendix 6 for more details.

The Area D Harvest Committee has demonstration fishery proposals for Bute Inlet Chum and Qualicum and Puntledge (Area 14) Chum, under the Commercial Salmon Allocation Framework process. See Appendix 6 for more details.

For 2024, these fisheries are to be operated in times and areas outside of the rolling window closures identified to protect IFR Steelhead outlined in Appendix 9. The duration of the window closures will be 42 days for commercial gill net and purse seine fisheries and 27 days for commercial troll fisheries. These terminal fisheries targeting terminal abundances that are understood to not be on the migratory route of IFR Steelhead will remain open. Areas proposed for exemption are also listed in Appendix 9.

ISC Terminal First Nations Commercial Chum Harvest

The First Nations Salmon Coordinating Committee have submitted demonstration fishery proposals for Bute Inlet, Area 14 Terminal areas, Nanaimo, Cowichan and Goldstream Chum under the Commercial Salmon Allocation Framework process. See Appendix 6 for more details.

For 2024, these fisheries are to be operated in times and areas outside of the rolling window closures identified to protect IFR Steelhead outlined in Appendix 9. The duration of the window

closures will be 42 days for commercial gill net and purse seine fisheries and 27 days for commercial troll fisheries. These terminal fisheries targeting terminal abundances that are understood to not be on the migratory route of IFR Steelhead will remain open. Areas proposed for exemption are also listed in Appendix 9.

13.2.5.5.4 ESSR Fisheries

ESSR fisheries may be considered in the following Rivers: Qualicum, Little Qualicum, Puntledge, Nanaimo, Cowichan, Goldstream and Sliammon.

13.2.6 WEST COAST VANCOUVER ISLAND CHUM – OVERVIEW

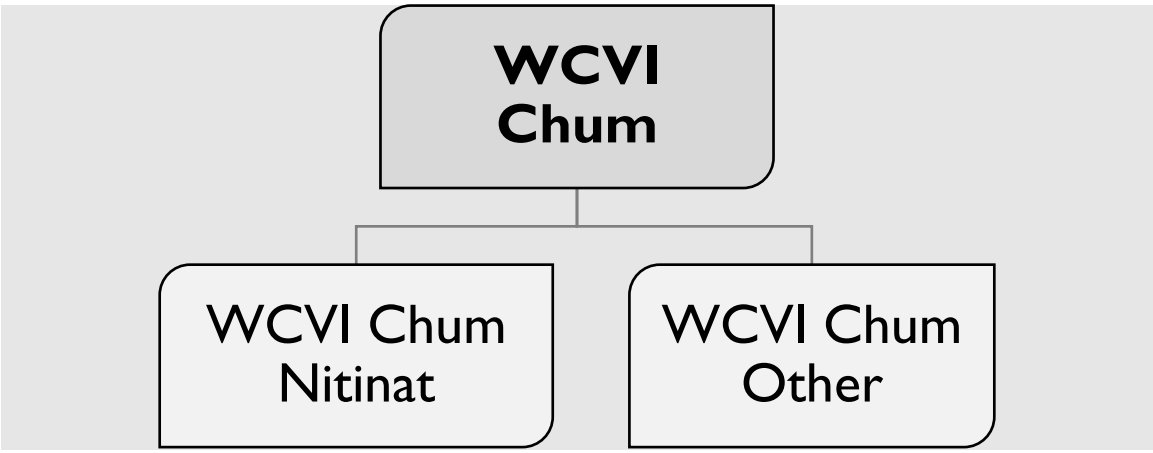


Figure 13.2-7: Overview of West Coast Vancouver Island Chum

13.2.7 WCVI CHUM - NITINAT

13.2.7.1.1 Snapshot Overview and Map of Management Unit

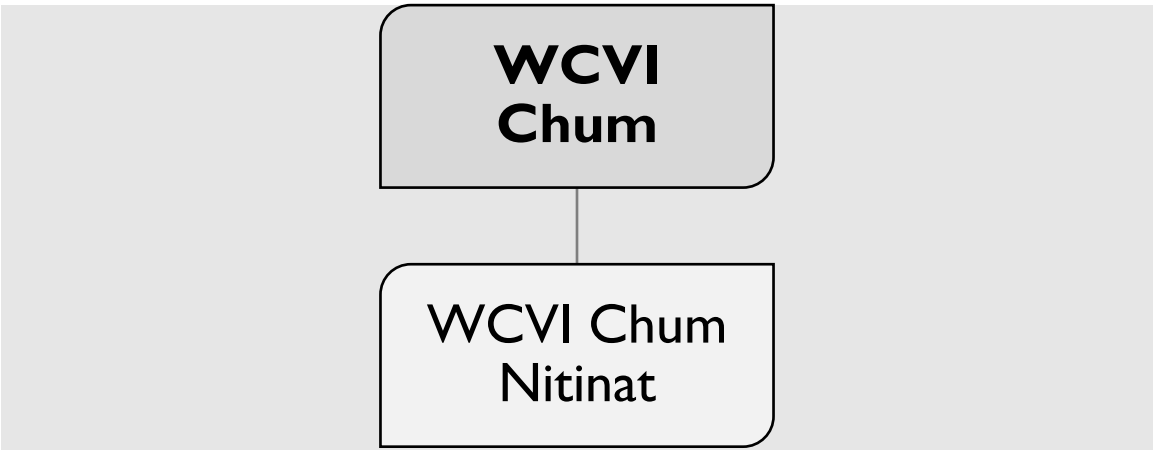


Figure 13.2-8: Overview of WCVI Chum – Nitinat

13.2.7.2 STOCK ASSESSMENT INFORMATION

13.2.7.2.1 Pre-season

Beginning in 2022, this fishery was closed to protect stocks of conservation concern. These closures are expected to remain in place until there is clear evidence of stock growth and

abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 8 for a complete list of longer-term fishery closures.

Annual pre-season forecasts for the Nitinat system (predominantly enhanced) are based on brood year escapements, hatchery smolt output and estimated survival rates. The pre-season Nitinat Chum forecast was not available at the time of publication.

13.2.7.2.2 In-Season

Nitinat Hatchery staff work in cooperation with the Ditidaht First Nations fishery program to assess escapement of Chum into Nitinat Lake and area. Through a combination of observations gathered from river surveys (swims, boat-based, and helicopter), brood collection activities and in-lake gillnet fisheries by Ditidaht First Nations; an in-season estimate of abundance is generated. Although there is high degree of uncertainty in the abundance estimate, it is generated from consistently applied survey methods, by observers with significant local knowledge and experience. Therefore, it provides a general gauge of the observed escapement relative to in-season escapement benchmarks defined for Nitinat Lake and area.

A scientific licence may be issued to the Ditidaht First Nation to provide biological samples and additional information on stock status and movement in Nitinat Lake.

A test fishery occurred in Nitinat Lake in the past; however, it has been replaced with the assessment fishery mentioned above.

13.2.7.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Beginning in 2022, the PFMA 21/121 Nitinat fishery was closed due to bycatch concerns for IFR Steelhead. These closures are expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone.

Fisheries planning for the Ditidaht Nation, Area E and Area B in PFMA 22 and/or potential changes to the Nitinat hatchery production plan will be consulted on with the Ditidaht First Nation and stakeholders. Commercial fishing opportunities in Area 22 for Nitinat Chum are not expected in 2024. Nitinat Chum FSC fisheries will remain open. Recreational and ESSR fisheries may be open depending on abundance.

See Appendix 8 for a complete list of longer term fishery closures.

13.2.7.4 ALLOCATION AND FISHING PLANS

13.2.7.4.1 First Nations Fisheries

Food Social and Ceremonial Fisheries

FSC fisheries for Nitinat Chum will not be impacted by 2024 Interior Fraser River Steelhead conservation measures.

Ditidaht First Nations target Chum stocks for FSC purposes in Areas 21, 22 and 121. Most harvest occurs in Nitinat Lake (Area 22).

Refer to Section 10.2 for Table 10- - Communal Licence Harvest Target Amounts in Southern BC/Fraser River First Nations Fisheries.

Mandatory and voluntary measures have been implemented to support prey availability and reduce disturbance to Southern Resident Killer Whales, including within Southern BC waters and key foraging areas within Strait of Juan de Fuca and the Gulf Islands. These measures are outlined in section 5.6.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. Catch reporting timelines for First Nations fisheries are outlined in Comprehensive Fisheries Agreements and/or Aboriginal Communal Fishing Licences. Where in-season management requires, catch reports are sought weekly during the respective fishing season.

Treaty Fisheries

There are no treaty fisheries for Nitinat Chum.

13.2.7.4.2 Recreational Fisheries

Marine recreational fisheries will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

Marine recreational fisheries targeting Nitinat Chum take place primarily in Nitinat Lake (Area 22). Chum recreational fisheries are open year-round. The normal daily limit is four. In the Nitinat River, retention for Chum opens October 15 with a daily limit of two. Opening the

freshwater recreational fishery is contingent on achieving escapement goals and mitigating concerns for impacts on spawning fish. There is a finfish closure at mouth of the Nitinat River to prevent foul hooking.

For 2024 in it is anticipated that Chum opportunities will be available for Nitinat Chum in terminal areas. In-season updates are provided via Fishery Notice and published on the recreational fisheries website: https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html

For 2024, given the expectations presented in the Preliminary 2024 Salmon Outlook, where South Coast systems are at Category 1 or 2, and not expected to reach their management targets; and the Lower Fraser Chum Outlook is at Category 2, the Department is proposing that both recreational and commercial salmon fisheries will start the 2024 season with Chum non-retention regulations in place for Southern BC (including offshore WCVI). For inshore portions of WCVI, this will be further evaluated when pre-season forecasts are finalized in Summer 2024. Should in-season estimates of abundance indicate a sufficient harvestable surplus of Chum, fisheries will be considered and announced by Fishery Notice.

Fishery Monitoring and Catch Reporting

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch (iREC) reporting program are the main tools used to capture recreational catch and effort information in this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

13.2.7.4.3 Commercial Fisheries

Allocation

The overall fishery allocation targets are outlined below.

Table 13-15: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H		
	Nitinat		21 to 22	65.5%	0.0%	34.5%	*	0.0%

* bycatch provision

WCVI – Nitinat Commercial Chum Fisheries

Beginning in 2022, the PFMA 21/121 Nitinat fishery was closed due to bycatch concerns for IFR Steelhead. These closures are expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone.

Fisheries planning for the Ditidaht Nation, Area E and Area B in PFMA 22 and/or potential changes to the Nitinat hatchery production plan will be consulted on with the Ditidaht First Nation and stakeholders. Commercial fishing opportunities in Area 22 for Nitinat Chum are not expected in 2024. See Appendix 8 for a complete list of longer term fishery closures.

Area G Troll

Chum may be retained as bycatch in fisheries targeting other stocks (e.g. AABM Chinook fishery). There are no directed troll fisheries on Nitinat Chum. No Area G troll fishing in Areas 21 and 121 will take place between September 18 to October 14 to address IFR Steelhead bycatch concerns.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to the whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in section 5.6.

Fishery Monitoring and Catch Reporting

There is a mandatory harvest log and in-season reporting program for catch information for all commercial fisheries:

- Mandatory requirement to file fishing reports in all commercial fisheries, including "Start/Pause/Cancel/End" Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required.

WCVI – First Nations Commercial Chum Harvest

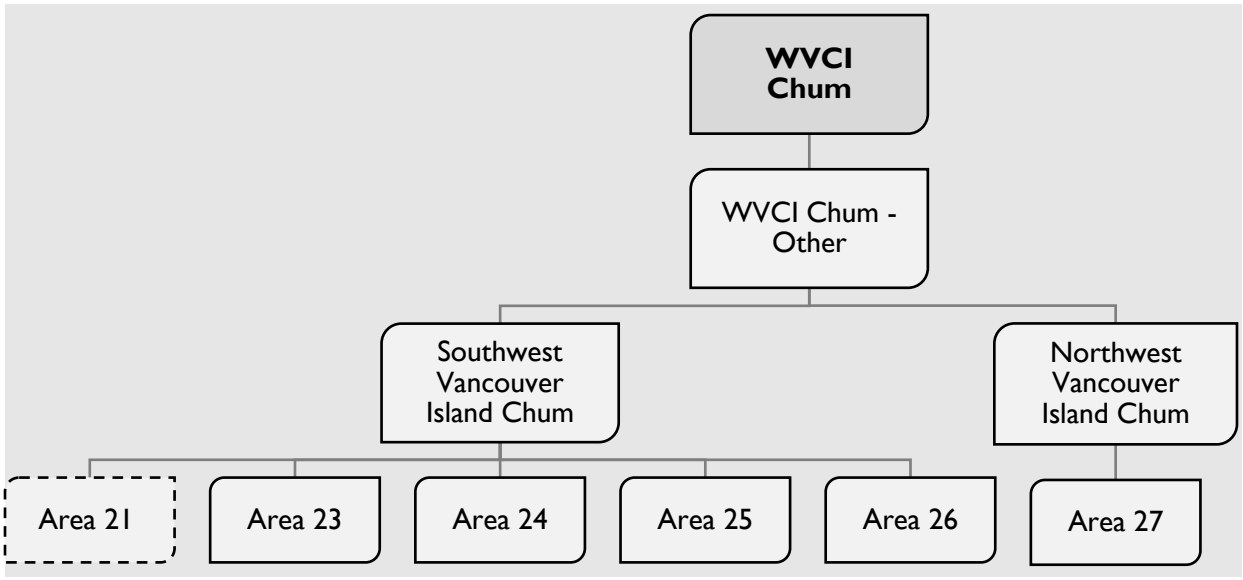
There are currently no First Nations commercial fisheries for Nitinat Chum.

13.2.7.4.4 ESSR Fisheries

ESSR fisheries in Nitinat Lake can occur when surpluses to escapement goals and broodstock egg targets are anticipated to be exceeded. ESSR fisheries may commence on the predominantly male Chum that arrive first before the total run size is forecasted in-season. The Ditidaht First Nations participates in the ESSR fishery in coordination with Nitinat Hatchery staff and broodstock collection activities.

13.2.8 WCVI CHUM - OTHER

13.2.8.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT



Area 21	Area 23	Area 24	Area 25	Area 26	Area 27
Nitinat R.	*Carnation Cr.*	*Bedwell/Ursus*	*Burman R.*	*Artlish R.*	
	Nahmint R.	*Megin R.*	*Canton Cr.*	*Kaouk R.*	
	Sarita R.	*Moheya R.*	*Conuma R.*	*Tahsish R.*	
	Toquart R.	*Tranquil R.*	*Leiner R.*		
			Sucwoa R.		
			Tahsis R.		
			Tlupana R.		
			Tsowwin R.		
			Zeballos R.		
			Little Zeballos R.		

Figure 13.2-9: Overview of WCVI Chum - Other

Note that the management approach for enhanced Nitinat Chum is described separately in the WCVI Chum – Nitinat section (13.2.3).

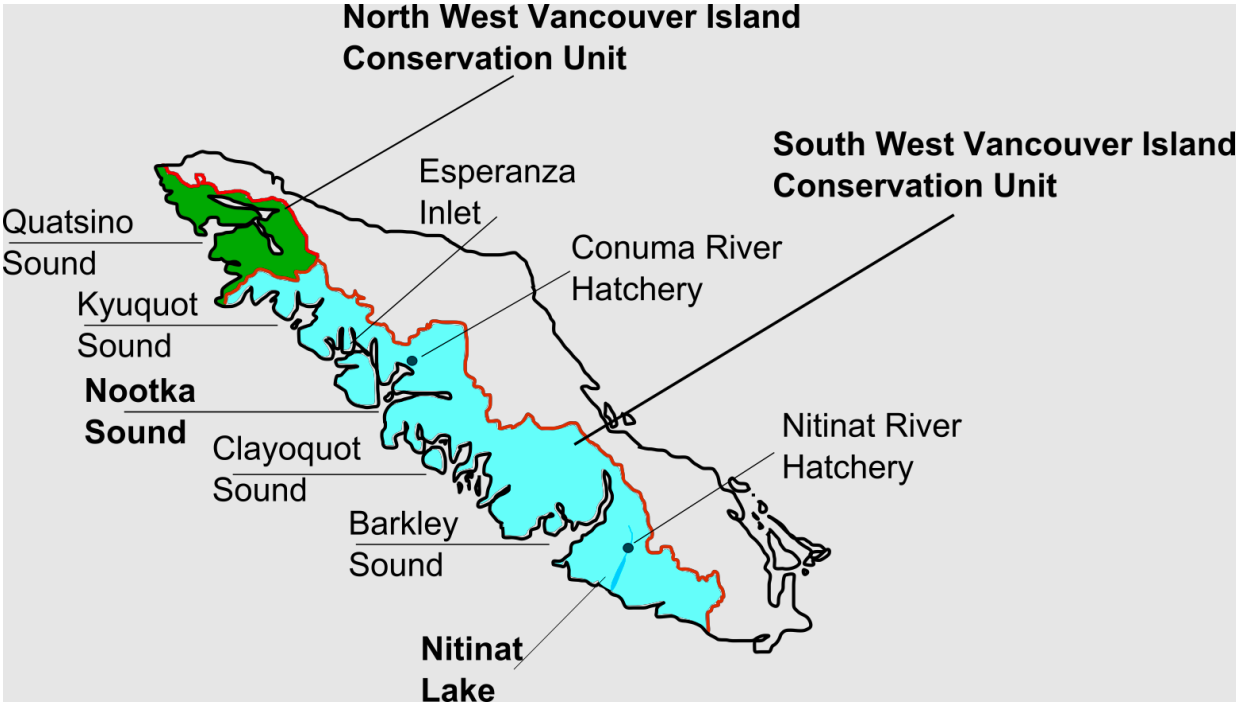


Figure 13.2-10: Map of WCVI Chum - Other Fisheries

Population Structure of WCVI Chum

Chum salmon occur throughout the West Coast of Vancouver Island (WCVI) and have been grouped into 2 Conservation Units (CU) under the Wild Salmon Policy (WSP):

1. Southwest Vancouver Island (SWVI) with roughly 170 distinct spawning sites
2. Northwest Vancouver Island (NWVI) with roughly 60 distinct spawning sites

Major runs of Chum salmon originate in the following systems:

Area 20: De Mamiel Cr., Sooke R.

Area 22: Nitinat R. (enhanced). Note: The management approach for Nitinat Chum is described separately in the WCVI Chum – Nitinat section (13.2.3).

Area 23: Cous Cr., Effingham R., Little Toquart Cr., Nahmint R., Sarita R., Toquart R.

Area 24: Atleo River, Moyeha River, Tranquil Creek, Warn Bay Creek.

Area 25: Black Creek, Burman River, Canton Creek (enhanced), Conuma River (enhanced), Deserted Creek , Espinosa Creek, Leiner River, Sucwoa River, Tahsis River, Tlupana River (enhanced),Tsowinn River, Zeballos River

Area 26: Kaouk River, Artlish River, Tahsish River, Chamiss Creek, Clanninick Creek, Malksope River

Area 27: Colonial / Cayeghle Creeks

13.2.8.2 STOCK ASSESSMENT INFORMATION

13.2.8.2.1 Pre-season

Method: WCVI Chum mature and return to the terminal area as mainly 3, 4 and 5 year old fish. For naturally spawning stocks, expected returns for each contributing brood year are forecast based on observed spawner abundance and long term (or recent) average recruitment and maturation rates, reflective of changing marine conditions over time. Since the 2016 return year, WCVI Chum have experienced a decline in productivity.. However, marine survival conditions during 2019-2021 (2018-2020 brood years) have been mixed, with observed improvements in the shorter term.

Also affected by the same recent trend in poor productivity, hatchery returns for each contributing brood year are forecasted based on hatchery releases and marine survival rates. For both naturally spawning and hatchery stocks, observed returns of younger age classes are used to adjust forecasts of older age classes from the same brood year. Additionally, for naturally spawning stocks, forecast returns of index populations within each terminal area are expanded based on their average historical contribution to production within the area.

Sources of Uncertainty: Likely, as a function of lower quality assessment data (i.e. age data available for a limited number of stocks, estimates of spawner abundance are low quality) and also resulting from the highly volatile lower river spawning habitat that Chum favor, the performance of Chum forecasts is relatively poor. Some of the key sources of uncertainty include: incomplete age data across stocks, uncertainty in spawner abundance, uncertainty in marine survival, uncertainty in relative levels of production among index and non-index stocks.

Pre-season forecasts for WCVI stock management units were not available at the time of publication.

13.2.8.3 In-season

When the catch-per-unit effort in fisheries is related to run size, fishery data can be used to provide in-season stock assessment information. This approach is responsive to in-season abundances rather than pre-season forecasts that are highly uncertain, particularly for Chum stocks. In the case that fishery results suggest the abundances are relatively low as expected, the resulting harvest rate will not significantly impede stock rebuilding. Alternatively, if results suggest the abundance is higher than expected, harvest opportunities are not unnecessarily foregone.

13.2.8.4 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Beginning in 2022, the commercial Barkley and Clayoquot Chum fisheries in PFMA's 23 and 24 were closed due to poor stock status of the target Chum stocks. These closures are expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 8 for a complete list of longer term fishery closures. Treaty and FSC fisheries remain open. Recreational fisheries may open depending on abundance.

The Decision Guidelines in this plan are under construction and will be updated as local plans are developed.

For naturally spawning WCVI Chum stocks, upper and lower fishery reference points were developed using the "sustainable escapement goal" or "SEG" approach described in Bue and Hasbrouck (2001). This method uses escapement estimates to set fishery reference points and is suitable for stocks with relatively low quality assessment data, such as WCVI Chum. The SEG algorithm was determined by relating maximum sustained yield (MSY) reference points with time series derived benchmarks for model populations with more reliable data sets for which stock-recruit analysis is feasible. Conservative "SEGs" were defined as the 25% and 75% of a long-term escapement time series. The lower SEG is estimated to represent approximately 0.8 S_{MSY} (i.e. size of spawning population at 80% maximum sustained yield), which is similar to an "upper biological benchmark", or healthy state, described for salmon populations. (Fishery reference points are used to trigger fisheries, in contrast to biological reference points which are used to assess the conservation status of stocks). Use of precautionary fishery reference points to set abundance-based limits on harvest supports Marine Stewardship Council (MSC) third-party eco-certification of the fishery and also an objective of Canada's Wild Salmon Policy.

Within each WCVI management area, SEGs were calculated for index populations with higher quality escapement data. To develop fishery reference points for the entire area, index SEGs

were summed and this value is expanded based on their average historical contribution to escapement within the area. (Note: forecasts of abundance for each area are estimated from index populations using the same expansion factor). For WCVI hatchery populations, the lower and upper fishery reference points are determined by the needs of the hatchery and spawning objectives for nearby rivers.

Although more work is required to finalize the reference points for natural systems and associated harvest strategy and management plan for WCVI Chum, reference points have been applied in recent years to set target levels for commercial fisheries. That is, commercial fisheries have been curtailed when forecast abundance is below the lower fishery reference point in order to comply with the conditions of MSC certification.

Commercial fisheries for WCVI Chum employ a two-tiered harvest strategy for controlling removals; 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 10-20% is implemented. The maximum harvest rate is set at a precautionary level relative to stock-recruit derived optimal exploitation rates for WCVI Chum; which are in the order of 30-40%. 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 (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 origin stock in the area.

Surplus-to-Escapement Goal Strategy (fisheries targeting hatchery stocks at high abundance): This strategy only applies to Area 25 (Nootka Sound) fisheries that target hatchery surpluses. The allowable harvest rate is determined by the escapement goal when the stock is forecasted in-season to be above the Upper Fishery Reference Point and broodstock capture targets have been or will be met. This fishery occurs only in the Tlupana Inlet portion of Area 25 where little or no interception of non-enhanced stocks occurs.

All Conuma hatchery Chum are thermally marked, which allows for assessment of the hatchery contribution to fisheries and spawning.

Stage 1 fisheries are Limited Entry Assessment Fisheries that may occur when the pre-season forecast indicates the run size is below the lower fishery reference point. They require increased

monitoring and are designed to provide in-season information about the run size within a low-risk fishing strategy (i.e. limit overall mortality to less than 15%).

Further work on developing assessment criteria needs to occur prior to proceeding with stage 1 assessment fisheries and is contingent on additional consultation with First Nations and stakeholders.

Stage 2 fisheries are Limited Entry or Limited Effort fisheries that may occur when the pre-season forecast or Stage 1 fisheries indicate the run size is above the lower fishery reference point, but below the upper fishery reference point. They are designed to be lower risk and limit mortality to a precautionary level through a fixed harvest rate strategy.

Stage 3 fisheries are Full Fleet fisheries that may occur when the pre-season forecast or Stage 1 and/or 2 fisheries indicate the run size is above the upper fishery reference point. They are designed to be relatively low risk and limit mortality to a precautionary level through a fixed-harvest rate strategy.

Table 13-16: Table on Fishery Triggers of Each Harvest Strategy

Fishery Trigger	Harvest Strategy	Nootka (Enhanced)	Barkley, Clayoquot, Esperanza, Kyuquot
Pre-season forecast below Lower Fishery Reference Point	Assessment Fishery	Stage 1: Assessment Fishery	Stage 1: Assessment Fishery
Pre-season forecast between Lower and Upper Fishery Reference Point	Fixed Harvest Rate	Stage 2: Limited Entry / Limited Effort Fishery	Stage 2: Limited Entry / Limited Effort Fishery
In-season forecast above Upper Fishery Reference Point	Fixed Harvest Rate	Stage 3: Full Fleet/Limited Effort Fishery	Stage 3: Full Fleet / Limited Effort Fishery
In-season forecast above Upper Fishery Reference Point and broodstock capture near target	Surplus to Escapement Goal	Full Fleet terminal fishery	n/a

Local Harvest Committees (Roundtables) that include representatives from First Nations, commercial and recreational sectors, conservation groups, local governments and DFO on the West Coast of Vancouver Island are in various stages of developing local detailed Chum fishing plans, including management guidelines and assessment criteria for all fishery stages.

13.2.8.5 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO WCVI CHUM - OTHER FISHERIES

Bycatch of wild Chinook is a concern for these Chum fisheries. To reduce Chinook encounters, commercial fisheries will start no earlier than September 25 in Kyuquot Sound, Esperanza Inlet and Nootka Sound. In addition, commercial fisheries will be daylight only to reduce encounters of non-target species.

In general, fishing area and the timing of openings are also designed to avoid specific areas where non-target stocks are prevalent:

> In Area 25, Hisnit Inlet is closed during Tlupana Inlet fisheries to protect Deserted River Chum as they are no longer enhanced. A stream mouth boundary at Marvinas Bay will protect local stocks adjacent to the fishing area.
>
> Given ongoing declines of IFR Steelhead escapement and the designation of the Thompson and Chilcotin River Steelhead as Endangered by COSEWIC, DFO is implementing a comprehensive, precautionary approach to the management of all fisheries in Southern BC that are likely to impact this stock of concern. Closed periods for commercial gill net, seine, and troll WCVI Chum-Other fisheries will be applied in Areas and portions of Areas with the potential to encounter these Steelhead stocks. See sections below for further details.

13.2.8.6 ALLOCATION AND FISHING PLANS

13.2.8.6.1 First Nations Fisheries

FSC fisheries for WVCI Chum will not be impacted by 2024 Interior Fraser River Steelhead conservation measures.

Food Social and Ceremonial Fisheries

WCVI First Nations target Chum stocks for FSC purposes throughout NW and SW Vancouver Island.

Refer to Section 10.2 for Table 10- - Communal Licence Harvest Target Amounts in Southern BC/Fraser River First Nations Fisheries.

Mandatory and voluntary measures have been implemented to support prey availability and reduce disturbance to Southern Resident Killer Whales, including within Southern BC waters and key foraging areas within Strait of Juan de Fuca and the Gulf Islands. These measures are outlined in section 5.6.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. Catch reporting timelines for First Nations fisheries are outlined in Comprehensive Fisheries Agreements and/or Aboriginal Communal Fishing Licences. Where in-season management requires, catch reports are sought weekly during the respective fishing season.

Treaty Fisheries

Treaty fisheries for WVCI Chum will not be impacted by 2024 Interior Fraser River Steelhead conservation measures.

Maa-nulth Fisheries (Domestic)

The annual Domestic allocations for Chum salmon under the Maa-nulth First Nations Final Agreement are as follows:

3,000 pieces, when the return of Terminal Chum Salmon is critical;

6,500 pieces, when the return of Terminal Chum Salmon is low;

10,000 pieces, when the return of Terminal Chum Salmon is moderate;

14,000 pieces, when the return of Terminal Chum Salmon is abundant;

17,500 pieces, when the return of Terminal Chum Salmon is very abundant.

While the Domestic allocation for non-terminal Chum will be based on a maximum and an abundance-based formula that has not been determined.

The Maa-nulth First Nations provides catch reports to the Department through the Maa-nulth Electronic Reporting Program (MERP). The information recorded on catch reports includes the gear type, fishing time period, location of harvest, harvest count by species, harvest effort, and pieces of salmon harvested.

13.2.8.6.2 Five Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht / Muchalaht, and Tla-o-qui-aht First Nations) Multi-species Fishery

The Five Nations multi-species fishery for WVCI Chum will not be impacted by 2024 Interior Fraser River Steelhead conservation measures.

Five Nuu-chah-nulth First Nations located on the west coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) – have an Aboriginal right to fish for any species, with the exception of Geoduck, within their court-defined fishing territories and to sell that fish. For further information please see Section 10.3.1.

13.2.8.6.3 Recreational Fisheries

The recreational fishery for WVCI Chum will not be impacted by 2024 Interior Fraser River Steelhead conservation measures.

When abundance permits, marine recreational fisheries targeting Southern Chum take place in inshore and offshore waters of the west coast of Vancouver Island (Areas 21 to 27 and 121 to 127). The majority of the Chum catch and effort takes place in September to November in terminal areas. The normal daily limit is four. Tidal recreational limits will be changed to non-retention in WCVI inshore areas where pre-season forecasts are below the lower fishery reference point. These limits may be adjusted subject to in-season abundance indicators. In non-tidal waters, Chum retention is typically permitted based on observed abundances, and primarily occurs in hatchery systems.

For 2024, given the expectations presented in the Preliminary 2024 Salmon Outlook, where South Coast systems are at Category 1 or 2, and not expected to reach their management targets; and the Lower Fraser Chum Outlook is at Category 2, the Department is proposing that both recreational and commercial salmon fisheries will start the 2024 season with Chum non-retention regulations in place for Southern BC (including offshore WCVI). For inshore portions of WCVI, this will be further evaluated when pre-season forecasts are finalized in Summer 2024. Should in-season estimates of abundance indicate a sufficient harvestable surplus of Chum, fisheries will be considered and announced by Fishery Notice.

Updates are provided via Fishery Notice and published on the recreational fisheries website: http://www.bcsportfishingguide.ca

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic

disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Fishery Monitoring and Catch Reporting

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch (iREC) reporting program are the main tools used to capture recreational catch and effort information in this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

13.2.8.6.4 Commercial Fisheries

Allocation

Table 13-17: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Outside	23 to 27	0.0%[d]	98.0%	0.0%	2.0%	0.0%

[d] potential for future re-negotiation if Chum populations re-build

WCVI Chum – Other Commercial Chum Fisheries

Beginning in 2022, the commercial Barkley and Clayoquot Chum fisheries in PFMA's 23 and 24 were closed due to poor stock status of the target Chum stocks. These closures are expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 8 or a complete list of longer term fishery closures. Treaty and FSC fisheries remain open. Recreational fisheries may open depending on abundance.

Commercial fisheries in Nootka Sound, Esperanza Inlet, and Kyuquot Sound are based on pre-season forecasts. Pre-season forecasts were not available at the time of publication. The earliest anticipated gill net start dates are:

Nootka Sound – Sept. 25

Esperanza Inlet – Sept. 25

Kyuquot Sound – Sept. 25 (Area 26-11 will remain closed for IFR Steelhead conservation until October 12)

Detailed planning for any potential Area D Chum fisheries will occur with local First Nations and the Roundtables established in each area. Fishery planning will be dependent on pre-season forecasts and any adjustments to which have occurred in previous years may be considered depending on post-season assessments of past fisheries relative to their estimated achieved harvest rates.

Coho retention in net fisheries may be permitted when abundance permits.

There are separate approach area and terminal fisheries to facilitate bio-sampling for age and hatchery contribution.

Area G Troll

Chum salmon are currently not retained as bycatch in Chinook-directed fisheries because of the recent low stock status forecasts, in Areas 23 to 27, and 123 to 127.

To support conservation of IFR Steelhead, a 27-day rolling window closure will be applied to commercial Chinook troll fisheries off of WVCI. These measures are outlined in Table 13- below.

Table 13-18: Interior Fraser River Steelhead Closure Dates by Area for the Area G Troll Fishery.

Area Details	Start	End
Area 123	16-Sep	12-Oct
Area 124	13-Sep	9-Oct
Area 125	11-Sep	7-Oct
Area 26-11	8-Sep	4-Oct
Area 126	8-Sep	4-Oct
Areas 27-1 and 27-2 westerly of a line from Cape Parkins (50 26.6395 N, 128 02.8157 W) to Kwakiutl Point (50 21.0552 N, 127 59.4362 W), 27-4 to 27-6)	6-Sep	2-Oct
Area 127	6-Sep	2-Oct

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in section 5.6.

Fishery Monitoring and Catch Reporting

There is a mandatory harvest log and in-season reporting program for catch information for all commercial fisheries:

- Mandatory requirement to file fishing reports in all commercial fisheries, including "Start/Pause/Cancel/End" Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required.

WCVI Chum - Other - Chum Demonstration Fisheries

None

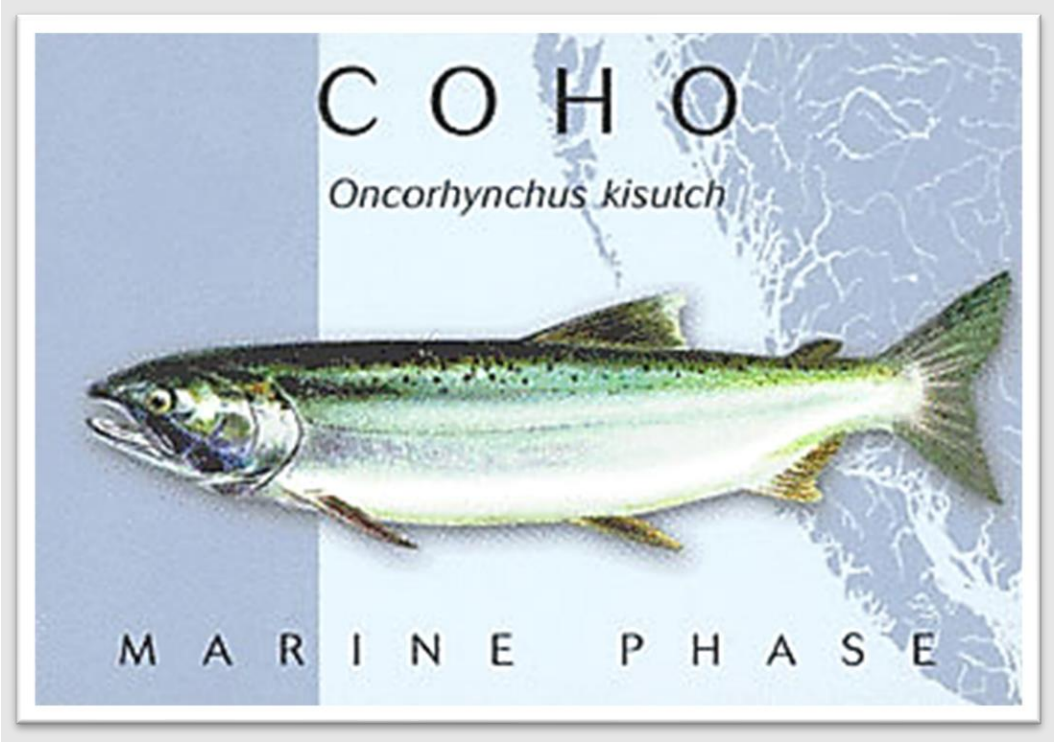
Economic Opportunities

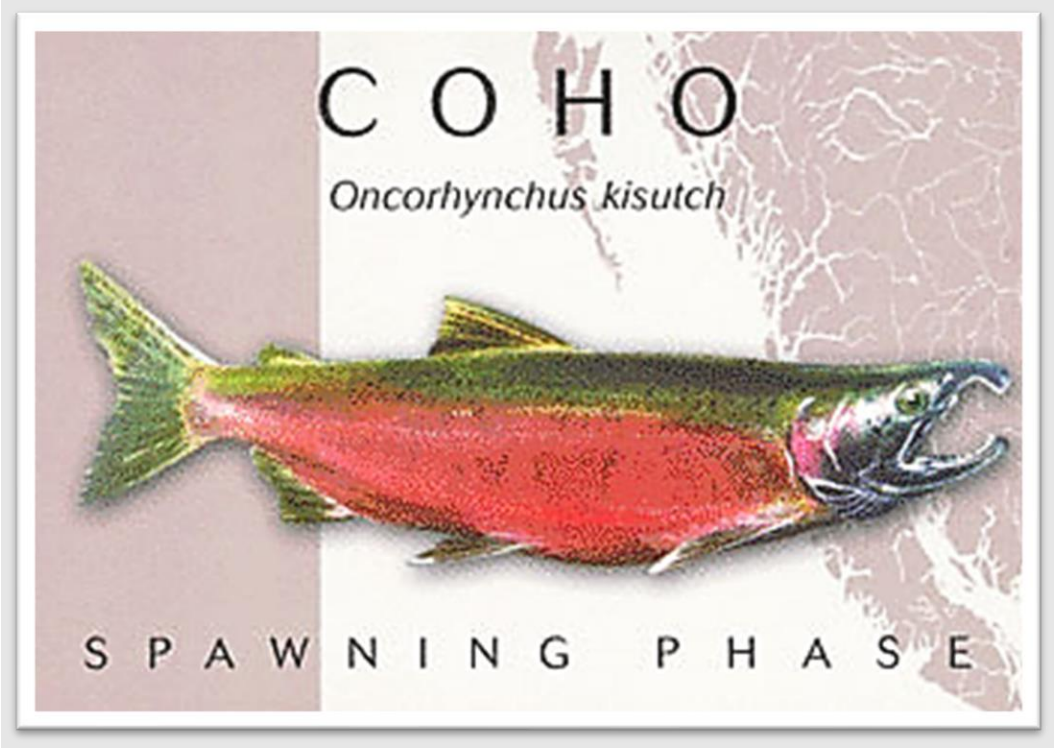
Beginning in 2022, the commercial Barkley and Clayoquot Chum fisheries in PFMA's 23 and 24 were closed due to poor stock status of the target Chum stocks. These closures are expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 8 for a complete list of longer term fishery closures. Treaty and FSC fisheries remain open. Recreational fisheries may open depending on abundance.

13.2.8.6.5 ESSR Fisheries

No ESSR opportunities are expected for WCVI – Other Chum stocks. There is, however, the potential for a Surplus to Escapement fishery on Conuma Chum for the Five Nations under the Multi-Species Fishery Management Plan.

13.3 SOUTHERN COHO SALMON FISHING PLAN





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13.3.1 SOUTHERN COHO - OVERVIEW

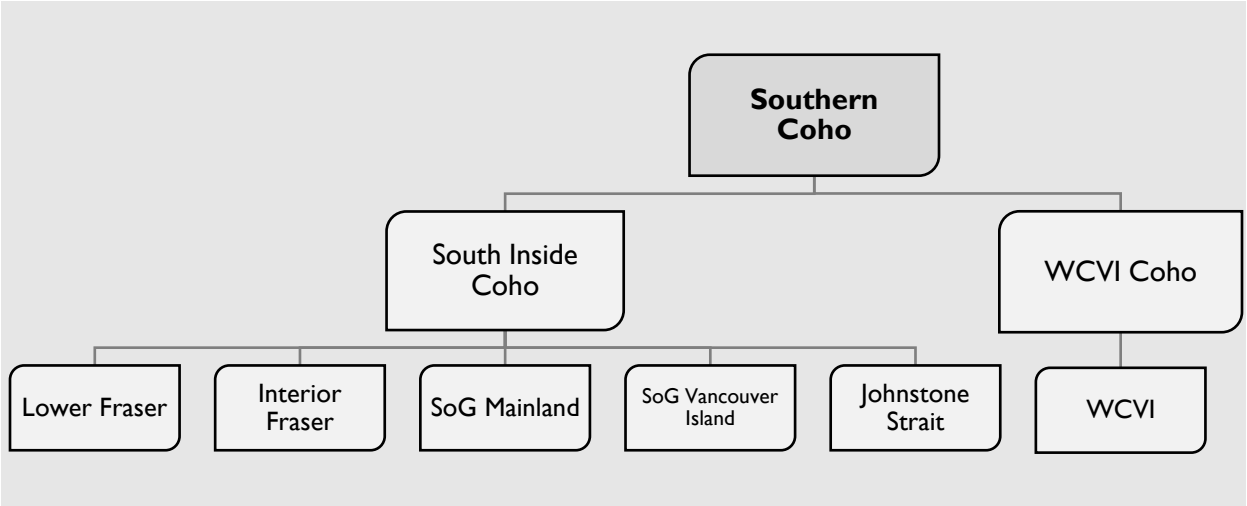


Figure 13.3-1: Overview of Southern Coho

Coho fisheries in southern BC are managed in a manner consistent with the umbrella of the PST, with considerations for Canadian stocks of concern resulting in a range of measures to reduce fisheries impacts, including selective fishing practices.

PST COHO ABUNDANCE-BASED MANAGEMENT FRAMEWORK

The basis for managing fisheries impacting wild Coho originating from southern BC, Washington State, and Oregon is set out in the PST. This abundance-based management (ABM) system was adopted in 2002 and will define harvests of southern Coho through 2028.

The ABM plan constrains total fishery exploitation of key stock management units (MUs), including Strait of Georgia, Lower Fraser, and Interior Fraser.

Conservation units in the WCVI and Johnstone Strait are managed domestically.

In the United States, the MUs relevant to the agreement include the Skagit River, the Stillaguamish, the Snohomish, Hood Canal, tributaries to the Strait of Juan de Fuca, the Quillayute, the Hoh, Queets, and Grays Harbor.

For each of these MUs, annual limits of fishing mortality will be established based on the level of abundance and the health of the wild stocks. The text of the agreement and formulae for sharing between the two countries can be found on the PSC website at: http://www.psc.org/publications/.

Under the principles of Coho ABM, as stocks become less abundant, more stringent fishery management actions will be implemented. As stocks become more abundant, increased fishing opportunities will be considered.

13.3.1.1 SOUTHERN COHO ENHANCEMENT INFORMATION:

The major DFO operation enhancement facilities that produce Coho are:

South Coast Area:

- Big Qualicum River hatchery
- Conuma River hatchery
- Nitinat River hatchery
- Puntledge River hatchery
- Quinsam River hatchery
- Robertson Creek hatchery

Fraser River Area:

- Capilano River hatchery
- Chehalis River hatchery
- Chilliwack River hatchery
- Inch Creek hatchery
- Spius Creek hatchery
- Tenderfoot Creek hatchery

SEP Production Plans

There are three datasets available: Post-Season Production from the 2021 brood year (i.e., 2022 and 2023 releases), Post-Season Production from the 2022 brood year (i.e., 2023 releases, and numbers on hand for 2024 release), and the 2024 Production Plan, which includes proposed targets for the upcoming 2024 brood year. These are available at the following website:

IFMP SEP Data Tables | Pacific Region | Fisheries and Oceans Canada (dfo-mpo.gc.ca)

13.3.1.2 SOUTHERN COHO – SEP PROPOSALS OR UPDATES FOR 2024

New for 2024, N'Quatqua First Nation has proposed production of Bridge River Coho at their facility under a rebuilding objective. This project is being undertaken with support from BCHydro.

13.3.2 SOUTHERN INSIDE COHO

13.3.2.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

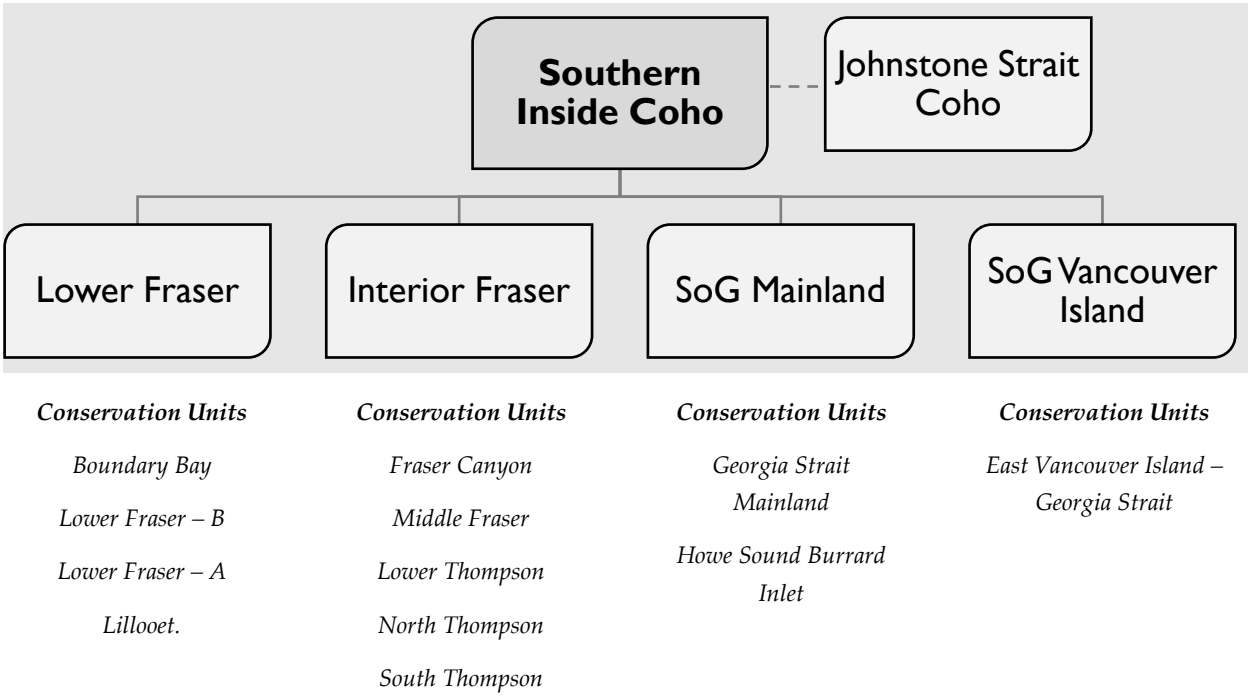


Figure 13.3-2: Overview of Southern Inside Coho

There are three MUs identified in the Pacific Salmon Treaty – Southern Coho Management Plan in Annex IV, Chapter 5 - Coho Salmon including: Lower Fraser, Interior Fraser, and Strait of Georgia. In addition, there are also four Conservation Units (CUs) in the Johnstone Strait area including: Homathko-Klinaklini Rivers; Nahwitti Lowland; East Vancouver Island-Johnstone Strait-Southern Fjords; and Southern Coastal Streams-Queen Charlotte Strait- Johnstone Strait-Southern Fjords. These CUs are not actively managed.

Coho may be encountered as bycatch in fisheries directed at other stocks. Depending on the location, First Nations FSC fisheries are generally directed at more abundant stocks and species

with retention of hatchery, or hatchery and wild, Coho bycatch considered where abundances permit. Limited First Nations FSC directed fisheries may also be permitted in terminal areas where abundances permit. Most commercial and recreational fisheries in southern B.C. do not permit retention of wild Coho in times and areas where Interior Fraser River Coho may be prevalent. However, mark-selective fisheries have been implemented in most southern B.C. recreational fisheries and some commercial fisheries permit retention of hatchery-enhanced stocks, while minimizing impacts on wild stocks.

13.3.2.2 STOCK ASSESSMENT INFORMATION

In 2016, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) published an assessment and status report on one designatable unit (DU) of Coho Salmon - Interior Fraser population. COSEWIC status reports are used to assign risk status to wildlife species. COSEWIC classified Interior Fraser Coho as Threatened. The report is available online at:

https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Coho%20salmon_2016_e.pdf

Recovery Potential Assessment (RPA) for Interior Fraser Coho is available at: https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/40864030.pdf

The WSP biological status of the five Interior Fraser River Coho CUs has been assessed by CSAS. The Science Advisory Report is available at: http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2015/2015_022-eng.html

Up to and including the 2013 return year, three CUs were determined to have an integrated WSP status of AMBER (Middle Fraser, Fraser Canyon, South Thompson) and two were determined to have an integrated status of AMBER/GREEN (Lower Thompson, North Thompson). Integrated status has not been re-evaluated since this assessment.

This assessment found no evidence that smolt-to-adult survival has improved or returned to the higher productivity regime. Because the productivity is low, the sustainable harvest that can be expected from the MU is also low relative to historical levels.

The *Conservation Strategy for Coho Salmon (Oncorhynchus kisutch), Interior Fraser River Populations* was published in 2006 (http://publications.gc.ca/collections/collection_2007/dfo-mpo/Fs23-517-2007E.pdf) and contains the following recovery objectives:

> **Objective 1:** The three-year average escapement in at least half of the sub-populations within each of the five populations is to exceed 1,000 wild-origin spawning Coho salmon, excluding hatchery fish spawning in the wild. This represents a total Interior Fraser River Coho spawning escapement of 20,000 to 25,000

wild-origin Coho. This objective is designed to provide the abundance and diversity required to satisfy the recovery goal.

Objective 2: Maintain the productivity of Interior Fraser River Coho so that recovery can be sustained. This objective is designed to ensure that the threats to recovery are addressed. This objective may be met by addressing the causes for the decline that were identified by COSEWIC:

- Development of a harvest management plan to ensure that exploitation rates are appropriate to changes in productivity caused, for example, by fluctuations in ocean conditions.
- Identification, protection, and, if necessary, rehabilitation of important habitats.
- Ensure that the use of fish culture methods is consistent with the recovery.

The CSAS stock assessment advice from 2014 interpreted the above recovery objectives for Interior Fraser Coho as follows:

Short-Term Objective 1: three-year geometric mean[26] escapement in at least half of the subpopulations within each of the five CUs to exceed 1,000 natural spawners, excluding hatchery fish spawning in the wild; approximately 20,000 wild spawners; and

Longer-Term Objective 1: three-year geometric mean escapement in all of the subpopulations within each of the five CUs to exceed 1,000 natural spawners, excluding hatchery fish spawning in the wild; approximately 40,000 wild spawners

The implementation plan for the 2019 PST brings an opportunity to improve Coho assessment and management. The PST Chapter 5 Southern Coho management framework is based on assessment of Interior Fraser River (IFR), Lower Fraser River (LFR), and Strait of Georgia (SoG) Coho MUs into one of three status zones (Low, Moderate, and Abundant), which have commensurate total exploitation rate (ER) caps and sharing of this ER cap between the U.S. and Canada. Currently, only the IFR Coho MU has an abundance-based approach in place for setting MU status. To support the development of status information for Georgia Basin Coho, the Department is proposing additional fishery sampling to support determination of the status of natural-origin Coho. Specifically, fishery sampling and analysis using new Parentage-Based

[26] Using geometric means provides more precautionary generational averages and recognizes the concern (through heavier weighting) that smaller escapements may impact genetic diversity.

Tagging (PBT) along with regular DNA will allow accurate determination of hatchery-origin Coho from natural-origin Coho within a management or assessment unit. Application of these tools is proposed using September fishery data from the northern Strait of Georgia area and escapement information from ECVI hatcheries. A single troll vessel attempted to collect samples with little success in 2020. The Department approved both First Nations FSC and recreational fishing opportunities that permitted the retention of marked and unmarked Coho in the northern SoG in 2021 (Sept 14-30),2022 (Sept 1-30), and 2023 (Sept 1-30) as an assessment fishery to estimate natural production at a CU scale using DNA/PBT. Fewer samples than the target of 1,000 to 2,000 were collected primarily due to low catch rates, but the Department intends to proceed with this sampling again from September 1-30 in 2024 following analysis of preliminary catch and escapement data.

13.3.2.2.1 Pre-season

The description of the forecast models used can be found in Simpson *et al.* (2004). The processes used have been modified annually based on model performance and development of new models, although the underlying methods are unchanged. Marine survival forecasts are derived for Qualicum, Quinsam, Inch, and Robertson Hatchery stocks, and Black and Carnation Creek wild stocks. Abundance forecasts are derived for Interior Fraser and Thompson River aggregates, and selected aggregates from Areas 12 and 13.

Expectations in 2024 for Area 12 and 13 Coho are to see a stabilization in marine survival, and average to above average adult returns. Returns in 2023 exceeded the long-term average. The Keogh River indicator had an escapement of 5,096 adults, which is approaching the average for this system. Estimated escapement has steadily increased for this indicator since 2016 (230), despite relatively stable but high juvenile recruitment, indicating improving marine survival. The return in 2023 stems from a slightly above average smolt count of 75,174. We expect average to above average returns to the Keogh River indicator in 2024 due to above average smolt output and slightly improved marine survival conditions.

Strait of Georgia Coho

The 2023 escapements in the Strait of Georgia were variable between systems. Systems to the north including Puntledge and Big Qualicum were near the 4 year average while central and southern rivers such as the Nanaimo, Little Qualicum, and Englishman were below average.. Smaller Coho systems were generally average to above average including Black Creek, Little River, Rosewall, Wilfred, Sliammon, Theodosia, Millstone, and Goldstream. Shawnigan Creek was well below average at 985, down from the high of 7,300 in 2021 and 4,300 in 2022. A Coho mark-recapture enumeration project was initatied at Cowichan River in 2019. Data collected in 2023 produced a preliminary estimate of 18,700 adults which is near the 4 year average of 20,471

and more than the 15,924 estimated in 2022 . Smolt production in 2023 at Black Creek was well above average at 108K smolts. The hatchery indicator for the Area 13-North outlook unit is the Quinsam. In 2023, Quinsam saw slighlty above average returns which may have been affected by unusually high predation acvitvity in the Campbell and Quinsam rivers. For other monitored systems in the area, large variations in escapement were encountered but in general near forecasted returns across the area although low flows likely impacted run timing. Coho marine survivals for the 2023 adult cohort have not been estimated yet although above to well above average jack returns were noted in fall 2023 for the more consistently monitored populations. The preliminary forecast has not been run yet but similar conditions are expected through 2024.

Lower Fraser River Coho

The 2024 Salmon Outlook classifies Lower Fraser Coho as *data deficient* as currently there is no reference point or escapement time series. The lower Fraser River Coho assessment project aimed at estimating abundance is planned to continue in 2024.

Interior Fraser River Coho

The 2024 Salmon Outlook classifies Interior Fraser River (IFR) Coho in the *cautious zone* (amber zone under the WSP). A 2014 CSAS paper determined that Interior Fraser River Coho have been in a low productivity (i.e., low Coho survival rate) regime since 1994, and the published Science Advisory Report from the Recovery Potential Assessment for IFR Coho indicated this trend has continued through 2017 (DFO 2019). In relation to the Pacific Salmon Treaty reference points for IFR Coho, the escapement goal portion of the moderate aggregate MU reference point has been met recently in each of 2020-2022 but not the survival portion. Assessments in 2021 estimate smolt-to-adult survival has improved to 3.2% for that year. The 2022 survival was estimated at 1.7%. The 2023 preliminary survival and abundance estimates will be available in the final IFMP. To move into a moderate status category, the MU needs to experience three years of consecutive survival above 3.0%. Therefore, the MU will remain in Low status for 2024. Sustained improvement in marine conditions will be required to improve outlook and rebuild abundance.

The 2024 pre-fishery abundance forecast for IFR Coho will be available in the final IFMP.

13.3.2.2.2 In-season

At this time, there is no in-season assessment on Southern Inside Coho stocks, with the exception of some programs to assess local abundance in some terminal areas. In particular, in 2020, a collaborative pilot assessment project was developed by DFO, LGL Ltd., and the Lower Fraser Fisheries Alliance. The project aims to estimate Lower Fraser River Coho abundance

through the deployment of an assessment fishery and the expansion of current and novel escapement programs. The assessment fishery is located on the mainstem of the Fraser River and will continue to operate in 2024.

13.3.2.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Annex IV, Chapter 5 of the Pacific Salmon Treaty establishes the international management regime for southern B.C. and southern U.S.-origin Coho based on the status of defined Management Units (MUs) in each country. Each MU is to be managed to constrain exploitation rates based on the status of the MU, or groups of MUs in the case of the U.S. Until such time as the Parties provide specific maximum exploitation rate targets for each MU that originates within its jurisdiction consistent with attainment of maximum sustained harvest levels, Canada and the U.S. will manage their fisheries consistent with the maximum exploitation rate ranges for three status levels – *Low*, *Moderate* and *Abundant*.

Table 13-19: Pacific Salmon Treaty abundance-based exploitation rate limits on Coho Salmon stocks in fisheries harvesting Southern B.C. Coho.

	Low	**Moderate**	**Abundant**
Survival	S <= 0.03	Three consecutive years 0.03 < S <= 0.06	Three consecutive years S > 0.06
		and	and
Escapement	Monitored in CUs and subpopulations but no thresholds	Three consecutive years: Half of subpopulations in each CU > 1,000; or Moderate Aggregate MU escapement objective	Three consecutive years: All IFR subpopulations in each CU > 1,000; or Abundant Aggregate MU escapement objective
ER cap **(US/Can)**	0.20 (0.10/0.10)	0.30 (0.12/0.18)	0.45 (0.15/0.30)

In addition, within the *Low* status zone, each country is expected to implement additional fishery management measures as may be necessary to address conservation needs for MUs within its jurisdiction. For most years since 1998 (except 2014 and 2015), Canada has done this by planning on reducing its share of the total exploitation rate on IFR Coho to approximately 3% to 5% or less.

The Coho MUs used by the PST under the Southern Coho management plan are:

Lower Fraser River

Interior Fraser River

Strait of Georgia (the previous MUs of SoG Vancouver Island and SoG Mainland have been combined)

Domestic Canadian Management

In response to large declines in total returns and escapements of IFR Coho in the mid-1990s, exploitation rates in Canadian fisheries were significantly reduced, and for many years, with the exception of 2014 and 2015, the maximum Canadian exploitation rate (ER) has been set at 3% to 5%. Since 1998, this level of exploitation has led to significant fisheries management restrictions for fisheries in times and areas where IFR Coho may be encountered. These management actions have generally ranged from non-retention of wild Coho to time and area closures. Non-retention or time and area closures may be in place in the following fisheries:

- West Coast Vancouver Island (WCVI) troll (commercial and First Nations[27]) and recreational fisheries in offshore areas from June until early September;
- Commercial net and recreational fisheries in the Strait of Juan de Fuca from June until early October;
- Commercial, recreational and First Nations fisheries in Johnstone and Queen Charlotte Straits from early June until late August;
- Commercial, recreational and First Nations fisheries in the Strait of Georgia from June until early October;
- Commercial, recreational and First Nations fisheries both off the mouth of, and in, the Fraser River from early June until mid-October; and,
- Commercial, recreational and First Nations fisheries in the Fraser River upstream of Sawmill Creek from mid- to late September until late October.

[27] Five Nations have proposed to retain for sale both wild and hatchery Coho (currently only hatchery prior to September 15) from their offshore WCVI salmon fisheries with DNA/CWT sampling.

Management measures for IFR Coho are generally in place from January to September when these populations are expected to be encountered in southern B.C. waters. These measures are expected to also limit impacts on other Southern Inside Coho populations.

For fishery planning purposes, IFR Coho fishing mortality is estimated pre-season using a variety of domestic models. Exploitation rates in the marine fisheries are estimated using a harvest rate spreadsheet model, which is based on the historical relationship between fishing effort and associated exploitation rates in the period 1986 to 1997 as determined from coded-wire tag recoveries of IFR Coho and release mortality rates as identified in the Southern Pacific Salmon Integrated Fisheries Management Plan (IFMP). FSC, commercial, and recreational impacts from the Fraser River mouth to Sawmill Creek are estimated using results from a decay model. Results are based on: the number of Coho encounters (kept and released) in fisheries directed on other species; the proportion of IFR to LFR Coho present in the river at the time of the particular fishery; and, release mortality rates as identified in the IFMP. Coho encountered in tributary and mainstem Fraser River fisheries upstream of Sawmill Creek are assumed to be 100% IFR Coho.

For the purpose of implementing the PST arrangements in the Annex 4 Coho Chapter, Canada works with the U.S. to estimate fishery impacts on southern B.C. Coho using a bilaterally-agreed Fisheries Regulation Assessment Model (FRAM). The FRAM model is used pre-season by the U.S. to plan fisheries within stock-specific constraints associated with MU status as identified in the Agreement. FRAM-estimated impacts on IFR Coho may not match the estimates projected by Canadian domestic models as FRAM is based on a shorter base period of CWT data (1986-1992, instead of 1986-1997 used in Canadian domestic models), impacts in Fraser River in-river fisheries are accounted for differently, and the model includes other impacts associated with natural and drop-out mortalities.

Post-season, FRAM reconstructs cohort abundance(s) to estimate fishery-stock-specific ERs. The post-season application of the FRAM model has been updated to incorporate Fraser River freshwater fisheries impacts (as of 2014) and available non-terminal WCVI FSC catch (as of 2020).

For 2024, based on poor marine conditions and ongoing low productivity regime, the Department is planning to manage Canadian fisheries in a highly precautionary manner. Due to increased abundance of IFR Coho in recent years, there has been growing interest in additional access to Coho. DFO will be consulting on potential changes to fishing plans through the IFMP process. The priority for this potential increase is FSC access, particularly for nations whose ability to catch Coho for FSC has been very restricted for the last 40 years.

Continuing in 2024, all Fraser fisheries will be subject to specific end dates first introduced in 2022. There will be no fishing for salmon in the Fraser mainstem after November 30. Similarly,

in tributaries where recreational Chinook and Coho-directed opportunities exist, there will be no fishing for Chum Salmon from December 1 to 31. FSC opportunities will continue to be provided in tributaries until December 31 for those First Nations with access to terminal areas. More information on fishery end dates are provided in the Chum section 13.2.

Fraser River Fisheries

Within the Fraser River, a "window closure" has been the primary tool applied in First Nations, commercial, and recreational fisheries to protect IFR Coho from non-selective fishing gear (e.g., gill nets, rod and reel fishing with bait). Selective fishing gear (e.g., beach seines, modified shallow seines, rod and reel fishing with no bait, dip nets, fish wheels) has been allowed to proceed within these window closure dates. The window closure is implemented on subsequent dates in upstream areas of the Fraser and Thompson Rivers, depending on when the peak migration of IFR Coho is expected to pass through each area.

In the past decade, with the exception of 2014, the start and end dates of the window closure have been selected to protect approximately 90% of the Interior Fraser Coho migration from exposure to non-selective fishing gear, with adjustments made on an annual basis to initiate the closure period following the Labour Day weekend. The objective of protecting 90% of the run was developed when IFR Coho were in critically low status and was aligned with other domestic management measures to meet an overall domestic management objective of limiting the total Canadian exploitation rate on Interior Fraser Coho to 3% to 5% or less.

In 2024, due to increased abundance of IFR Coho in recent years, there has been growing interest in additional access to IFR Coho. DFO will be consulting on potential changes to fishing plans through the IFMP process. The priority for this potential increase is FSC access, particularly for nations whose ability to catch Coho for FSC has been very restricted for the last 40 years.

For 2024, the window closure dates are identified below. During the times and areas specified below, fisheries will be closed for non-selective fishing gear, and only selective or limited experimental fisheries will be permitted.

Table 13-20: 2024 Window Closure Dates to protect Interior Fraser Coho for non-selective fishing gear

Subareas 29-6, 29-7, 29-9 and 29-10	September 5 to October 6
Fraser River - Below Mission	September 5 to October 6
Fraser River - Mission to Hope	September 7 to October 9
Fraser River - Hope to Sawmill Creek	September 9 to October 14
Fraser River - Sawmill Creek to Lytton	September 16 to December 31
Fraser River - Lytton to Williams Lake River	September 23 to December 31
Fraser River - Upstream of Williams Lake River	October 1 to December 31
Thompson River Downstream of the confluence of the North and South Thompson Rivers	September 23 to December 31
Thompson River Upstream of the confluence of the North and South Thompson Rivers	October 1 to December 31

13.3.2.4 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO SOUTHERN INSIDE COHO FISHERIES

All fisheries where IFR Coho are known to be prevalent will be conducted with a non-retention restriction for unmarked Coho, except for an extremely limited number of FSC fisheries conducted in terminal areas by First Nations in Fraser and Thompson River tributaries.

Fisheries for other salmon species will be managed taking into consideration the anticipated incidental mortalities of IFR Coho which may result in reduced harvest opportunities for other salmon species.

Given ongoing declines in IFR Steelhead escapement and the designation of the Thompson and Chilcotin River Steelhead as *Endangered* by COSEWIC, DFO will again implement a rolling window closure throughout southern B.C. to help protect IFR Steelhead in 2024. Areas and dates for the window closure are identified in Appendix 9.

13.3.2.5 ALLOCATION AND FISHING PLANS

Based on the IFR Coho management objective, the following fishing plan considerations have been identified.

13.3.2.5.1 First Nations Fisheries

Food, Social and Ceremonial

Marine Waters

FSC fisheries for Southern Inside Coho in marine areas will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

First Nations target local salmon stocks for FSC purposes throughout the Inner South Coast. Sockeye Salmon are a priority species for First Nations, but the overall objective expressed by many First Nations in consultation is to access a diversity of fishing opportunities throughout the season and across species. Coho Salmon make up part of that diversity.

***New For 2024:** In 2024, the Department is exploring an increase in overall exploitation of Interior Fraser River Coho above the current 3-5% domestic target, while still falling under the 10% harvest cap described in the Pacific Salmon Treaty. The Department may consider additional requests for increasing Coho Mortality on IFR Coho during FN FSC fisheries.

2024 management measures include:

- Retention of wild Coho Salmon is permitted in portions of southern Queen Charlotte Sound, Queen Charlotte Strait, northern Johnstone Strait, and Mainland Inlets (Kingcome, Knight, and Bute).
- In other management areas of southern B.C. only Coho missing an adipose fin (with a healed over scar) may be retained.
- As part of an ongoing assessment of Georgia Basin Coho (13.3.2.2), the Department intends to allow retention of unmarked (wild) Coho in portions of the northern Strait of Georgia during FSC fisheries occurring in the month of September.

Non-tidal Waters (excluding Fraser River)

Some First Nations Coho-directed fisheries may occur in freshwater systems throughout Southern Inside waters subject to local abundance.

FSC fisheries for Coho in freshwater systems outside of the Fraser River system will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

Fraser River

Due to recent trends of poor abundances of Fraser Coho stocks, there have been no First Nations fisheries in the lower Fraser River that target Coho Salmon (with the exception of terminal ESSR harvests in hatchery-enhanced systems). With the exception of 2014 and 2015, First Nations have been asked to release incidentally caught unmarked Coho Salmon alive and unharmed, where possible, prior to the end of the non-selective window closure dates.

Marked Coho Salmon may be retained for FSC purposes. Where applicable, First Nations may retain unmarked Coho Salmon for FSC purposes following the window closure dates noted above.

Directed harvest may be permitted in specific areas or terminal systems where abundance permits. These fisheries are generally for very small numbers of Coho. Fishing plans are discussed and agreed upon between DFO and the appropriate First Nations once Coho have begun to return to the area and terminal abundance sufficient to support some small-scale FSC harvest can be assessed.

In 2024, the Department is considering additional access targeting IFR Coho for First Nations in terminal FSC fisheries. Consultations on potential changes will be done through the IFMP process.

FSC fisheries in the Fraser River, including Subareas 29-6, 29-7, 29-9, and 29-10, will be affected by the 2024 IFR Steelhead conservation measures. A 27-day rolling window closure will be applied to FSC fisheries according to the times and areas outlined in Table 13- below. These measures will not extend to marine FSC fisheries.

Table 13-21 Dates and Area for the Interior Fraser River Steelhead 27-day Rolling Closure for FSC Fisheries in the Fraser River system.

Fishery Location	Start	End
Area 29: 29-6, 29-7, 29-9, and 29-10	26-Sep	22-Oct
Mouth to Port Mann Bridge	26-Sep	22-Oct
Port Mann Bridge to Mission	28-Sep	24-Oct
Mission to Hope	29-Sep	25-Oct
Hope to Sawmill Creek	3-Oct	29-Oct
Sawmill Creek to Lytton (Thompson Confluence)	5-Oct	31-Oct
Lytton to Texas Creek	8-Oct	3-Nov
Texas Creek to Kelly Creek	10-Oct	5-Nov
Kelly Creek to Deadman Creek	13-Oct	8-Nov

Deadman Creek to Chilcotin River	16-Oct	11-Nov
Chilcotin River	19-Oct	14-Nov
Thompson River – Thompson Confluence to Bonaparte	8-Oct	3-Nov
Thompson River – Bonaparte River to Kamloops Lake	12-Oct	7-Nov

Refer to Section 10.2 for Table 10- - Communal Licence Harvest Target Amounts in Southern B.C./Fraser River First Nations Fisheries.

Mandatory and voluntary measures have been implemented to support prey availability and reduce disturbance to Southern Resident Killer Whales, including within Southern B.C. waters and key foraging areas within Strait of Juan de Fuca and the Gulf Islands. These measures are outlined in Section 5.6.

Fishery Monitoring and Catch Reporting

Marine Waters

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations are asked to keep records of harvest and provide catch information to DFO in a variety of formats. Under this licence, if a commercial vessel is used for fishing, First Nations are asked to provide information respecting the species and quantity of fish harvested by this vessel, to the DFO Catch Reporting Officer within 24 hours from landing harvested catch. In addition, catch reporting timelines for First Nations fisheries are outlined in Comprehensive Fisheries Agreements and/or Aboriginal Communal Fishing Licences. Where in-season management requires, catch reports are sought weekly during the respective fishing season.

Fraser River and Tributaries

In the Fraser River watershed, catch monitoring programs are managed through Activity Funding or Comprehensive Fisheries Agreements.

In the lower Fraser River (below Sawmill Creek), monitoring programs implemented typically include landing site or vessel-based collection of catch and effort information paired with validation of effort by vessel patrols or overflights. Specific focus has been placed on sampling of Chinook and Coho salmon for mark rate information and coded-wire tags (CWTs) to support the Salmon Head Recovery Program. Catch reports are received by DFO from catch monitoring programs on a weekly basis, within 48 hours of a fishery closing.

For fisheries above Sawmill Creek, catch monitoring programs range from basic census type to more enhanced programs that include collecting effort and catch rate information in creel sample programs.

Treaty Fisheries

Treaty fisheries targeting Coho within the Fraser River (including Areas 29-6, 29-7, 29-9, and 29-10) will be subject to closures to protect Interior Fraser River Steelhead as outlined in Table 13-. These measures do not extend to marine Treaty fisheries.

Tsawwassen First Nation Fisheries (Domestic)

As per the Tsawwassen First Nation Fisheries Operation Guidelines (TFN FOG), each year the Tsawwassen First Nation (TFN) will develop a Tsawwassen First Nation Annual Fishing Plan (TFN AFP) for the harvest of salmon as per the Tsawwassen First Nation Final Agreement (TFN FA).

The Treaty outlines that in any year, the TFN Allocation for Coho Salmon is an amount of Fraser River Coho Salmon that will result in an annual average harvest of 500 Fraser River Coho Salmon and will be harvested a) incidentally in fisheries that target other species; or b) using selective harvesting techniques to capture specific Coho stocks.

https://www.rcaanc-cirnac.gc.ca/eng/1100100022706/1617737111330 The monitoring program for TFN Domestic fisheries includes fisher logs supplemented by validations of catch through on-water patrols and/or observations of landings and effort through on-water patrols. Details of monitoring programs in place can be found in the TFN FOG.

Tla'amin Nation Fisheries (Domestic)

The Domestic allocations for salmon under the Tla'amin Final Agreement for Coho are as follows:

In any year, the Tla'amin Fish Allocation for Coho Salmon is:

Non-terminal Coho
A number of Coho Salmon equal to 2.1% of the total amount of Coho Salmon, as determined by the Minister, harvested by all other mixed-stock Coho fisheries in Management Area 15.

Terminal Coho
A number of Coho Salmon equal to 25% of the Available Terminal Harvest for Coho Salmon stocks that originate from a Terminal Harvest Area, if the Minister determines that there is an Available Terminal Harvest for those stocks.

The Tla'amin Nation provides catch reports to the Department through the Aboriginal Harvest Management System (AHMS). The information recorded on catch reports includes the gear type, fishing time period, location of harvest, harvest count by species, harvest effort, and biological samples.

13.3.2.5.2 Recreational Fisheries

Conservation measures to protect Coho will be in place in a number of areas and times.

Marine Waters

Recreational fisheries for Coho in marine areas will not be affected by the 2024 Interior Fraser River Steelhead conservation measures.

Marine recreational fishing opportunities for inside Coho take place in Johnstone Strait (Areas 11 to 13), the Strait of Georgia (Areas 13 to 19) and Juan de Fuca Strait (Areas 19 to 20). Inside Coho fishing opportunities in the South Coast are largely dependent on the stock status of Interior Fraser River Coho and Strait of Georgia Coho, and fishing opportunities are based on minimizing impacts on wild Coho with opportunities for retention of hatchery-marked Coho. Wild Coho retention opportunities are provided in Areas 19 and 20 beginning in October, after Interior Fraser River Coho are considered to have migrated through the area. Marine recreational Coho fisheries are typically open from June 1 to December 31, and updates are provided via Fishery Notice and published on the recreational fisheries website: http://www.bcsportfishingguide.ca. Normal limits are two per day for hatchery-marked Coho in most areas. Wild retention and increased daily limits may be considered in some terminal areas of the South Coast where fisheries are targeting local Coho stocks. In non-tidal waters, Coho retention is permitted based on observed abundances and escapement targets being met. These occur mainly in hatchery systems.

Anglers must release with the least amount of harm any fish caught that may not legally be retained; when releasing a fish, anglers must immediately return it to the water where it was caught.

Wild Coho opportunities may be permitted consistent with pre-2014 management measures with greater restrictions in place than in 2014 and 2015; changes to fishery management actions will be announced by Fishery Notice.

As part of an ongoing assessment of Georgia Basin Coho (13.3.2.2), the Department intends to allow retention of unmarked (wild) Coho in portions of the northern Strait of Georgia during recreational fisheries occurring in the month of September.

Fraser River and Tributaries

Recreational fishing for Coho will be closed in the tidal waters of the Fraser River and in non-tidal waters of the Fraser River in Region 2 from January 1 at least until the end of the IFR Steelhead window closure. Additionally, in this same area, there will be a ban on using bait while fishing for salmon. See Table 13- for the complete IFR Coho window closure dates.

For 2024, IFR Steelhead conservation measures will again be in effect in the Fraser River recreational fishery following the Coho window closure. A 42-day rolling window closure will be in effect according to the times and areas outlined in the table below.

Table 13-22: IFR Steelhead Rolling Window Closure Dates for the Fraser River Recreational Fishery

	Start	End
Area 29: 29-6, 29-7, 29-9, and 29-10	19-Sep	30-Oct
Mouth to Port Mann Bridge	19-Sep	30-Oct
Port Mann Bridge to Mission	21-Sep	1-Nov
Mission to Hope	22-Sep	2-Nov
Hope to Sawmill Creek	26-Sep	6-Nov
Sawmill Creek to Lytton (Thompson Confluence)	28-Sep	8-Nov
Lytton to Texas Creek	1-Oct	11-Nov
Texas Creek to Kelly Creek	3-Oct	13-Nov
Kelly Creek to Deadman Creek	6-Oct	16-Nov
Deadman Creek to Chilcotin River	9-Oct	19-Nov
Chilcotin River	12-Oct	22-Nov
Thompson River – Thompson Confluence to Bonaparte	1-Oct	11-Nov
Thompson River – Bonaparte River to Kamloops Lake	5-Oct	15-Nov

In the tidal waters of the Fraser River and in Region 2, opportunities for hatchery-marked Coho may be provided after the IFR Steelhead closure. Opportunities on tributaries to the Fraser River may be provided in those systems where hatchery production can support a Coho fishery, and where IFR Steelhead will not be impacted.

In Regions 3, 5A, 7 and 8, there are no recreational fisheries that target Coho. Fisheries for other species may be limited after September 16 if they potentially have impacts on co-migrating Coho.

Fishery Monitoring and Catch Reporting

Marine Waters

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch (iREC) reporting program are the main tools used to capture recreational catch and effort information in this fishery. South Coast Stock Assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

Fraser River and Tributaries

Creel surveys are conducted in portions of the lower Fraser River and select tributaries to estimate recreational catch and effort for the times and areas surveyed. Typically, the creel survey in the lower Fraser River mainstem begins when the mainstem is opened to recreational salmon fishing; however, over the last number of years, the survey end date has been variable (mid-September to end of November). The creel surveys conducted on the Chilliwack River and Nicomen-Norrish recreational fisheries have remained stable over the last number of years both in times and areas (Chilliwack is surveyed from mid-September to mid-November and Nicomen-Norrish is surveyed from early October to the end of November).

The catch monitoring program in the Fraser watershed upstream of Alexandria will range from no monitoring to fisher-reported catch to highly intensive creel surveys. The expected effort and catch in a fishery, harvest rate, potential bycatch, and any biological sampling requirements will be taken into account when planning the catch monitoring program.

13.3.2.5.3 Commercial Fisheries

Commercial fisheries are managed to avoid impacts to Southern Inside Coho. Generally, all Coho caught incidentally during fisheries targeting other species must be released in a manner that causes the least harm. Estimates of release mortality are calculated post-season. Fisheries targeting other salmon species may be constrained if potential impacts to IFR Coho cannot be reduced to an acceptable level.

Allocation

Table 13-23: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
Southern Inside Coho	11 to 20, 29	TBD	TBD	TBD	TBD	TBD

Notes on Coho allocations (south):
TBD: currently no Coho directed fisheries in this area. Will be reviewed should future directed opportunities develop.

Southern Inside Coho Commercial Fisheries

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Area B Seine

There are no directed Southern Inside Coho fisheries and Coho non-retention is in place in fisheries directed at other species.

Area D Gill Net

There are no directed Southern Inside Coho fisheries and Coho non-retention is in place in fisheries directed at other species.

Area E Gill Net

There are no directed Southern Inside Coho fisheries. During the times specified in 13.2-2, fishing will be restricted to limited selective and/or demonstration fisheries only. To protect IFR Steelhead, gill net demonstration fisheries will be subject to a 42-day rolling window closure as identified in Appendix 9. The retention of Coho bycatch during fisheries directed on other species may not be permitted.

Area H Troll

There are no directed Southern Inside Coho fisheries and Coho non-retention is in place in fisheries directed at other species.

Fishery Monitoring and Catch Reporting

There is a mandatory harvest log and in-season reporting program for catch and release information for all commercial fisheries.

- Mandatory requirement to file fishing reports in all commercial fisheries, including "Start/Pause/Cancel/End" Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the Conditions of Licence for each gear type. Additional requirements are in place for providing biological samples as required.

Southern Inside Coho Demonstration Fisheries

There are no demonstration fisheries targeting Southern Inside Coho.

Southern Inside First Nations Commercial Coho Harvest

There is no First Nations commercial harvest targeting Southern Inside Coho.

Harvest Agreements

There are no harvest agreements for Coho-directed fisheries on Southern Inside Coho. Harvest Agreements typically include provisions for fishing under the same or comparable rules as commercial fisheries operating in the same areas.

Economic Opportunities

There are no economic opportunity fisheries targeting Southern Inside Coho.

13.3.2.5.4 ESSR Fisheries

ESSR fisheries may occur at hatchery facilities that have a surplus of returning hatchery Coho. In past years, ESSR fisheries for Southern Inside Coho have taken place at:

- Big Qualicum Hatchery
- Nanaimo River Hatchery
- Chapman Creek Hatchery
- Capilano Hatchery
- Chehalis Hatchery
- Chilliwack Hatchery
- Inch Creek Hatchery

13.3.3 WCVI COHO

13.3.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

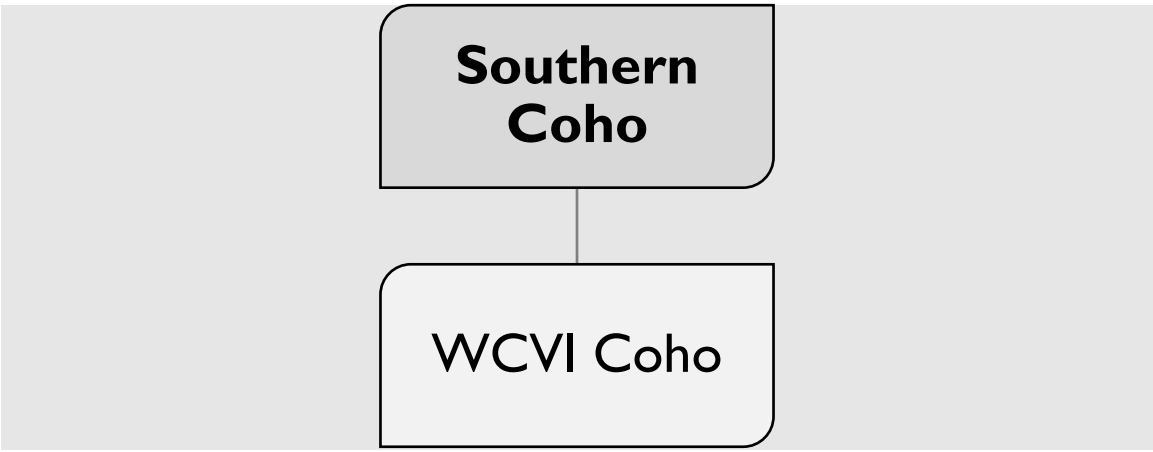


Figure 13.3-3: Conservation Units within the WCVI Coho Management Unit

WCVI Coho originate from streams along the West Coast of Vancouver Island. Three major hatchery facilities, including Nitinat (Area 22), Conuma (Area 25), Robertson (Area 23), as well as production from smaller enhancement facilities also contribute to Coho returns. Coho harvest opportunities for these populations are provided for First Nations, recreational and commercial fisheries in inshore waters depending on local abundance.

13.3.3.2 STOCK ASSESSMENT INFORMATION

13.3.3.2.1 Pre-season

In the 2024 Preliminary Salmon Outlook, WCVI Coho is classified as "Near Average". A pre-season marine survival forecast is derived for the Robertson Creek Hatchery stock and the wild indicator at Carnation Creek each year. The results of these forecasts will be available in the final IFMP.

13.3.3.2.2 In-season

At this time, there is no in-season assessment of abundance done on WCVI Coho stocks.

13.3.3.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Fisheries taking place in offshore waters (Areas 121 and 123 to 127) are constrained by Interior Fraser River Coho decision guidelines. Fisheries taking place in near shore waters (Areas 23 to 27) are managed based on pre-season qualitative forecasts of returns to the area.

13.3.3.4 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO WCVI COHO FISHERIES

All fisheries where Interior Fraser River (IFR) Coho are known to be prevalent will be conducted with a non-retention restriction for unmarked Coho. *New For 2024: In 2024, the Department is exploring an increase in overall exploitation of Interior Fraser River Coho above the current 3-5% domestic target, while still falling under the 10% harvest cap described in the Pacific Salmon Treaty. The Department may consider additional requests for increasing Coho Mortality on IFR Coho during FSC fisheries.

Fisheries for other salmon species will be managed taking into consideration the anticipated incidental mortalities of IFR Coho, resulting in many cases, in reduced harvest opportunities for other salmon species until such time as IFR Coho are assumed to have migrated out of the area.

Given ongoing declines in IFR Steelhead escapement and the designation of the Thompson and Chilcotin River Steelhead as *Endangered* by COSEWIC, DFO is continuing implementation of a rolling window closure throughout southern BC to protect IFR Steelhead in 2024. Areas and dates for the window closure are identified in Appendix 9.

13.3.3.5 ALLOCATION AND FISHING PLANS

13.3.3.5.1 First Nations Fisheries

Food Social and Ceremonial

FSC fisheries for WCVI Coho will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

Management measures to protect stocks of concern, including Interior Fraser River Coho may constrain WCVI FSC fisheries in the offshore area. Offshore WCVI conservation measures for IFR Coho will be a part of pre-season planning discussions.

*New For 2024: In 2024, the Department is exploring an increase in overall exploitation of Interior Fraser River Coho above the current 3-5% domestic target, while still falling under the

10% harvest cap described in the Pacific Salmon Treaty. The Department may consider additional requests for increasing Coho Mortality on IFR Coho during FSC fisheries.

Bycatch or incidental retention may be permitted during fisheries for abundant species or stocks. Directed harvest may be permitted in specific areas or terminal systems where abundance permits.

Mandatory and voluntary measures have been implemented to support prey availability and reduce disturbance to Southern Resident Killer Whales, including within southern BC waters and key foraging areas within Strait of Juan de Fuca and the Gulf Islands. These measures are outlined in Section 5.6.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. Catch reporting timelines for First Nations fisheries are outlined in Comprehensive Fisheries Agreements and/or Aboriginal Communal Fishing Licences. Where in-season management requires, catch reports are sought weekly during the respective fishing season.

Treaty Fisheries

Treaty fisheries for WCVI Coho will not be affected by 2024 Interior Fraser River Steelhead conservation measures. Offshore WCVI conservation measures for IFR Coho will be a part of pre-season planning discussions.

Maa-nulth Fisheries (Domestic)

Each year, the Maa-nulth Fish Allocation for Coho salmon is a) an amount of Ocean Coho Salmon equal to 7,000 pieces; and b) An amount of Terminal Coho Salmon equal to:

1,200 pieces, when the return of Terminal Coho Salmon is critical;

1,850 pieces, when the return of Terminal Coho Salmon is low;

3,050 pieces, when the return of Terminal Coho Salmon is moderate; and

3,630 pieces, when the return of Terminal Coho Salmon is abundant.

The Maa-nulth First Nations provide catch reports to the Department through the Maa-nulth Electronic Reporting Program (MERP). The information recorded on catch reports includes the gear type, fishing time period, location of harvest, harvest count by species, harvest effort, and pieces of salmon harvested.

Five Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht / Muchalaht, and Tla-o-qui-aht First Nations) Multi-species Fishery

The Five Nations Multi-species fishery will not be affected by 2024 Interior Fraser River Steelhead conservation measures. Offshore WCVI conservation measures for IFR Coho will be a part of pre-season planning discussions[28].

Five Nuu-chah-nulth First Nations located on the west coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) – have an Aboriginal right to fish for any species, with the exception of Geoduck, within their court-defined fishing territories and to sell that fish. For further information please see Section 10.3.1.

13.3.3.5.2 Recreational Fisheries

Recreational fisheries for Coho in marine areas will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

Marine recreational fisheries targeting outside Coho take place in inshore and offshore waters of the west coast of Vancouver Island (Areas 21 to 27, 121 to127). Outside Coho fishing opportunities are largely dependent on the stock status of IFR Coho and WCVI Coho, and fishing opportunities are largely based on minimizing impacts on wild Coho and target mark-selective fishing for hatchery-marked Coho. Management measures are often required in order to meet conservation objectives for IFR Coho, and include non-retention of wild Coho in many areas in the South Coast at certain times of the year when they are vulnerable to fisheries. Offshore WCVI conservation measures for IFR Coho will be a part of pre-season planning discussions.

Marine recreational Coho fisheries typically operate June 1-Dec 31, and updates are provided via Fishery Notice and published on the recreational fisheries website: http://www.bcsportfishingguide.ca. Normal limits are 2 perday and 4 in possession for hatchery-marked fish in most areas. Wild retention and increased daily limits are permitted in most inshore areas on the west coast of Vancouver Island where fisheries are targeting local

[28] Five Nations have proposed to retain for sale both wild and hatchery Coho (currently only hatchery prior to September 15) from their offshore WCVI salmon fisheries with DNA/CWT sampling.

Coho stocks. In non-tidal waters, Coho retention is permitted based on observed abundances; escapement targets being met, and primarily occurs in hatchery enhanced systems.

For 2024 in southern BC tidal waters, it is anticipated that some wild Coho retention opportunities will be provided in inshore areas of the west coast of Vancouver Island. Daily limits will be based on the pre-season qualitative forecast when available. Any changes will be announced via Fishery Notice.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Coho produced by the Robertson Creek (Area 23) and Conuma River (Area 25) hatcheries are all marked with adipose fin clips. Increased daily limits (e.g. 4/day) for hatchery marked Coho may be provided in some terminal portions of these areas during the part of the season when these fish are expected to be present while daily limits for wild Coho may be lower (e.g. 1/day) in these areas.

Fishery Monitoring and Catch Reporting

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch (iREC) reporting program are the main tools used to capture recreational catch and effort information in this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

13.3.3.5.3 Commercial Fisheries

Allocation

Table 13-24: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Outside	21 to 27, 121 to 127	9.5%	9.5%	1.0%	80.0%[b]	0.0%

Notes on Coho allocations (south):

[b] Coho taken primarily in offshore fisheries

Southern Outside Commercial Coho Fisheries

Given ongoing declines in IFR Steelhead escapement and the designation of the Thompson and Chilcotin River Steelhead as *Endangered* by COSEWIC, DFO is implementing a rolling window

closure throughout southern BC to protect IFR Steelhead in 2024. Areas and dates for the window closure are identified in Appendix 9.

Area B Seine

No directed offshore Coho fisheries. Near shore fisheries may permit bycatch retention in fisheries targeting other species based on pre-season forecasts of abundance. Coho-directed fisheries may be permitted in terminal locations on enhanced stocks.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Area D Gill Net

No directed offshore Coho fisheries. Near shore fisheries may permit bycatch retention in fisheries targeting other species based on pre-season forecasts of abundance. Coho-directed fisheries may be permitted in terminal locations on enhanced stocks.

Area E Gill Net

No directed southern outside Coho fisheries and Coho non-retention in fisheries directed at other stocks.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Area G Troll

Management measures to protect stocks of concern, including IFR Coho will constrain WCVI fisheries in the offshore area. However, there may be potential opportunities available for retention of Coho (hatchery marked or hatchery marked and wild) bycatch during directed Chinook fisheries. The 27-day rolling window closure will continue to be applied to the Area G troll fishery to protect Interior Fraser River Steelhead. Areas and dates for this window closure are listed in Section 13.1.2.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Fishery Monitoring and Catch Reporting

There is a mandatory harvest log and in-season reporting program for catch information for all commercial fisheries.

- Mandatory requirement to file fishing reports in all commercial fisheries, including "Start/Pause/Cancel/End" Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the Conditions of Licence for each gear type. Additional requirements are in place for providing biological samples as required.

WCVI Coho Demonstration Fisheries

There are no proposed demonstration fisheries that meet the essential CSAF criteria targeting Southern Outside Coho.

Economic Opportunities

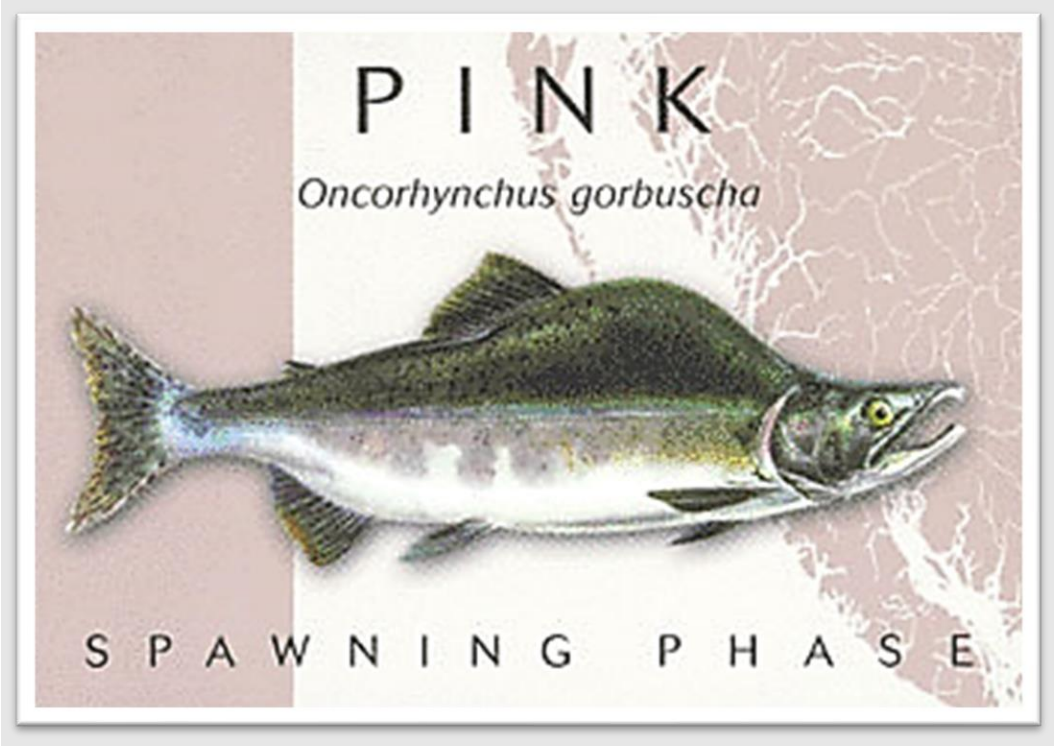
Potential Area 23 Economic Opportunity Coho fisheries will not be affected by 2024 Interior Fraser River Steelhead conservation measures.

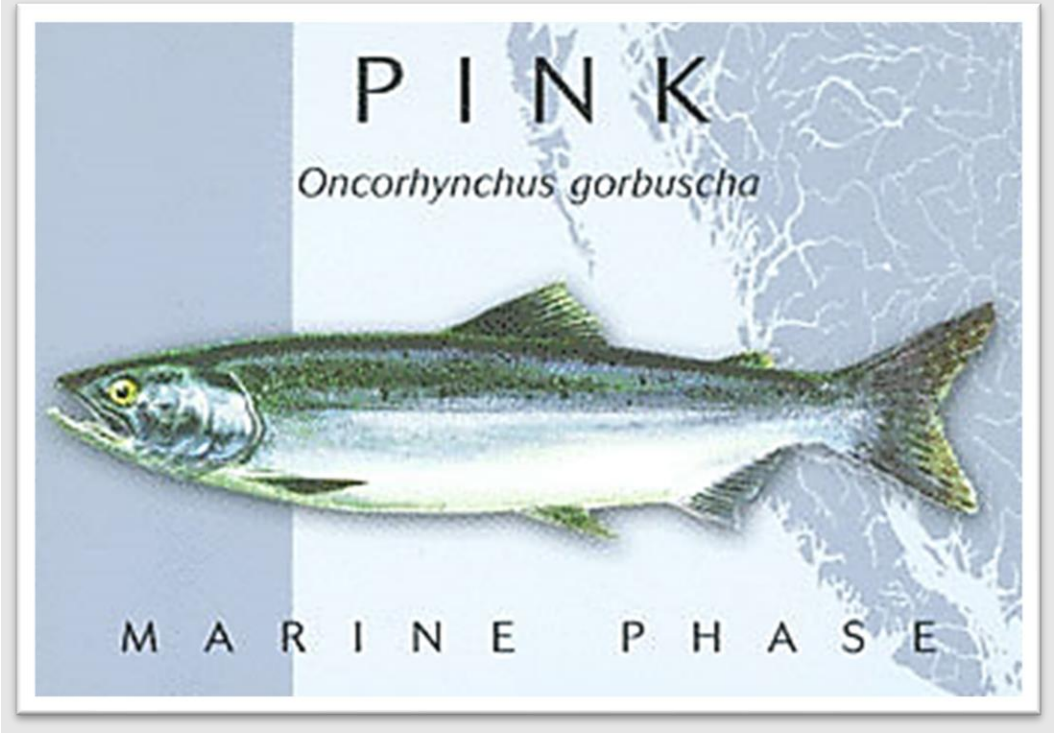
Economic opportunity fisheries may be conducted under agreements that specify provisions for planning fisheries, allocations, catch reporting requirements as well as roles and responsibilities regarding the management of the fishery. Economic Opportunity agreements are anticipated to be in place with the Tseshaht and Hupacasath First Nations for the 2024 season. The Department's general approach is that Indigenous commercial harvest opportunities are managed using the same harvest decision guidelines as the commercial fishery. Indigenous commercial harvest opportunities may be implemented with different times, areas, gears and regulations consistent with the overall management approach for the commercial fishery. These economic opportunity fisheries are based on local abundances, estimated by the Salmon Outlook and in-season information if available.

13.3.3.5.4 ESSR Fisheries

ESSR fisheries may occur at DFO hatchery facilities that have a surplus of returning hatchery Coho. These fishery opportunities are provided to the local First Nations. In past years, ESSR fisheries have taken place at the Roberson Creek Hatchery and Nitinat Hatchery. Additionally there is the potential for a Surplus to Escapement fishery on Conuma Coho for the Five Nations under the Multi-Species Fishery Management Plan.

13.4 SOUTHERN PINK SALMON FISHING PLAN





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13.4.1 SOUTHERN PINK - OVERVIEW

In southern BC, Pink Salmon stocks are found primarily in tributaries of the Fraser River and in streams on the East Coast of Vancouver Island and the Mainland. Pink returns on the WCVI are small and are not actively managed. Most Pink fisheries in southern BC target Fraser River origin Pink Salmon in odd years; Pink harvests in other areas primarily occur near terminal areas. Detailed information is provided below outlining management of Fraser River, ECVI and Mainland populations.

Information on smaller WCVI Pink populations is under development and further information will be provided in a subsequent year.

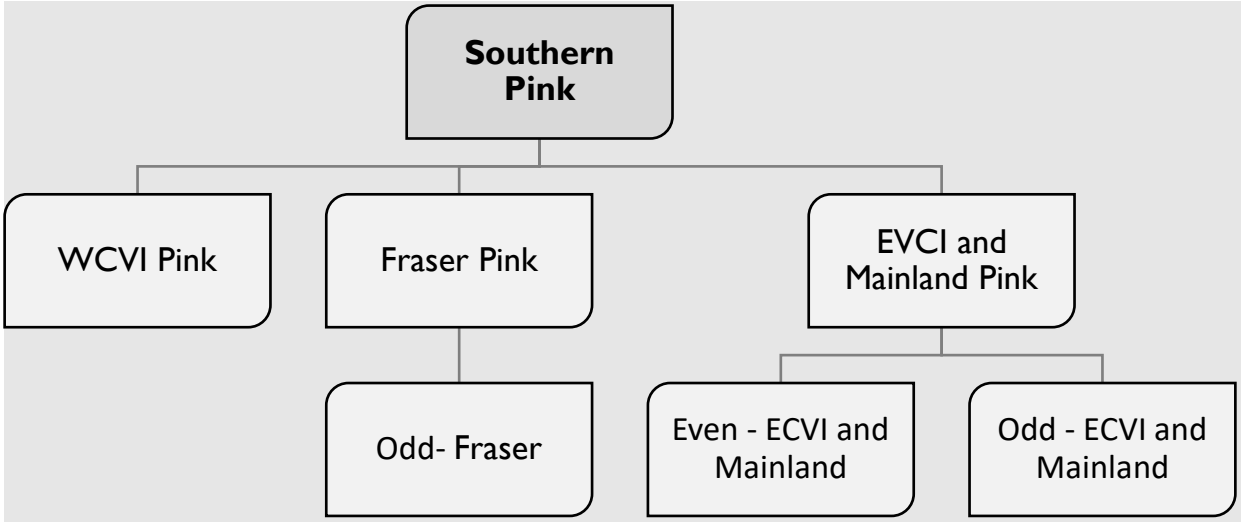


Figure 13.4-1: Overview of Southern Pink Salmon

13.4.1.1 SOUTHERN PINK SALMON ENHANCEMENT INFORMATION

The major DFO operation enhancement facilities that produce Pink Salmon are:

South Coast Area:

Quinsam River hatchery

Fraser River Area ***(odd year run only):***

Capilano River hatchery

Chehalis River hatchery

Tenderfoot Creek hatchery

Weaver Spawning Channel

SEP Production Plans

There are three datasets available: Post-Season Production from the 2021 brood year (i.e., 2022 and 2023 releases), Post-Season Production from the 2022 brood year (i.e., 2023 releases, and numbers on hand for 2024 release), and the 2024 Production Plan, which includes proposed targets for the upcoming 2024 brood year. These are available at the following website:

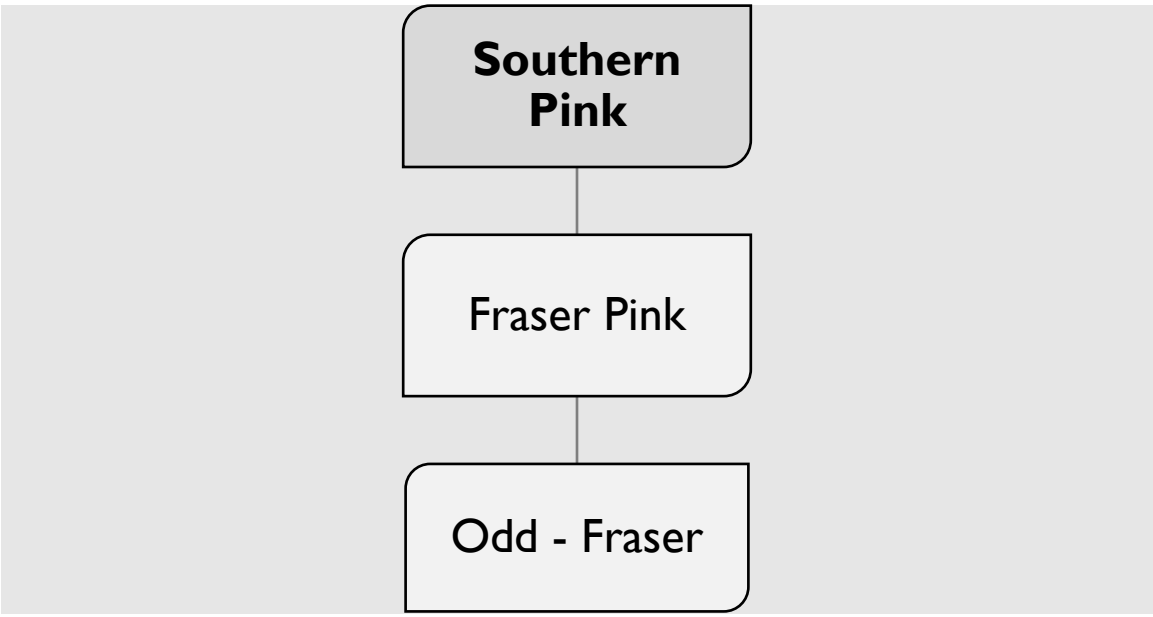
IFMP SEP Data Tables | Pacific Region | Fisheries and Oceans Canada (dfo-mpo.gc.ca)

13.4.1.2 SOUTHERN PINK - SEP PROPOSALS OR UPDATES FOR 2024

There are no new proposals for Pink Salmon production in the Fraser River for 2024.

13.4.2 FRASER PINK SALMON

13.4.2.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT



Conservation Units

Fraser Pink

Figure 13.4-2: Conservation Units in the Fraser Pink Salmon Management Unit (1 CU)

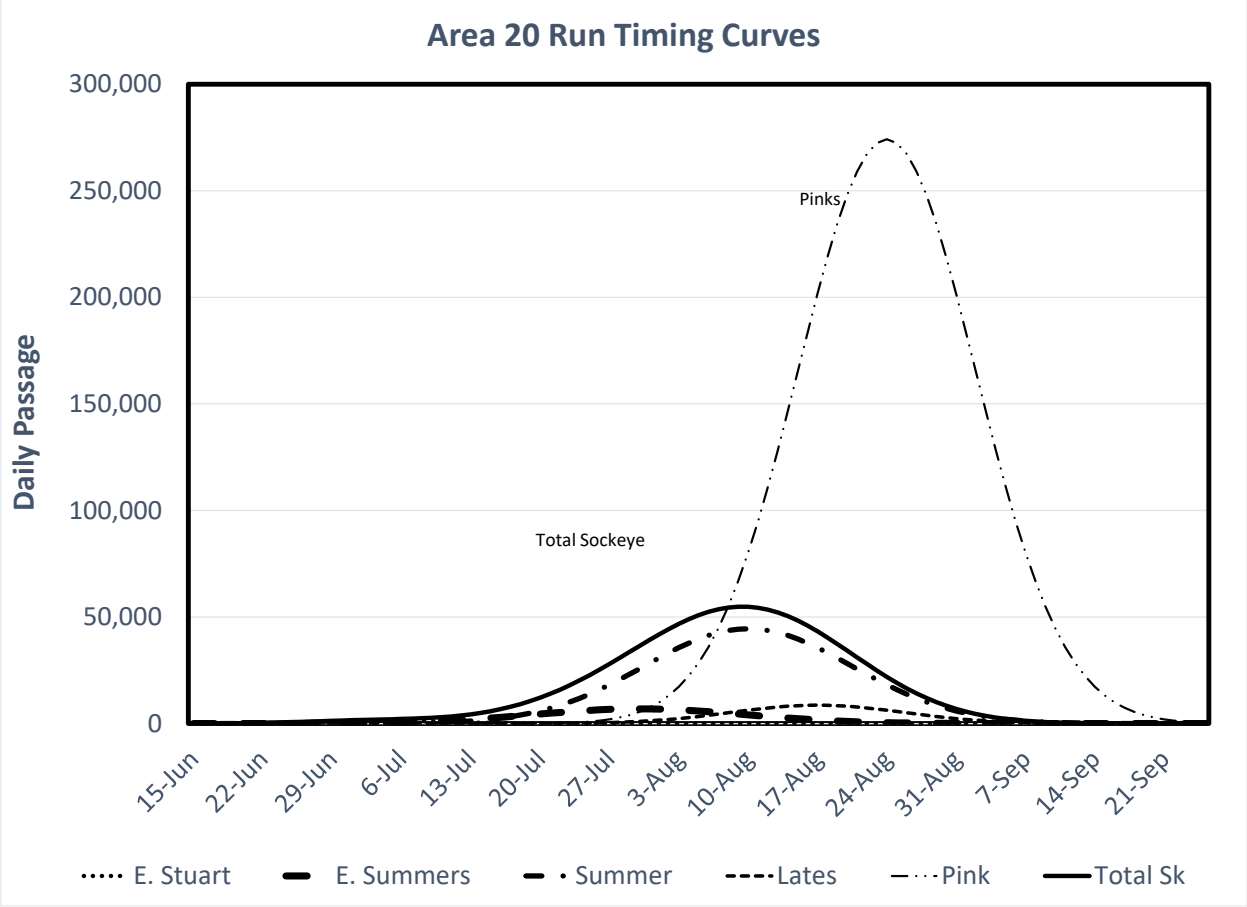
Fraser Pink Salmon migrate up the Fraser system from early August through early October, peaking in early to mid-September. Returns occur on a two-year cycle, almost entirely in odd-numbered calendar years only. Minimal numbers of Fraser River Pink Salmon return in even years and no directed harvest occurs in these years.

13.4.2.2 STOCK ASSESSMENT INFORMATION

13.4.2.2.1 Pre-season

In even-numbered years, there are very few returns of Pink Salmon and a stock outlook is not produced. A stock outlook and formal Fraser River Pink run size forecast are produced in odd-numbered years only.

13.4.2.2.2 In-season



In even years, there is no in-season assessment for Fraser River Pink Salmon.

In odd years, assessment of Fraser Pink run size is conducted by the Pacific Salmon Commission. Estimates of abundance, run timing, stock composition, and other technical

information are used to assess potential fishing opportunities relative to pre-season fishing plans.

13.4.2.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Prior to each fishing season the Fraser Pink Salmon Decision Guidelines (Table 13-) are used to develop the spawning escapement plan (Table 13-). A pre-season fishing plan is then developed by DFO and the Fraser River Panel (FRP) that takes into consideration conservation concerns for other species, pre-season forecasts of abundance, timing, and diversion rate.

In even years, there are no fisheries planned to directly target Fraser Pink Salmon.

In odd years, Pink Salmon are managed to the decision guidelines in the table below.

Table 13-25: Fraser Pink Salmon Odd Year Decision Guidelines

Run Size	Escapement Plan
Less than 7.059M	The allowable exploitation rate (ER) increases linearly from zero percent at a run size of zero to 15% at a run size of 7.059M. (For run sizes less than 7.059M, the allowable % ER is the run size expressed in millions multiplied by (15%/7.059)
between 7.059M & 20M	The allowable ER increases from 15% to 70%. The escapement goal is 6M, the remainder is harvestable surplus.
Greater than 20M	The allowable ER is 70%. The escapement goal increases as the run size increases beyond 20M.

Table 13-26: 2023 Fraser Pink Salmon Draft Escapement Plan

2023 Fraser Pink Escapement Plan

Run Size	Escapement Plan
Less than 7.059M	Exploitation rate increases linearly from 0% at run size =0 to 15% at run size = 7.059M
Between 7.059M-20M	Fixed Escapement. Escapement goal = 6,000,000
Greater than 20M	Exploitation Rate Cap = 70%

	2023 Pre-season Forecast Return				
	p10	p25	**p50**	p75	p90
forecast	3,247,000	4,389,000	**6,135,000**	8,575,000	11,591,000
escapement target	3,023,000	3,980,000	**5,335,000**	6,000,000	6,000,000
allowable ER	7%	9%	**13%**	30%	48%
Available Harvest (TF, US, CDN)	224,000	409,000	**800,000**	2,575,000	5,591,000

13.4.2.4 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO FRASER PINK FISHERIES

Even year Fraser Pink returns are extremely low and fisheries are not planned to target directly on the stock.

Harvest of Fraser Pink Salmon in odd years may be constrained by the management objectives for Fraser Sockeye and for other species of concern, particularly Interior Fraser (IFR) Coho Salmon and Steelhead. In some cases, full harvest targets may not be harvestable due to conservation concerns and management considerations that are identified in-season.

13.4.2.5 ALLOCATIONS AND FISHING PLANS

In-season information including estimates of abundance, run timing, stock composition, and other technical information are used to assess potential fishing opportunities relative to pre-season fishing plans.

The Fraser River Panel meets regularly from early July to mid-September to review information as it becomes available over the course of the Sockeye and Pink migrations. In-season information including fishery openings are posted on the Internet regularly throughout the fishing season by the DFO and the PSC at the following web sites:

Weekly PSC News Release:
http://www.psc.org/news_frpnews.htm

Aboriginal, Commercial and Recreational Fishery Notices:
http://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm

13.4.2.5.1 First Nations Fisheries

Food, Social and Ceremonial Fisheries

First Nations target local salmon stocks for FSC purposes throughout the south coast. Catches are typically higher in odd years when Fraser River Pinks are on their dominant cycle year. Minimal Pink catch is thought to occur in even years.

First Nations opportunities to harvest salmon for FSC purposes is provided through communal licences issued by DFO. Refer to Section 10.2 for Table 10- – Communal Licence Harvest Target Amounts for Southern B.C./Fraser River First Nations Fisheries.

FSC fisheries will be planned to maximize the use of selective gear types and reduce bycatch where possible.

To support IFR Steelhead conservation, a rolling window closure will apply to all FSC salmon fisheries in the Fraser River within the times and areas identified in Table 13- (including Subareas 29-6, 29-7, 29-9, and 29-10) and in Appendix 9. This closure does not extend to marine FSC fisheries targeting Fraser Pink Salmon.

Table 13-27: Dates and Area for the Interior Fraser River 27-day Rolling Closure for FSC Fisheries in the Fraser River system.

Fishery Location	Start	End
Area 29: 29-6, 29-7, 29-9, and 29-10	28-Sep	24-Oct
Mouth to Mission	28-Sep	24-Oct
Mission to Hope	29-Sep	25-Oct
Hope to Sawmill Creek	3-Oct	29-Oct
Sawmill Creek to Lytton (Thompson Confluence)	5-Oct	31-Oct
Lytton to Texas Creek	8-Oct	3-Nov
Texas Creek to Kelly Creek	10-Oct	5-Nov
Kelly Creek to Deadman Creek	13-Oct	8-Nov
Deadman Creek to Chilcotin River	16-Oct	11-Nov
Chilcotin River	19-Oct	14-Nov
Thompson River – Thompson Confluence to Bonaparte	8-Oct	3-Nov
Thompson River – Bonaparte River to Kamloops Lake	12-Oct	7-Nov

In some cases, full harvest targets may not be harvestable due to conservation concerns and management considerations that are identified in-season.

In addition to these FSC fisheries, local First Nations access Pink Salmon through ESSR harvests at several hatchery facilities (refer to Section 13.4.2.5.7).

Fishery Monitoring and Catch Reporting

Marine Waters

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements, if applicable. First Nations are asked to keep records of harvest and provide catch information to DFO in a variety of formats. Under this licence, if a commercial vessel is used for fishing, First Nations are asked to provide information respecting the species and quantity of fish harvested by this vessel, to the DFO Catch Reporting Officer within 24 hours from landing harvested catch. In addition, catch reporting timelines for First Nations fisheries are outlined in Comprehensive Fisheries Agreements and/or Aboriginal Communal Fishing Licences. Where in-season management requires, catch reports are sought weekly during the respective fishing season.

Fraser River and Tributaries

First Nations catch monitoring programs are managed through Activity Funding or Comprehensive Fisheries Agreements.

In the lower Fraser River (below Sawmill Creek), monitoring programs implemented vary between Nations but typically include landing site or vessel-based collection of catch and effort information paired with validation of effort by vessel patrols or overflights. Catch reports are received by DFO from catch monitoring programs on a weekly basis, within 48 hours of a fishery closing.

For fisheries in the Fraser watershed above Sawmill Creek, catch monitoring programs typically range from basic census type to more enhanced programs that include collecting effort and catch rate information in creel sample programs.

Treaty Fisheries

Treaty fisheries will be planned to maximize the use of selective gear types and reduce bycatch where possible.

In some cases, full harvest targets may not be harvestable due to conservation concerns and management considerations that are identified in-season. See Section 13.4.2.4 for information on incidental harvest, bycatch and constraints to Fraser Pink fisheries.

To support IFR Steelhead conservation, a rolling window closure will apply to all Treaty salmon fisheries in the Fraser River within the times and areas identified in Table 13- (including sub-Areas 29-6, 29-7, 29-9, and 29-10) and Appendix 9. This closure does not extend to marine Treaty fisheries targeting Fraser Pink Salmon.

Tsawwassen Fisheries (Domestic)

In any year, the Tsawwassen Fishing Right Allocation for Pink Salmon will be that number of fish caught incidentally in the harvest of Tsawwassen Allocation for Sockeye Salmon, up to a maximum of 2,500 Fraser River Pink Salmon.

The monitoring program for Tsawwassen Domestic fisheries includes fisher logs supplemented by validations of catch through on-water patrols and/or observations of landings and effort through on-water patrols. Details of monitoring programs in place can be found in the Tsawwassen Fisheries Operational Guidelines.

Tla'amin (Domestic)

The Domestic allocation for Pink Salmon under the Tla'amin Final Agreement is as follows:

In any year, the Tla'amin Fish Allocation for Pink Salmon is a maximum of 5,000 Pink Salmon. The allocation will be determined by an abundance-based formula.

The Tla'amin Nation provides catch reports to the Department through the Aboriginal Harvest Management System (AHMS). The information recorded on catch reports includes the gear type, fishing time period, location of harvest, harvest count by species, harvest effort, and biological samples.

Maa-nulth (Domestic)

The Maa-nulth Domestic allocation for Pink Salmon under the Maa-nulth First Nations Final Agreement are in each two-year period following the effective date of the Agreement (April 1, 2011): a maximum of 7,250 Pink Salmon (some or all of which may be Fraser Pink).

The Maa-nulth First Nations provides catch reports to the Department through the Maa-nulth Electronic Reporting Program (MERP). The information recorded on catch reports includes the gear type, fishing time period, location of harvest, harvest count by species, harvest effort, and pieces of salmon harvested.

Five Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht / Muchalaht, and Tla-o-qui-aht First Nations) Multi-species Fishery

Five Nuu-chah-nulth First Nations located on the west coast of Vancouver Island – Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) – have an

Aboriginal right to fish for any species, with the exception of Geoduck, within their court-defined fishing territories and to sell that fish. For further information please see Section 10.3.1.

The Five Nations Multi-species fishery for Fraser River Pink Salmon will not be affected by 2024 IFR Steelhead conservation measures.

13.4.2.5.2 Recreational Fisheries

In most south coast tidal waters, the limit in recreational fisheries is four (4) Pink Salmon per day. Marine recreational Pink fisheries typically take place in August and September. Updates are provided via Fishery Notice and published on the recreational fisheries website: http://www.bcsportfishingguide.ca.

In some cases, recreational fisheries may be reduced or closed due to conservation concerns and management considerations that are identified in-season. See Section 13.4.2.4 for information on incidental harvest, bycatch and constraints to Fraser Pink fisheries.

There are no Fraser River opportunities anticipated for Fraser River Pink Salmon in even-numbered years.

Mandatory and voluntary measures have been implemented to support prey availability and reduce disturbance to Southern Resident Killer Whales, including within southern B.C. waters and key foraging areas within the Strait of Juan de Fuca and the Gulf Islands. These measures are outlined in Section 5.6.

13.4.2.4

As part of Chinook management measures, Fraser River recreational fisheries will remain closed to salmon fishing until open. Opportunities for species other than Chinook will be informed by in-season abundance and other conservation issues (e.g., Coho, Steelhead, etc.). Reduced fishing opportunities may be provided in tributary areas during times and locations where at-risk Chinook stocks would not be encountered and where abundance of the target species permits. See Section 13.1.4 for more information. In odd-numbered years, for Pink Salmon, this may include, but is not limited to, the following times and areas:

Fraser River, Region 5A – The waters of Quesnel River, downstrea from boundary signs at the mouth of Quesnel Canyon to the Jothnston Subdivision bridge near Quesnel, BC: September 17 to September 26.

As part of the IFR Steelhead conservation measures being implemented in 2024, a rolling window closure will be applied to the recreational fishery in the Fraser River (including Areas 29-6, 29-7, 29-9 and 29-10). No fishing for salmon will be permitted within the times and areas in

the Fraser River identified in Table 13- and in Appendix 9. Note that these recreational closures do not apply to marine recreational fisheries.

Table 13-28: IFR Steelhead Rolling Window Closure Dates for the Fraser River Recreational Fishery

Fishery	Start	End
Area 29: 29-6, 29-7, 29-9, and 29-10	19-Sep	30-Oct
Mouth to Port Mann Bridge	19-Sep	30-Oct
Port Mann Bridge to Mission	21-Sep	1-Nov
Mission to Hope	22-Sep	2-Nov
Hope to Sawmill Creek	26-Sep	6-Nov
Sawmill Creek to Lytton (Thompson Confluence)	28-Sep	8-Nov
Lytton to Texas Creek	1-Oct	11-Nov
Texas Creek to Kelly Creek	3-Oct	13-Nov
Kelly Creek to Deadman Creek	6-Oct	16-Nov
Deadman Creek to Chilcotin River	9-Oct	19-Nov
Chilcotin River	12-Oct	22-Nov
Thompson River – Thompson Confluence to Bonaparte	1-Oct	11-Nov
Thompson River – Bonaparte River to Kamloops Lake	5-Oct	15-Nov

Fishery Monitoring and Catch Reporting

Marine Waters

Catch monitoring programs including seasonal creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information in this fishery. South Coast and Lower Fraser stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

13.4.2.5.3 Commercial Fisheries

Allocation arrangements for Fraser Pink Salmon within the commercial fleet is as follows:

Table 13-29: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
Fraser	11 to 20, 29, 121, 123 to 127	82.5%	4.0%*	3.0%*	0.5%[c]	10.0%

Notes on Pink allocations (south):

[*] Pink bycatch provision required for fisheries on more abundant species

[c] potential for future re-negotiation. Pink bycatch required for fisheries on more abundant species

Fraser Commercial Pink Fisheries

There is no harvestable surplus of Fraser River Pink Salmon anticipated in 2024. There is generally an insignificant abundance of Pink Salmon that return to the Fraser River in even numbered years. Pink retention by-catch may be permitted in Fraser River fisheries directed on other salmon species.

Area B (Seine), Area H (Troll) and Area D/E (Gill Net)

No fisheries are anticipated as 2024 is an off-cycle year for Fraser River Pinks. Pink retention by-catch is permitted in Fraser River Sockeye directed fisheries.

Area G (Troll)

No fisheries are anticipated as 2024 is an off-cycle year for Fraser River Pinks. Pink retention by-catch is permitted in Fraser River Sockeye directed fisheries during more abundant years.

Fishery Monitoring and Catch Reporting

There is a mandatory harvest log and in-season reporting program for catch and other fishing information for all commercial fisheries, including "Start/Pause/Cancel/End" fishing reports. Mandatory catch reporting by phone-in is required with a paper harvest log OR electronic transmission is required with an electronic harvest log (E-log). Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required. Partial independent on-board/at-sea observer coverage and/or mandatory dockside validation may be required for Area B seine fisheries.

13.4.2.5.4 Fraser First Nations Commercial Pink Harvest

Demonstration Fisheries

No fisheries are anticipated as 2024 is an off-cycle year for Fraser River Pinks. Pink by-catch retention may be permitted in other Fraser River fisheries directed on other salmon species.

13.4.2.5.5 13.4.2.4Appendix 9Harvest Agreements

No fisheries are anticipated as 2024 is an off-cycle year for Fraser River Pinks. Pink by-catch retention may be permitted in other Fraser River fisheries directed on other salmon species.

Tsawwassen

TFN have an allocation for commercial catch outside of the Treaty as identified via the "Tsawwassen First Nations Harvest Agreement". The allocation in the Harvest Agreement (HA) does not affirm Aboriginal or Treaty rights. Fishing undertaken via the HA will be comparable to the requirements of the current Fraser River commercial fishery (First Nations economic opportunity (EO) fishery), or a general commercial fishery (e.g., Area E).

Tsawwassen fishers will be expected to operate under the same rules that apply to other fishers taking part in that Fraser River commercial fishery. No fisheries are anticipated for 2024.Appendix 9

13.4.2.5.6 Economic Opportunities

No fisheries are anticipated as 2024 is an off-cycle year for Fraser River Pinks. Pink by-catch retention may be permitted in other Fraser River fisheries directed on other salmon species.

13.4.2.45.6Appendix 9Demonstration Fisheries

No fisheries are anticipated as 2024 is an off-cycle year for Fraser River Pinks. Pink by-catch retention may be permitted in other Fraser River fisheries directed on other salmon species.

Fishery Monitoring and Catch Reporting

Lower Fraser

In the Lower Fraser, catch monitoring programs are managed through Activity Funding Agreements and Comprehensive Fisheries Agreements. While details will be finalized prior to fisheries occurring, the monitoring programs in place in recent years are as follows:

- Non-selective (e.g., gill net) EO fisheries have been monitored using a mandatory landing program (MLP) with packer and land-based sites where all fishers must land and have their catch validated. This program is supplemented by effort validation by vessel patrols and overflights.
- Selective (e.g., beach seine and purse seine) EO fisheries have required monitors to be present during all fishing activity to record catch information on a set-by-set basis.

13.4.2.5.7 ESSR Fisheries

There are no anticipated ESSR fisheries for Fraser Pink Salmon. Even if fishing opportunities are available, in some cases, full harvest targets may not be harvestable due to conservation concerns and management considerations that are identified in-season. See Section 13.4.2.4 for information on incidental harvest, bycatch and constraints to Fraser Pink fisheries.

13.4.3 EAST COAST VANCOUVER ISLAND AND MAINLAND PINKS

13.4.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

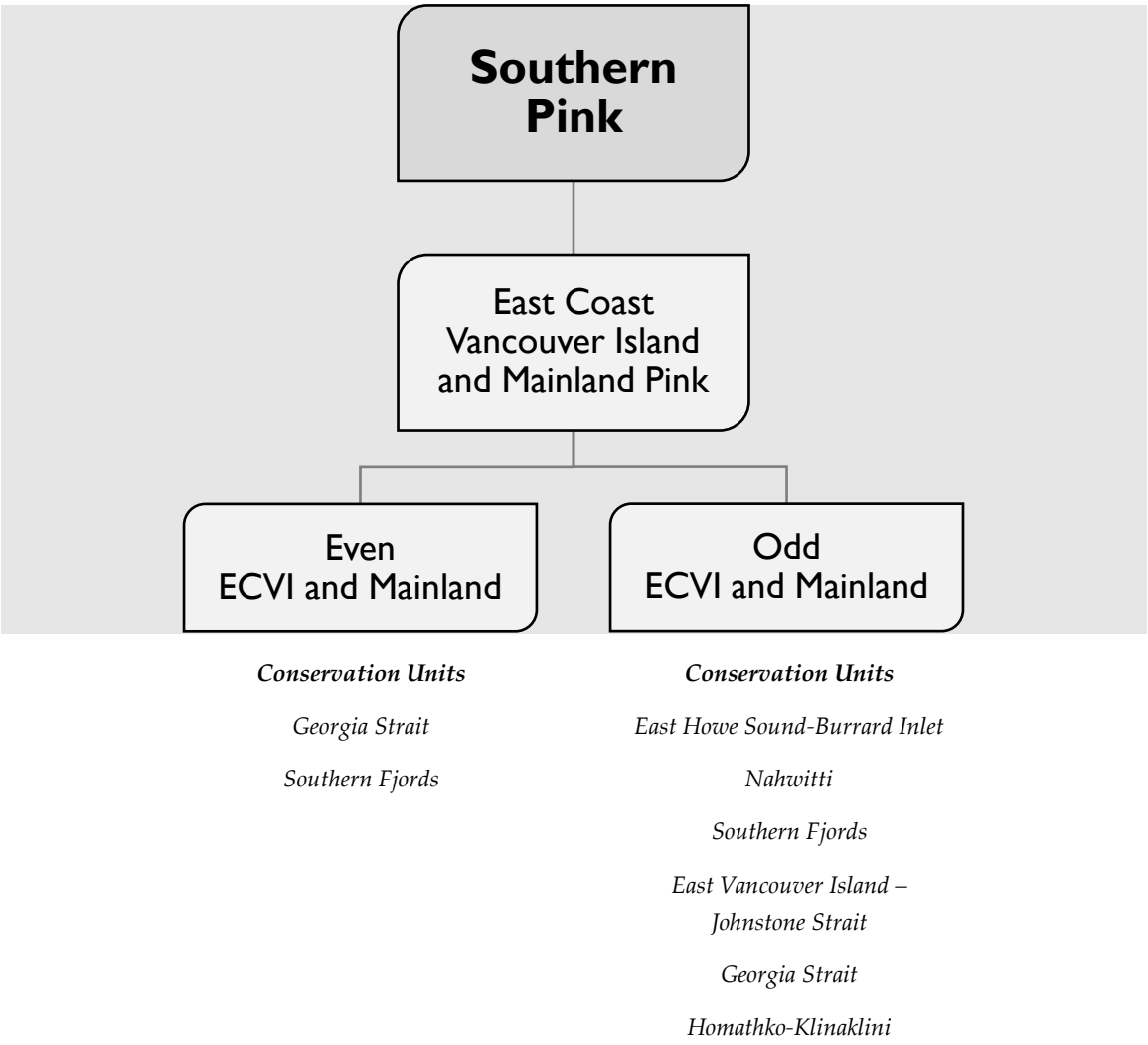


Figure 13.4-3: Conservation Units in the ECVI and Mainland Pink Salmon Management Unit (8 CUs)

East Coast Vancouver Island (ECVI) and Mainland Pinks are grouped into eight conservation units (CUs) that extend over the entire East Coast of Vancouver Island as well from Seymour Inlet South to Burrard inlet on the Mainland of British Columbia. All Pink Salmon mature at two years of age, which results in the reproductive isolation of even and odd year brood lines. Within the ISC region, there are many systems that support both even and odd year brood lines and the methods for identifying CUs take that into account. The cycle lines tend to be more even-year dominant as you shift North within the management unit and more odd-year dominant as you shift South.

These stocks are mainly harvested incidentally or as bycatch during mixed-stock Johnstone Strait Fraser River Sockeye and Pink-directed fisheries. In addition, these stocks can be harvested in Johnstone Strait test fisheries. Directed fisheries have occurred in some terminal areas, for instance portions of Howe Sound, Jervis Inlet, and Knight Inlet. Historically, the majority of commercial harvests have occurred by purse seine. Opportunities are also available for First Nations and recreational harvesters; however, effort is generally low.

The migration of these stocks to the terminal areas normally begins in early to mid-August and is usually complete by the middle to the end of September. These stocks may be managed as an aggregate early in the season (provided surpluses are expected for stocks) and then separately as they enter the terminal areas.

13.4.3.2 STOCK ASSESSMENT INFORMATION

13.4.3.2.1 Pre-season

See Appendix 10 for the full 2024 Salmon Outlook.

Table 13-30: 2024 Outlook for ECVI and Mainland Pink stocks.

Outlook Unit	2024 Outlook Category	Comments
Squamish - Odd only (CUs: East Howe Sound-Burrard Inlet; and, Georgia Strait)	ND	Squamish Pink Salmon are rebuilding; however, no target run size has been developed and available quantitative assessment information has not been reviewed. (2023 Outlook Category was 'ND')

Outlook Unit	2024 Outlook Category	Comments
Areas 11 to 13 - Odd & Even	2 (NEVI and Area 12 Mainland Inlets); 3 (Area 13)	Since 2019, there have been observations of some key Area 12 Mainland Inlet systems. The Outlook for 2024 is for continued low abundance but rebuilding populations on North Vancouver Island and the mainland inlets, and continued strong returns for Southern Johnstone Straits and the Strait of Georgia. **Even Year**: 2022 saw improved returns throughout the South Coast with generally improved returns to systems on Vancouver Island and in the Mainland Inlets. Returns were below the long-term average for the mainland, but most systems exceeded the recent (3 cycle) generational average. **Odd Year**: 2023 saw varied returns throughout South Coast. Generally, Northern Vancouver Island was well below the historical adult abundance, although with clear signs of improvement since escapement hit its lowest point in 2016/2017. In contrast, the Mainland Inlets in Area 12 saw continued poor escapement of Pink salmon. Expectations north of the Adam River are for continued improvements in 2025, but returns are unlikely to exceed the long-term average escapement. Strong adult counts in other areas of the South Coast, particularly from Adam River south to Jervis Inlet, as well as promising fry counts from the Quinsam River suggest that we will see average to above average escapements for systems south of Adam River. Historically, Pink returns to this area have been highly variable and expectations continue to be highly uncertain. (2023 Outlook Category was '2/2'; 2022 Outlook Category was '2/3')
Georgia Strait - West - Odd & Even	3	These are primarily odd-year dominant Pink stocks. Returns in 2023 were above the odd-year 3 generation average and generally above brood returns in 2021 with the exception of Nanaimo River and Puntledge River. Assuming similar marine survival, the outlook for 2024 is for near average returns. Due to the high variability of Pink Salmon, these expectations are highly uncertain. (2023 Outlook Category was 3; 2022 Outlook Category was 2)

Outlook Unit	2024 Outlook Category	Comments
Georgia Strait - East - Odd & Even	3	These are primarily odd-year dominant stocks. Assessment information on Pink Salmon in this area is limited, especially in even years. Returns in 2022 were well below the even-year 3 generation average but rebounded in 2021 to near average, largely impacted by very low water in systems during pink escapement timing. Assuming moderate marine survival, 2024 returns are expected to be near the low even-year average. Due to the high variability of Pink Salmon, these expectations are highly uncertain. (2023 Outlook Category was '3'; 2022 Outlook Category was '2/3')

Historically Pink returns have been highly variable and expectations are highly uncertain.

13.4.3.2.2 In-season

Historically, weekly assessments to determine abundance and potential fishing opportunities have been based on over-flights, on-grounds surveys of the terminal areas and in some years, limited effort seine, gill net, and troll assessment fisheries. Assessment plans for the upcoming season have not yet been developed and are typically dependent on funding availability, outlook category and early in-season indications of abundance through other programs such as Fraser Sockeye directed test fisheries.

13.4.3.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

13.4.3.3.1 In-season Decisions

Commercial representatives are consulted in-season through area harvest committee advisory bodies. The following considerations will guide commercial fisheries management decisions:

- Commercial fishing opportunities are generally not considered until at least 30% to 40% of target escapements are in the river or are identified in terminal sanctuary areas, and there is evidence that a significant proportion of the return has not yet entered the river or sanctuary area.

- A cautious approach to managing Pink stocks in terminal areas will continue based on uncertainty in returns. There may be the requirement for increased monitoring subject to in-season information.
- Pink-directed fisheries will generally be restricted to approach waters and terminal areas.
- Fishing occurs during daylight hours only.
- Fishing boundaries may be established to minimize encounters of Chinook, Coho, Sockeye and Chum, and to ensure escapement targets are reached.
- A boundary may be implemented in Upper Knight Inlet to conserve weaker Pink stocks.
- Limited participation commercial fisheries may occur. This will be confirmed in-season based on assessment information.

13.4.3.4 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO ECVI AND MAINLAND PINK FISHERIES

The abundance of these stocks can be highly variable and there are difficulties in assessing these stocks due to glacial water conditions and limitations of available assessment methods. The funding for in-season assessment of ECVI and Mainland Pink stocks is currently uncertain; fisheries directed on these stocks are contingent on in-season assessment information.

13.4.3.5 ALLOCATION AND FISHING PLANS

13.4.3.5.1 First Nations Fisheries

Food, Social and Ceremonial Fisheries

The majority of the Pink harvest occurs incidentally while harvesting co-migrating Sockeye Salmon and in years of low Sockeye abundance.

First Nations opportunities to harvest salmon for food, social and ceremonial purposes are provided through communal licences issued by DFO. The allocation for Pink Salmon (Fraser and Mainland Inlets combined) from South Coast marine waters is 60,000. In addition to these FSC fisheries, First Nations access Pink Salmon through ESSR harvests at hatchery facilities. In recent years, harvest opportunities have been available at Big Qualicum and Quinsam River Hatchery facilities.

Refer to Section 10.2 for Table 10- - Communal Licence Harvest Target Amounts in Southern B.C./Fraser River First Nations Fisheries.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations are asked to keep records of harvest and provide catch information to DFO in a variety of formats. Under this licence, if a commercial vessel is used for fishing, First Nations are asked to provide information respecting the species and quantity of fish harvested by this vessel, to the DFO Catch Reporting Officer within 24 hours from landing harvested catch. In addition, catch reporting timelines for First Nations fisheries are outlined in Comprehensive Fisheries Agreements and/or Aboriginal Communal Fishing Licences. Where in-season management requires, catch reports are sought weekly during the respective fishing season.

Treaty Fisheries

Tla'amin (Domestic)

The Domestic allocation for Pink Salmon under the Tla'amin Final Agreement is as follows:

In any year, the Tla'amin Fish Allocation for Pink Salmon is a maximum of 5,000 Pink Salmon. The allocation will be determined by an abundance-based formula.

The Tla'amin Nation provides catch reports to the Department through the Aboriginal Harvest Management System (AHMS). The information recorded on catch reports includes the gear type, fishing time period, location of harvest, harvest count by species, harvest effort, and biological samples.

13.4.3.5.2 Recreational Fisheries

The Pink Salmon returning to the Mainland Inlets provide recreational fishing opportunities in inside waters of the South Coast. Mainland Pinks typically return in dominant even-year cycles, and fisheries targeting Mainland Pinks take place primarily in Johnstone Strait and terminal areas in the Mainland Inlets.

East Coast Vancouver Island stocks are less abundant and little effort and harvest takes place on these stocks, apart from the Quinsam and Campbell Rivers where Pinks can return in abundance. Freshwater recreational fishery effort has increased in recent years, in particular at the Quinsam and Campbell Rivers where high returns have occurred.

Marine recreational Pink fisheries typically take place in August, and updates are provided via Fishery Notice and published on the recreational fisheries website: http://www.bcsportfishingguide.ca. The normal daily limit is four (4).

Recreational Pink fisheries targeting Mainland Pink stocks and hatchery returns to the Quinsam and Campbell Rivers are anticipated in 2024.

Fishery Monitoring and Catch Reporting

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information in this fishery. South Coast and Lower Fraser stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

13.4.3.6 COMMERCIAL FISHERIES

13.4.3.6.1 Allocations

Table 13-31: Commercial Allocation Implementation Plan for the 2015–current period

Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
12 to 13 (mainland inlets only)	73.0%	9.0%	0.0%	0.0%	18.0%

ECVI and Mainland Commercial Pink Fisheries

Fishing opportunities may be considered if stocks appear to be returning in sufficient abundance. Commercial harvest opportunities are dependent on run timing, but typically occur between mid-August and mid-September. The areas typically fished are outlined below and may be updated in-season.

If there are fisheries proceeding in 2024, they will be occurring in terminal areas outside of the migratory path of IFR Steelhead and will thus not be impacted by 2024 IFR Steelhead conservation measures. These areas are outlined in Appendix 9.

Area B Seine

Fishing areas in Thompson Sound, Bond Sound and Jervis Inlet.

Area B seine has submitted Commercial Salmon Allocation Framework (CSAF) Demonstration fishery proposals to explore targeted Pink fisheries directed at more abundant Pink Salmon stocks returning to the South Coast Area, and plan to continue to explore options for limited fleet participation, limited catch and/or limited area, while limiting impacts to comigrating stocks.

Area D Gill Net

Fishing in the approach areas to Thompson Sound and Bond Sound (details to be determined in-season).

Area E Gill Net

Fishing areas in Jervis Inlet.

Area H Troll

Fishing areas in Jervis Inlet and the terminal approach areas of Thompson Sound, however boundaries will be determined in-season. Coho sensitive areas may remain closed.

Area H troll has submitted Commercial Salmon Allocation Framework (CSAF) Demonstration fishery proposals to explore targeted Pink fisheries directed at more abundant Pink Salmon stocks returning to the South Coast Area, and plan to continue to explore options for limited fleet participation, limited catch and/or limited area, while limiting impacts to comigrating stocks.

Fishery Monitoring and Catch Reporting

There is a mandatory harvest log and in-season reporting program for catch information for all commercial fisheries.

- Mandatory requirement to file fishing reports in all commercial fisheries, including "Start/Pause/Cancel/End" fishing reports.
- Mandatory catch reporting by phone-in is required with a paper harvest OR electronic transmission is required with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the Conditions of Licence for each gear type. Additional requirements are in place for providing biological samples as required.

ECVI and Mainland Pink Demonstration Fisheries

Area B seine and Area H troll fishing opportunities will depend on in-season information.

If there are fisheries proceeding in 2024, they will be occurring in terminal areas outside of the migratory path of IFR Steelhead and will thus not be impacted by 2024 IFR Steelhead conservation measures. These areas are outlined in Appendix 9.

ECVI and Mainland First Nations Commercial Pink Harvest

Demonstration Fisheries

A-Tlegay Fisheries Society has submitted Commercial Salmon Allocation Framework (CSAF) Demonstration fishery proposals to explore targeted Pink fisheries directed at more abundant Pink Salmon stocks returning to the South Coast Area, and plan to continue to explore options for limited fleet participation, limited catch and/or limited area, while limiting impacts to comigrating stocks.

13.4.3.6.2 Economic Opportunities

There are no economic opportunity arrangements or harvest agreements in this area.

13.4.3.6.3 ESSR Fisheries

ESSR fisheries may occur at DFO hatchery facilities that have a surplus of returning hatchery Pinks. In recent years, Pink ESSR fisheries have taken place at:

Quinsam River Hatchery

Weaver Spawning Channel

Big Qualicum River Hatchery

13.4.4 WCVI PINK SALMON

13.4.4.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

This section of the IFMP is under development and further information will be provided in a future year. There are no directed commercial fisheries on WCVI Pink Salmon planned for 2024. Pink non-retention in recreational fisheries is in place for in-shore areas of the WCVI.

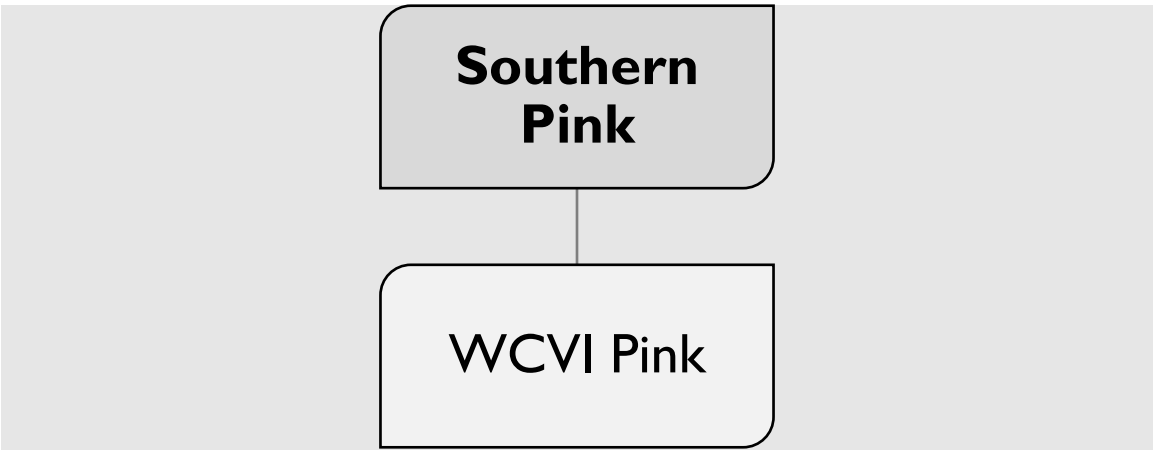
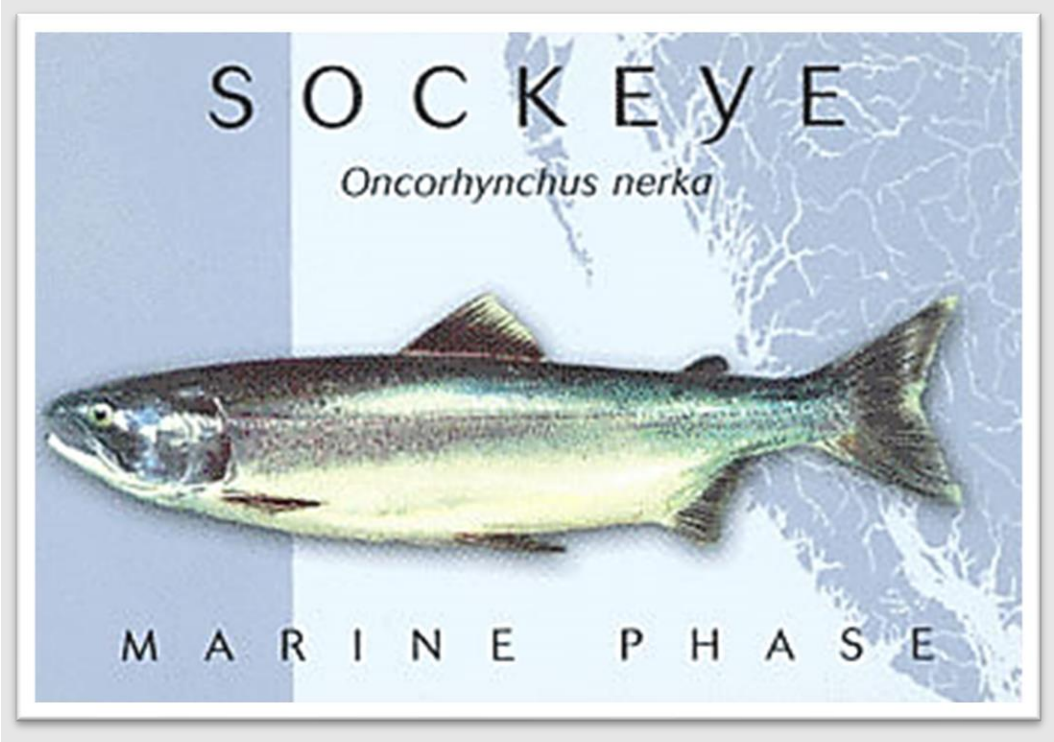


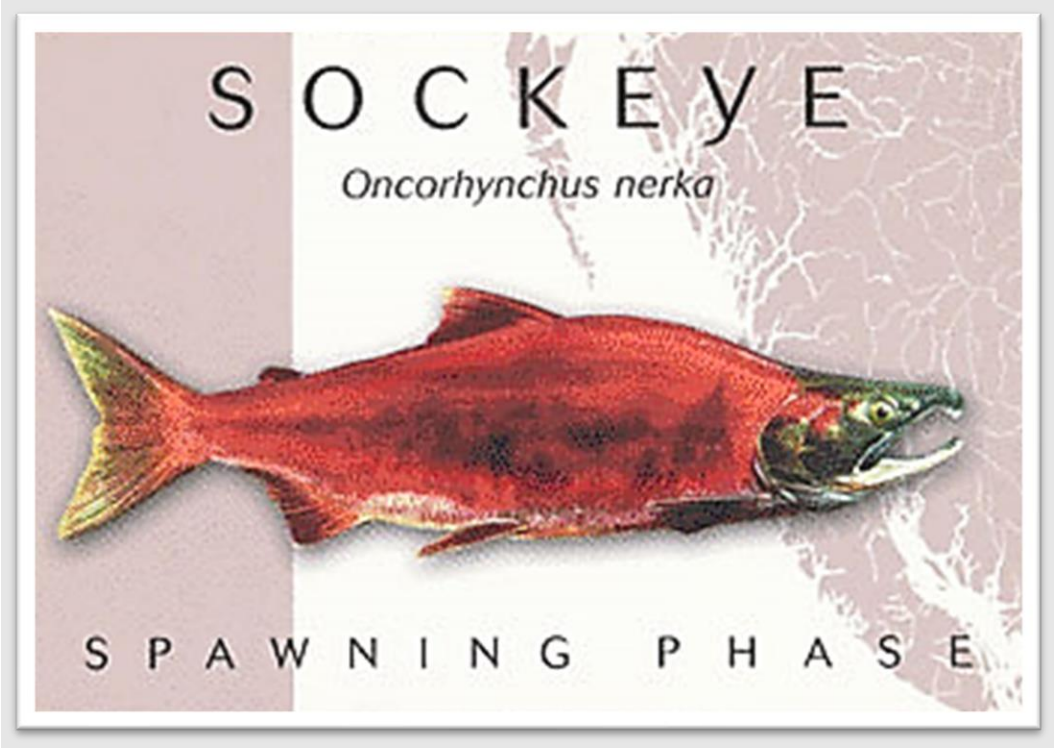
Figure 13.4-4: Conservation Units in the WCVI Pink Salmon Management Unit (1 CUs)

Conservation Units

Northwest Vancouver Island - Even

13.5 SOUTHERN SOCKEYE SALMON FISHING PLAN





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13.5.1 SOUTHERN SOCKEYE - OVERVIEW

In southern BC, Sockeye Salmon stocks are found primarily in tributaries of the Fraser River and in streams throughout Vancouver Island and the mainland. For southern Sockeye, returns to Barkley/Somass (WCVI), Fraser River and Okanagan are actively managed and detailed information is provided below outlining management of these populations. Information on smaller Sockeye populations in the WCVI-other Sockeye unit is under development and further information will be provided in a subsequent year.

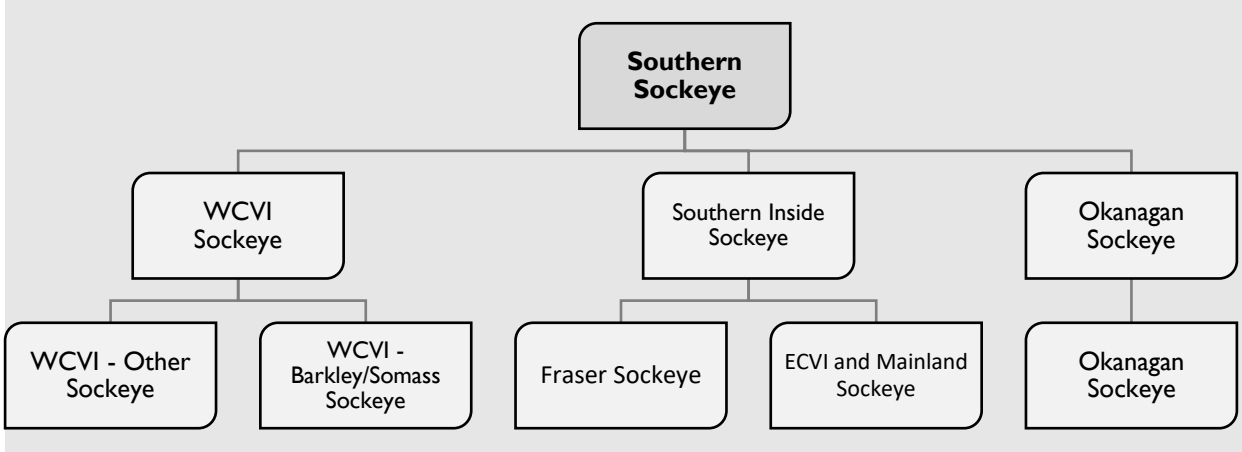


Figure 13.5-1: Southern Sockeye Overview

13.5.1.1 SOCKEYE ENHANCEMENT INFORMATION

The DFO major operation enhancement facilities that produce Sockeye are:

South Coast Area:

Rosewall Creek hatchery

Fraser River Area:

Inch Sockeye Satellite

Gates Spawning Channel – *not operating in 2024*

Horsefly Spawning Channel – *not operating in 2024*

Nadina Spawning Channel

Weaver Spawning Channel

Shuswap Falls hatchery

SEP Production Plans

There are three datasets available: **Post-Season Production** from the 2021 brood year (i.e., 2022 and 2023 releases), **Post-Season Production** from the 2022 brood year (i.e., 2023 releases, and numbers on hand for 2024 release), and the **2024 Production Plan**, which includes proposed targets for the upcoming 2024 brood year. These are available at the following website:

IFMP SEP Data Tables | Pacific Region | Fisheries and Oceans Canada (dfo-mpo.gc.ca)

13.5.1.2 SOUTHERN BC SOCKEYE – SEP PROPOSALS OR UPDATES FOR 2024

Big Bar Landslide Response Enhancement

DFO and Upper Fraser First Nations continue to work together to plan and implement hatchery production of Sockeye populations affected by the Big Bar landslide. Natal stream broodstock collection for Early Stuart, Bowron, and Taseko Sockeye is proposed for 2024 at a level supported by in-season abundance estimates. Returns are anticipated to be very low due to the impacts of the slide on the 2019 and 2020 brood years. Incubation and rearing of Early Stuart Sockeye will take place at Takla and Nak'azdli hatcheries; Bowron Sockeye and Taseko Sockeye will be reared at Shuswap Falls hatchery. In addition, Early Stuart captive brood adults from the 2020 and 2021 brood years will be maturing as 3 and 4 year olds in 2024, and will produce gametes to supplement the 2024 broodstock collection.

Sakinaw Sockeye Enhancement

Yearling releases in addition to fed fry releases represented by groups of PIT tags from Sakinaw Lake, as well as a yearling release from a remote site are intended to investigate factors limiting recovery. A PSSI funded project is also underway to investigate the feasibility of transporting smolts several kilometres away from nearshore predators to improve survival.

13.5.2 OVERVIEW OF WCVI SOCKEYE

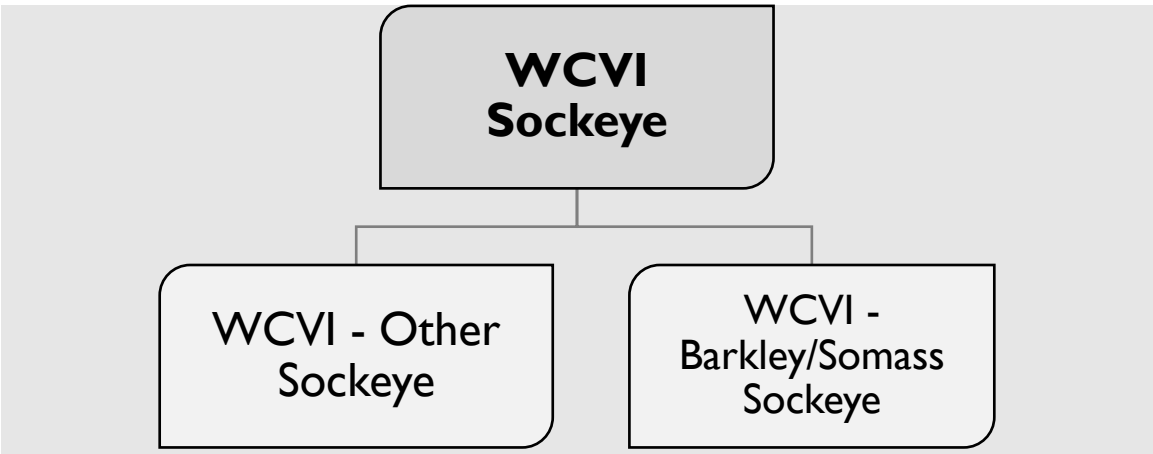


Figure 13.5-2: Overview of WCVI Sockeye

The WCVI Sockeye Management Unit consists of several Sockeye conservation units; including 'lake- type' and 'river type Sockeye. Area 23 stocks are currently the only Sockeye populations in the WCVI management unit with sufficient production to support directed fisheries from all sectors. Some other stocks are harvested by local First Nations for FSC and treaty domestic use.

13.5.3 WCVI BARKLEY/SOMASS SOCKEYE

13.5.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

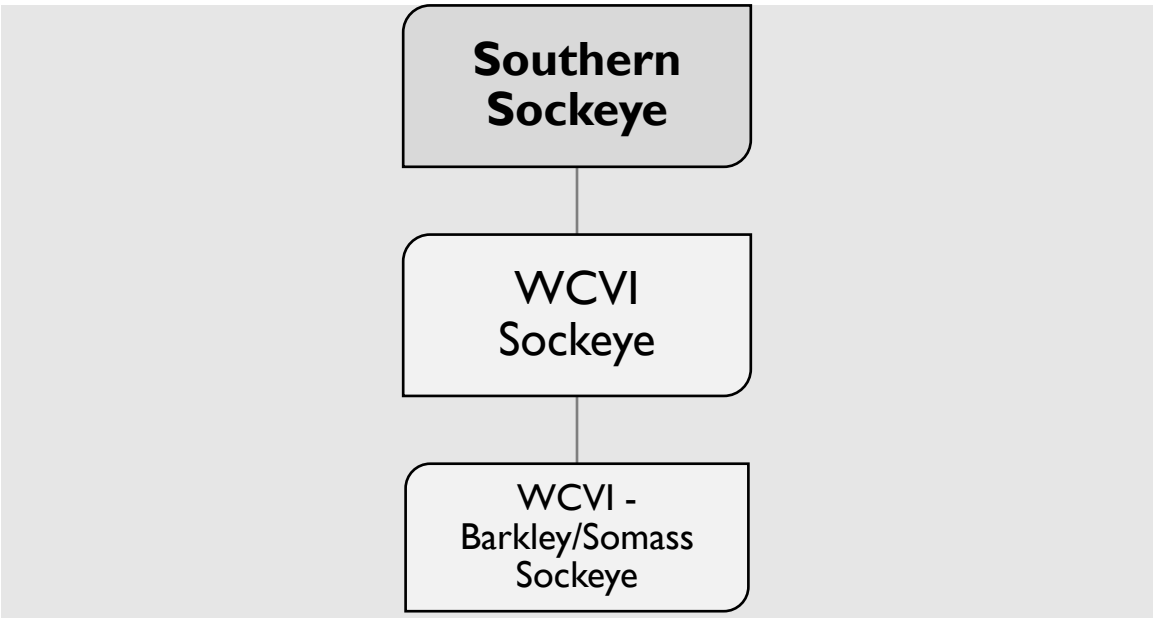


Figure 13.5-3: Overview of WCVI Barkley/Somass Sockeye

There are three major Sockeye stocks in Area 23, of which Great Central and Sproat Lake stocks are the largest. The combined production from these two lakes averages about 760,000 annually and accounts for more than 90% of the total Sockeye run to the area. Henderson Lake supports a smaller but substantial Sockeye run averaging about 30,000 over the past 30 years. However, in many recent years the abundance of Henderson Sockeye has been low and fisheries are managed to limit interceptions of this stock. There is a much smaller lake-type population in Maggie Lake as well as small populations of 'creek-type' Sockeye observed in Carnation Creek, Effingham River, Nahmint River, Sarita River and Toquart River.

Area 23 Sockeye fisheries are managed through a "co-management" process via the Area 23 Harvest Committee. Members of the Area 23 Harvest Committee include representatives from local First Nations, fishery advisory committees and local stewardship groups. The Area 23

Harvest Committee serves both a plenary function and a consensus decision-making function. This format allows for improved planning of local fisheries and better conflict resolution among harvesters. The Area 23 Harvest Committee has developed a detailed Area 23 Sockeye Local Integrated Fisheries Management Plan that describes the basis of the management and assessment of the Area 23 Sockeye fisheries and harvest plans for each sector. This plan is used to guide an in-season decision making process during which assessment results are reviewed and weekly harvest plans are determined. An overview of the fishery implementation is provided below.

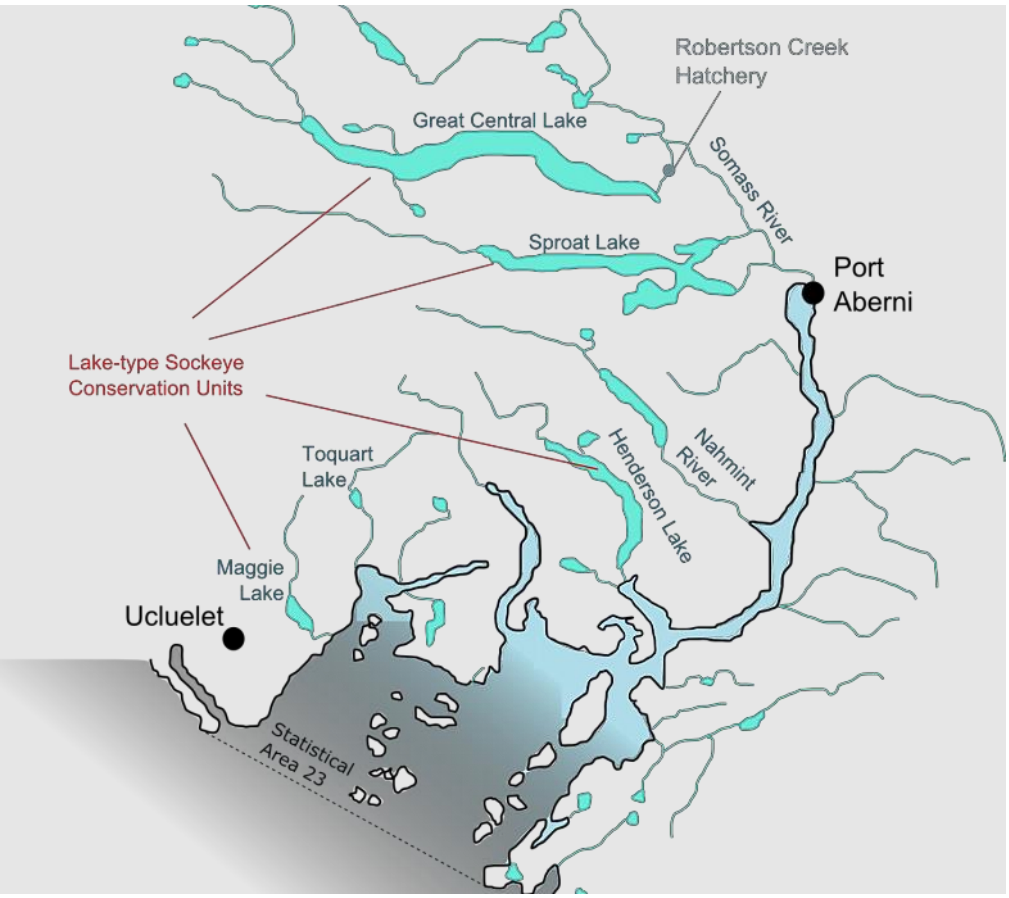


Figure 13.5-4: Barkley Sound and Alberni Inlet - Major features and salmon conservation units

13.5.3.2 ENHANCEMENT INFORMATION

For two of the major stocks, enhancement activities have been used to increase production. Great Central Lake was fertilized initially from 1970 to 1973 and then annually since 1977. Henderson Lake was fertilized from 1979 to 1999. Sproat Lake was fertilized once in 1985;

however, the program was discontinued due to resulting algae blooms. In addition to lake fertilization efforts, a hatchery at Henderson Lake operated by the Uchucklesaht First Nation released fed Sockeye fry annually from 1992 to 2007. Total hatchery production ranged from about 70,000 to 2,300,000 fry depending on the year. The contribution of the hatchery to the Henderson Lake Sockeye return was not assessed annually. However, for two brood years when the population was marked the hatchery contribution was variable.

Stable funding for stewardship activities such as habitat restoration and lake fertilization was identified as a priority by the Harvest Committee. In support of this priority, the commercial sector provides the proceeds from up to 15K Sockeye out of the commercial harvest to support stewardship activities annually.

There is currently no hatchery supplementation of these stocks.

13.5.3.3 STOCK ASSESSMENT INFORMATION

13.5.3.3.1 Pre-season

Statistical models are used to forecast Sockeye returns to Great Central and Sproat Lakes using correlates of early marine survival and observations of brood year survival (i.e., from earlier returning age classes).

Forecasts generated from all methods are compared and based on their correspondence, their relative accuracy at predicting past returns, and other relevant information a single management forecast is produced for both stocks. The management forecast is used to guide early season fisheries until the run size is estimated based on in-season observations.

The 2024 pre-season is not available for the draft IFMP but will be included in the Final IFMP.

13.5.3.3.2 In-season

Stock assessments are conducted during the migration period using data compiled from escapement counts and fisheries. The objectives of the assessments are to 1) update pre-season run size forecasts for Great Central and Sproat Lake (Somass) Sockeye based on in-season observations and 2) evaluate harvest and escapement levels relative to targets. The assessments are conducted weekly starting from mid-June to early August. While there is typically not enough in-season information to revise the outlook for Henderson Lake Sockeye, catch of Henderson Sockeye in Area 23 fisheries is monitored using stock composition analysis from DNA samples.

Table 13-32: Planned Sockeye Test Fisheries.

All dates subject to change based on in-season factors. In-season information from initial TF is important for determining timing of subsequent TFs.

Test Fishery	Proposed Proponent	Test Fishery Purpose	Potential Dates (preliminary)	
			Start	End
Barkley Sound SN	Hupacasath / Tseshaht	Somass Sockeye	June 5	Sep 13

See Section 7.2.3 for entire table for the 2023 proposed test fisheries.

13.5.3.4 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Annual harvest plans are developed to meet the following objectives:

- Achieve the escapement (and corresponding harvest rate) associated with the forecast run size;
- Limit impacts on non-target stocks and species and stocks of concern;
- Meet allocation priorities;
- Distribute the TAC over the duration of the fishing season to maintain the biological diversity of the population (i.e. to maintain a diverse contribution of various age and run timing classes);
- Reduce gear conflict among harvest sectors;
- Maximize the value of harvest;
- Provide for stability and predictability of harvest opportunities;
- Provide assessment information (e.g. catch-per-unit-effort (CPUE) abundance indices, stock and age composition sampling);
- Allow sufficient flexibility to respond to changes in fish behavior / migration caused by environmental conditions through the Area 23 Harvest Committee in-season decision-making process; and
- Allow for the in-season adjustment of the harvest rate when the proportions of one of the target stocks (Great Central Lake or Sproat Lake) is much lower than the

other, resulting in the escapement of one of the stocks falling below the Upper Biological Benchmark.

The Area 23 local Sockeye management plan further details management assumptions, actions and scenarios used to guide in-season decision-making.

13.5.3.5 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS

Environmental Conditions

In-season harvest planning is complicated by environmental conditions such as low water levels and high-water temperatures that impact migration timing and behavior of the fish.

Henderson Lake Sockeye

With the exception of Maa-nulth Treaty fisheries, Henderson Sockeye are not targeted in Area 23 Sockeye fisheries, although they are intercepted. In recent years, Maa-nulth fisheries targeting Henderson Sockeye have been voluntarily curtailed under a Somass Sharing Arrangement. The status of Henderson Sockeye determines the allowable interception rate of Henderson Sockeye in Area 23 Sockeye fisheries. In-season adjustments to reduce impacts to Henderson Sockeye may be necessary if higher harvest rates occur. Additional planning with the Area 23 Harvest Committee will develop guidelines to continue improving the management of Henderson, Great Central Lake and Sproat Lake Sockeye stocks.

New for 2024: San Mateo Bay will be closed to the retention of Sockeye in recreational fisheries from June 30 to October 31, 2024 to provide additional protection for Henderson Sockeye.

13.5.3.6 ALLOCATION AND FISHING PLANS

Assessment results and management issues are reviewed weekly through the Area 23 in-season assessment and management process. Fishing plans are developed based on the Area 23 Sockeye Local Integrated Fisheries Management Plan. The management table for the Somass stocks below shows the escapement and harvest rate targets and allocations by run size. The management table for Henderson Sockeye below defines fishery reference points for that stock.

All fisheries are managed to achieve the harvest rate that will result in the escapement target associated with the forecast run size. Methods used to control the harvest rate of the fisheries depend on the gear type. The primary method used to manage catch of First Nations and

commercial net fisheries is limiting effort (i.e., the duration of the opening and/or number of participating vessels). The level of effort is determined by an overall weekly catch target. Secondary controls may also be used in net fisheries, such as closing an area with a concentration of holding fish that are particularly vulnerable to the gear. The primary control to manage the catch of recreational fisheries is through daily limits, which vary according to run size. Secondary controls, such as time and area closures, are also used.

For all fisheries, seasonal closures are in place and in years of low abundance the opening time may be delayed or shortened.

Table 13-33: Somass Sockeye management table

MANAGEMENT ZONE	1 - Critical	2 - Very Low		3 - Low		4 - Moderate		5 - High		6 - Abundant	
RUN SIZE	Less than 170,000	200,000 to 350,000		350,000 to 500,000		500,000 to 700,000		700,000 to 1,000,000		1,000,000 to 1,800,000	
REFERENCE POINT		low end	high end	low end	high end	low end	high end	low end	high end	low end	high end
ESCAPEMENT GOAL	Up to 170,000	170,000	262,500	262,500	325,000	325,000	350,000	350,000	400,000	400,000	540,000
HARVEST RATE	0	15%	25%	25%	35%	35%	50%	50%	60%	60%	70%
MAANULTH FIRST NATIONS	0	5,000	13,250	13,250	15,853	15,853	20,876	20,876	22,886	22,886	22,886
RECREATIONAL (expected catch)	0	4,000	21,000	21,000	45,000	45,000	63,000	63,000	90,000	90,000	100,000
TSUMASS TOTAL ALLOWABLE CATCH	0	12,800	31,363	31,363	45,516	45,516	81,881	81,881	145,425	145,425	300,811
COMMERCIAL SEINE	0	0	10,133	10,133	33,378	33,378	99,746	99,746	194,213	194,213	487,982
COMMERCIAL GILLNET	0	3,200	6,755	6,755	22,252	22,252	66,497	66,497	129,475	129,475	325,321

Table 13-34: Management zones for Henderson Lake Sockeye

MANAGEMENT ZONE	1 - Very Low	2 - Low		3 - Moderate		4 - High		5 - Abundant	
RUN SIZE	up to 15,000	15,000 to 25,000		25,000 to 45,000		45,000 to 60,000		60,000 to 150,000	
REFERENCE POINT		low end	high end	low end	high end	low end	high end	low end	high end
ESCAPEMENT TARGET	up to 12,750	12,750	20,000	20,000	31,500	31,500	36,000	36,000	75,000
HARVEST RATE	<15%*	15%	20%	20%	30%	30%	40%	40%	50%

* incidental catch only

13.5.3.6.1 First Nations Fisheries

Food Social and Ceremonial

The Tseshaht and Hupacasath First Nations target Somass Sockeye for FSC purposes in Area 23. Harvest occurs in the Somass River and upper Alberni Inlet.

Refer to Section 10.2 for Table 10- - Communal Licence Harvest Target Amounts in Southern BC/Fraser River First Nations Fisheries.

Mandatory and voluntary measures have been implemented to support prey availability and reduce disturbance to Southern Resident Killer Whales, including within southern BC waters and key foraging areas within Strait of Juan de Fuca and the Gulf Islands. These measures are outlined in Section 5.6.

Treaty Fisheries

Maa-nulth Nations Domestic Harvest

Maa-nulth First Nations (Huu-ay-aht, Toquaht, Uchucklesaht, Yu?łu?iɬ?ath̓ (Ucluelet), Ka:'yu:'k't'h'/Che:k:tles7et'h' (Kyuquot Sound)) are allocated a portion of the catch of Sockeye returning to Henderson Lake as well as the Somass River through a modern treaty (the Maa-nulth First Nations Final Agreement). Individuals within the Nations are designated to harvest using a variety of gear; from smaller vessels using hook and line to larger, higher capacity

vessels using commercial type gear (e.g. gill net and seine). The Maa-nulth may also designate vessels operated by non-members (e.g. commercial vessels) to fish on behalf of the Nations. The Maa-nulth fishery protocols are reported in the Fisheries Operational Guidelines and the Supporting Documents associated with the Final Agreement.

The Domestic allocations for salmon under the Maa-nulth First Nations Final Agreement are as follows:

Sockeye Salmon

> Each year, the Maa-nulth Fish Allocation for Sockeye Salmon is an amount of Somass Sockeye salmon equal to:
>
> When the Somass Sockeye Canadian Total Allowable Catch is 50,000 or less, 20% of the Somass Sockeye Canadian Total Allowable Catch;
>
> When the Somass Sockeye Canadian Total Allowable Catch is greater than 50,000 and less than or equal to 85,000, then 10,000 plus 10% of that portion of the Somass Sockeye Canadian Total Allowable Catch that is greater than 50,000 and less than or equal to 85,000;
>
> When the Somass Sockeye Canadian Total Allowable Catch is greater than 85,000 and less than or equal to 412,421, then 13,500 plus 2.87% of that portion of the Somass Sockeye Canadian Total Allowable Catch that is greater than 85,000 and less than or equal to 412,421;
>
> When the Somass Sockeye Canadian Total Allowable Catch is greater than 412,421, then 22,886; and
>
> An amount of Henderson Lake Sockeye salmon equal to 26.85% of the Henderson Lake Total Allowable Catch up to a maximum of 17,055 pieces.

Please note that the Maa-nulth Treaty includes provisions for accumulating allocation underages and/or overages. In consultation with DFO and the Area 23 Roundtable, Maa-nulth Nations may address these underages and/or overages through pre-season fishing plans that deviate from annual allocations described above.

Fishery Monitoring and Catch Reporting

Maa-nulth Nations Domestic Harvest

The Maa-nulth First Nations have developed a harmonized catch monitoring system based on complete catch accounting and reporting using standardized catch reporting books and the

Maa-nulth Electronic Reporting Program (MERP) developed by DFO. Catch is estimated by summing individual logbook catch from each harvester as reported through the MERP database. Catch estimates are stratified by time (duration of the opening) and by area (DFO Subarea 23-1 to 23-11). Effort is estimated by summing individual fishing trips as reported through the MERP database. Effort estimates are stratified by time (duration of the opening) and by area (Subarea 23-1 to 23-11).

13.5.3.6.2 Recreational Fisheries

In most years, Somass Sockeye returns support Sockeye directed recreational fishing opportunities in Barkley Sound, Alberni Inlet and the Somass River. Recreational Sockeye fisheries typically commence May 1. The normal daily limit is 4 Sockeye per day in marine waters and 2 Sockeye per day in the tidal portions of the Somass River. A small portion of the freshwater section of the Somass River typically opens to one per day. **New for 2024**, DFO is considering aligning the open portion of the Somass River with Somass Park to simplify boundary regulations.

Initial daily limits for recreational fisheries will be determined based on the pre-season forecast; fishing opportunities are subject to in-season management changes depending on abundance. Fishery updates are provided via Fishery Notice and published on the recreational fisheries website: http://www.bcsportfishingguide.ca

Recreational harvesters in possession of a valid tidal waters recreational license (or a valid provincial freshwater recreational licence if fishing in freshwater) and salmon stamp may participate in the fishery.

The average daily participation is about 150 vessels per day over the duration of the fishing season (e.g., June through July). However, the level of effort varies depending on the timing and catch-per-unit effort. In moderate to abundant run size years and during the peak of the migration, daily effort is typically between 250 to 450 individual vessels with observations of up to 600 vessels during peak weekend periods. There are typically 2 to 3 individual harvesters on each vessel.

Fishery Monitoring and Catch Reporting

The WCVI Creel Survey generates recreational catch and effort statistics by area and species. Unlike logbook-based catch and effort estimates, which require full reporting, the creel survey employs sampling techniques using independent creel surveyors. In order to estimate catch and effort within a coefficient of variation (CV) of 10%, the survey objective is to interview 10% of the landings and conduct a minimum of 8 effort counts per month per area.

The WCVI Creel survey does not cover fisheries in non-tidal waters. **New for 2024,** DFO is considering implementing a non-tidal creel survey on the Somass/Stamp River.

Fishery Monitoring Plan

The creel survey combines angler surveys and aerial boat counts to estimate recreational catch.

Anglers are interviewed at the end of fishing trips to provide both average catch by species and average fishing times, while the aerial counts from chartered aircraft capture 'instantaneous' snapshots of the number of recreational boats fishing at the time of the flight. The fishing times obtained through angler interviews are used to generate a daily profile of fishing activity which is used to expand the 'instantaneous' aerial counts of boats fishing to an estimate of the total number of boats fishing that day. In the most basic sense, the estimate of the number of boats fishing is multiplied by the average catch by species to estimate the total catch by species on that day.

By adopting a stratified random sampling design for angler interviews and aerial counts, unbiased estimates of daily catch rate are obtained and then expanded to generate monthly estimates. The estimates are stratified by day type (weekday vs. weekend), location (by creel sub-area) and time (monthly and time of the day).

For the Area 23 Sockeye fishery, designated survey sites include Clutesi Ramp and China Creek, plus others in Barkley Sound. The survey operates from mid-June to mid-September.

The internet recreational effort and catch (iREC) reporting program is used to generate estimates outside of the creel survey period.

13.5.3.6.3 Commercial Fisheries

Allocation

Table 13-35: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Local	23	60.0%	40.0%	0.0%	0.0%[c]	0.0%

Notes on Sockeye allocation (south):
[c] potential for future re-negotiation

WCVI Barkley/Somass Commercial Sockeye Fisheries

Commercial harvesters in possession of an Area B seine net licence or Area D gill net licence may participate in this fishery. Opportunities for directed harvest are anticipated in 2024. Normally, fishing opportunities for all net fleets in Area 23 occur from mid-June to early August.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Area B Seine

Since 2002, Area B harvesters have fished Area 23 Sockeye with a weekly catch target that is shared among the Area B licence holders. The number of vessels participating in any given opening is limited and depends on the weekly quota available. The intention of defining a weekly catch target is to provide opportunities for seine harvest that otherwise would not be available under a derby fishery model (i.e., for smaller run sizes or during early season fisheries). Prior to any scheduled opening, the Area B Seine Association provides the local area fishery manager with a list of harvesters designated to fish in that opening. The list is determined based on Area B Association protocol. The opening will not proceed if vessels outside the designated list are present in the fishing area due to the risk of additional effort exceeding the allowable harvest rate.

Area D Gill Net

The Area D Sockeye fishery operates throughout Area 23 (notwithstanding conservation closures). However, typically early season commercial gill net fisheries are restricted to the "outside" portion (Barkley Sound) seaward of Pocahontas Point to reduce gear conflict within Alberni Inlet. In July, the fishery is restricted to the "inside" portion (Alberni Inlet) in order to reduce interceptions of later migrating Henderson Sockeye, which are vulnerable in the outside area.

Scheduled openings occur typically during the day between the hours of 06:00 and 20:00 in June. In July when the fleet is moved inside Alberni Inlet openings are more variable in timing depending on weekly catch targets. The fishing area and allowable effort (timing, number and length of openings) are used as harvest controls.

Fishery Monitoring and Catch Reporting

Area B Seine

Catch is estimated by summing individual harvest log catch from each harvester as reported through the FOS (Fishery Operating System) database. Catch estimates are stratified by time (duration of the opening) and by area (Subarea 23-1 and 23-2). Effort is estimated by summing individual phone in or E-log reports from each harvester as reported through the FOS database. Effort estimates are stratified by time (duration of the opening) and by area (Subarea 23-1 and 23-2).

All Area B catch landed in the Area 23 Sockeye fishery is validated by an independent Observer Service Provider through a dockside monitoring program. Validated catch reported are submitted weekly (by COB Wednesday) to the local fishery manager by the Observer Service Provider.

Area D Gill Net

Catch is estimated by summing individual harvest log catch from each harvester as reported through the FOS (Fishery Operating System) database. Catch estimates are stratified by time (duration of the opening) and by area (Barkley - Outside and Barkley - Inside). Effort is estimated by summing individual phone in or E-log reports from each harvester as reported through the FOS database. Effort estimates are stratified by time (duration of the opening) and by area (Barkley - Outside and Barkley - Inside).

13.5.3.6.4 WCVI – Barkley/Somass Sockeye Demonstration Fisheries

There are currently no demonstration fisheries planned on these stocks.

13.5.3.6.5 WCVI Barkley/Somass First Nations Commercial Sockeye Harvest

Demonstration Fisheries

There are currently no demonstration fisheries planned on these stocks.

Harvest Agreements

Maa-nulth Fisheries (Commercial)

In addition to the allocation of salmon for domestic purposes, Maa-nulth has an allocation for commercial catch outside of the Treaty as identified in the "Maa-nulth First Nations Harvest

Agreement". Fishing under the Harvest Agreement will be managed with requirements comparable to the regular commercial fisheries.

Under the Harvest Agreement, the allocation for Henderson Lake Sockeye Salmon in a portion of Area 23 will be for 20% of the Terminal Commercial Total Allowable Catch after accounting for the Maa-nulth Domestic harvest allocation from the total CTAC.

Economic Opportunities

Economic opportunities for the Tseshaht and Hupacasath First Nations are expected for the 2024 season. Opportunities for directed harvest are anticipated. Economic opportunity fisheries will be conducted under agreements that specify provisions for planning fisheries, allocations, catch reporting requirements as well as roles and responsibilities regarding the management of the fishery. These fisheries will be conducted separately from FSC fisheries, under the same harvest decision guidelines as the commercial fishery and fish harvested have been off-set with licences voluntarily relinquished from the commercial fishery. Communal licences are issued weekly to both the Tseshaht and Hupacasath First Nations following the development of an Annual Harvest Plan and through the in-season decision-making process.

The Tseshaht and Hupacasath First Nations share an allocation of Somass Sockeye for economic opportunity (EO) fisheries as defined in the Tsu-ma-uss Fishery Agreement. There are two distinct types of fisheries that operate. The first provides for designated communal fishing days, when harvest occurs through a collective effort, such as using a drag seine net off one vessel at the Paper Mill Dam site in the lower Somass River. The harvest from designated communal fishing is distributed among members of the Nations. The second type of fishery is a traditional, artisanal net fishery. Typically, harvest occurs from relatively small vessels using gill nets. The bands may also designate vessels operated by non-members (e.g., commercial vessels) to fish on behalf of the nation. These vessels require a separate licence.

Fishery Monitoring and Catch Reporting

Catch is verified by monitors at mandatory designated landing sites. Monitors count the fishers catch and issue a landing slip after validation. Catch is estimated by summing landing slip information as collected by First Nations monitors stationed at the designated landing sites. Monitors are stationed at landing sites for the full duration of the fishery opening. Catch estimates are stratified by time (duration of the opening) and by area. A landing slip identifies the catch attributed to each designated harvester. More than one landing slip may be attributed to a single vessel (i.e., more than one designated harvester fishing on the vessel and catch is shared among the harvesters).

Effort will be estimated by summing individual landing events from each harvester as reported through the FOS reporting system. The E-logs will be maintained by First Nations monitors stationed at the designated landing sites. Effort estimates will be stratified by time (duration of the opening) and by area (Inlet/Lower River (as delimited by the "green lights" at the pilings)/Paper mill Dam). A landing event refers to the landing of a vessel at a designated landing site. As described above, there may be more than one landing slip associated with a landing event.

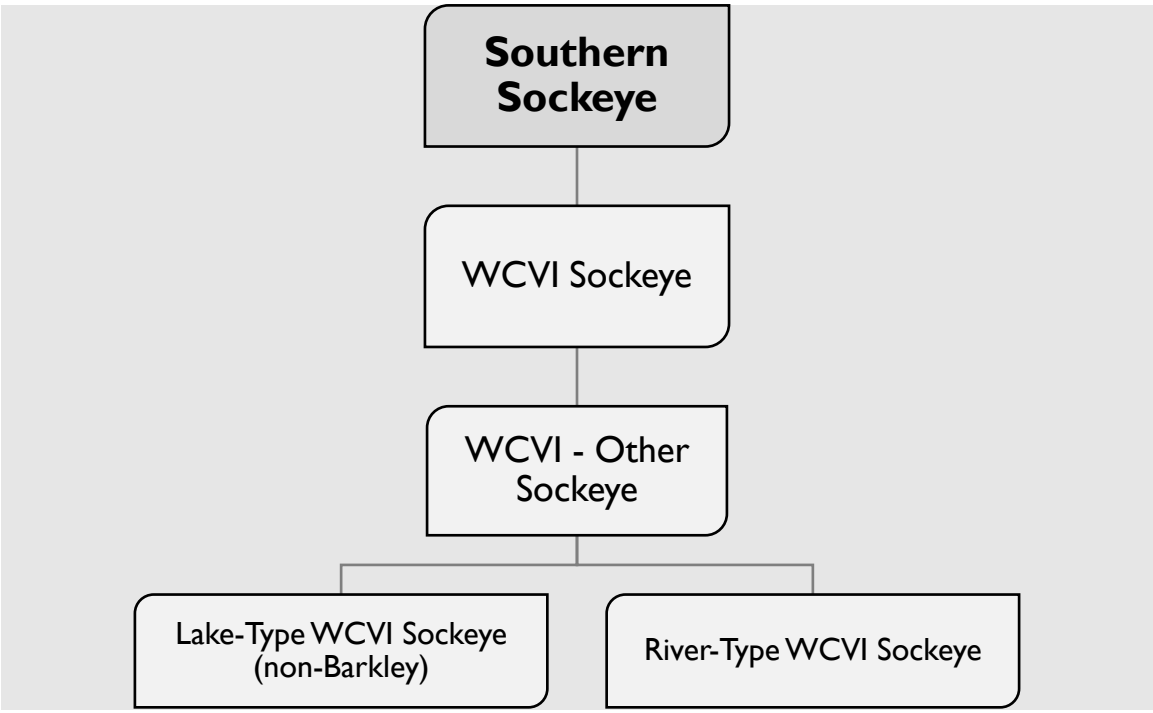
13.5.3.6.6 ESSR Fisheries

Very small numbers of Sockeye are sometimes harvested during ESSR fisheries for Chinook and Coho at Robertson Creek Hatchery.

13.5.4 WCVI – OTHER SOCKEYE

This section of the IFMP is under development and further information will be provided in a subsequent year. There are no commercial or recreational directed fisheries on these Sockeye planned for 2024. However, there are directed First Nations FSC and treaty domestic harvests that occur on many of these stocks.

13.5.4.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT



Conservation Units		Conservation Units
Alice	*Kennedy*	*River – West Vancouver Island*
Canoe Creek	*Maggie*	*River – NW Vancouver Island*
Cecilia	*Megin*	
Cheewat	*Muchalaht*	
Deserted	*Muriel*	
Fairy	*Nitinat*	
Hesquiat	*O'Connell*	
Hobiton	*Owossitsa*	
Jansen	*Park River*	

Figure 13.5-5: Overview of WCVI - Other Sockeye

13.5.5 OVERVIEW OF SOUTHERN INSIDE SOCKEYE

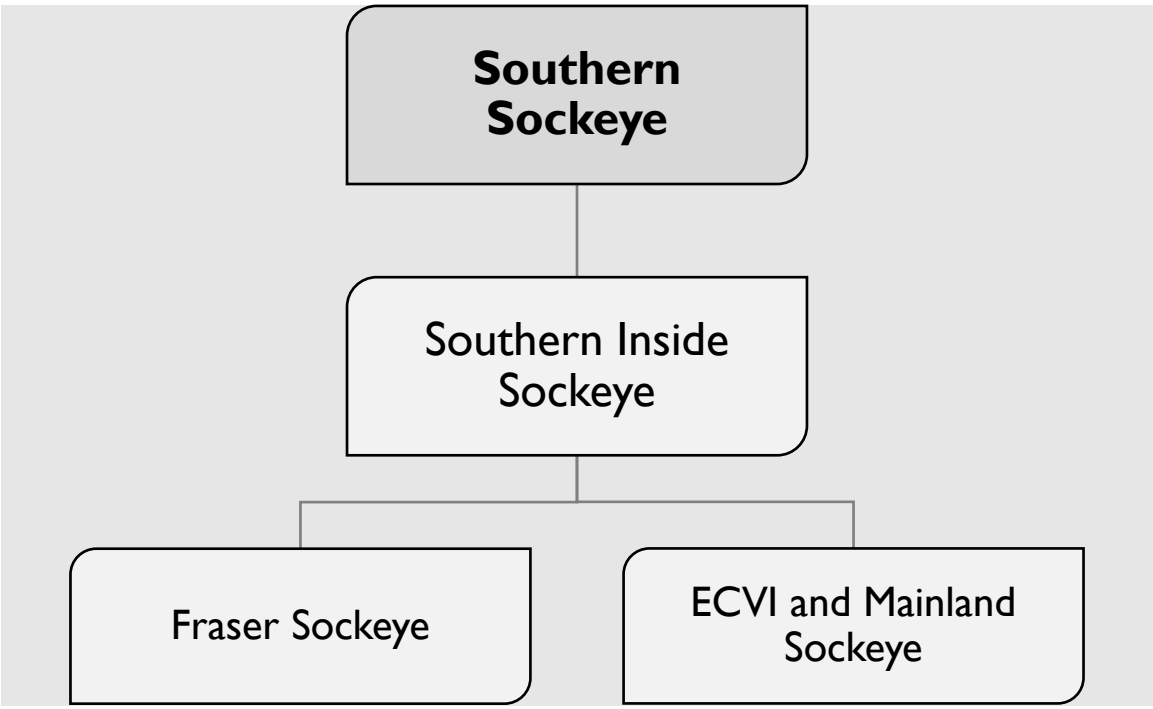
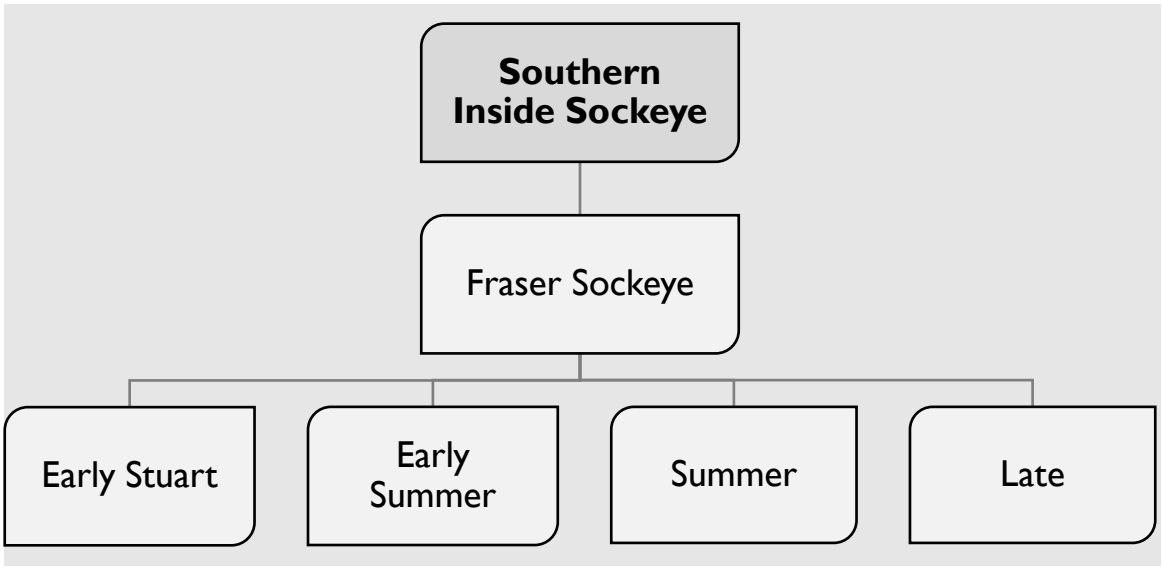


Figure 13.5-6: Overview of Southern Inside Sockeye

13.5.6 FRASER SOCKEYE

13.5.6.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT



Early Stuart	Early Summer	Summer	Late
Conservation Units	***Conservation Units***	***Conservation Units***	***Conservation Units***
Takla-Trembleur-Estu	*North Barriere - ES*	*Chilko-S*	*Cultus-L*
	Shuswap Complex – ES	*Takla-Trembleur-Stuart-S*	*Seton-L*
	Anderson-Seton-ES	*Francois-Fraser-S*	*Shuswap-Complex-L*
	Bowron – ES	*Quesnel-S*	*Lillooet-Harrison-L*
	Chilko-ES	*Harrison - River Type*	*Harrison (D/S)-L*
	Francois- First Run-ES	*Kamloops-ES*	*Harrison (U/S)-L*
	Francois- Second Run-ES	*Widgeon- River Type*	
	Indian/Kruger-ES		
	Nadina/Francois-ES		
	Taseko-ES		
	Chilliwack – ES		
	Nahatlatch-ES Pitt - ES		

Figure 13.5-7: Overview of Fraser Sockeye

13.5.6.2 STOCK ASSESSMENT INFORMATION

In 2017, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) published an assessment and status report on 24 designatable units (DUs) of Fraser Sockeye. COSEWIC status reports are used to assign risk status to wildlife species. COSEWIC classified 8 DUs as *Endangered*, 2 as *Threatened*, 5 as *Special Concern*, and 9 as *Not At Risk* for Group 1 Assessment. The report is available online at:

https://www.sararegistry.gc.ca/virtual_sara/files/cosewic/srSockeyeSalmon2017e.pdf

In 2021, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) published an assessment and status report on 7 additional designatable units (DUs) of Fraser Sockeye (Fraser Sockeye Group 2). COSEWIC classified 2 DUs as *Endangered*, 2 as *Special Concern*, and 3 as E*xtinct* for Group 2 Assessment. The report is available online at:

https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr%20Sockeye%20Salmon%202021_e.pdf

Recovery Potential Assessments (RPAs) for Group 1 Fraser Sockeye are available for Cultus Lake Sockeye (https://cat.fsl-bsf.scitech.gc.ca/record=b4087614~S1), and for habitat, threats and limiting factors for 9 DUs (https://waves-vagues.dfo-mpo.gc.ca/Library/41033371.pdf) and their probability of achieving recovery targets (https://cat.fsl-bsf.scitech.gc.ca/record=b4087615~S1).

The Canadian Science Advisory Secretariat (CSAS) also assessed the integrated biological status of Fraser River Sockeye Salmon CUs in 2012 and more recently in 2017 (see Section 5.3.6). The CSAS publication and Science Advisory Reports are available at:
2012: https://waves-vagues.dfo-mpo.gc.ca/Library/349836.pdf

2017: http://waves-vagues.dfo-mpo.gc.ca/Library/40712163.pdf

Table 13-36 Status Evaluations for 24 Fraser Sockeye CUs – 2017 relative to 2012

2017	2012	Conservation Unit	Cyclic	Stock
R	R	Bowron-ES	-	Bowron
R	R	Cultus-L	-	Cultus
R	R	Takla-Trembleur-EStu	cyclic	Early Stuart
R	R*	Taseko-ES	-	Miscellaneous Early Summers
R	R	Widgeon – River*	-	Miscellaneous Lates
R	A	Harrison (U/S)-L	-	Weaver
R	UD	Seton-L	-	Portage
R A	R A	Quesnel-S	cyclic	Quesnel
R A	R A	Takla-Trembleur-Stuart-S	cyclic	Late Stuart
A	R	Nahatlatch-ES	-	Miscellaneous Early Summers
A	A	North Barriere-ES	-	Fennel and Miscellaneous Early
A	A	Kamloops-ES	-	Raft and Miscellaneous Early
A	A G	Shuswap-ES	cyclic	Scotch, Seymour, Mis. Early Summer
A	G*	Lillooet-Harrison-L	-	Birkenhead
A G	R	Nadina-Francois-ES	-	Nadina
A G	R A	Chilliwack-ES	cyclic	Miscellaneous Early Summers
A G	R A	Francois-Fraser-S	-	Stellako
A G	A	Anderson-Seton-ES	-	Gates
A G	G	Harrison (D/S)-L	-	Miscellaneous Lates
A G	G	Shuswap Complex-L	cyclic	Late Shuswap
G	A G	Pitt-ES	-	Pitt
G	G*	Chilko-S and Chilko-ES agg.	-	Chilko
G	G	Harrison River – River Type	-	Harrison
DD	DD	Chilko-ES	-	Chilko

Abbreviations: EStu: Early Stuart; ES: Early Summer; S: Summer; L: Late; Mis: miscellaneous;
**Widgeon (river-type) CU has a small distribution, therefore, this CU will be consistently in the Red status zone;*

Fraser River Sockeye are managed based on four management groups (Early Stuart Run, Early Summer Run, Summer Run, and Late Run). However, management actions for specific populations within the four management groups may be considered. Spawning escapement targets and harvest rules are developed annually for each management group.

The Fraser River Sockeye Spawning Initiative process was initiated in 2006 as a Wild Salmon Policy project and is used to inform escapement strategy options. Further to this, the Wild Salmon Policy 2018-2022 Implementation Plan was announced in 2018. Refer to DFO's Wild Salmon Policy website for details:

https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/index-eng.html

Fisheries targeting Fraser Sockeye may also encounter some ECVI and Mainland Sockeye and Pink salmon. Terminal fisheries on ECVI and Mainland Sockeye and Pink populations are escapement-goal driven. Targeted terminal fisheries on ECVI and Mainland Pinks will be determined in-season, while directed Sockeye fisheries on ECVI stocks are not anticipated in 2024.

13.5.6.2.1 Pre-season

Prior to each fishing season, conservation constraints and a spawning escapement plan are determined through the Salmon Outlook and IFMP consultations. A pre-season fishing plan is then developed by the bilateral U.S.-Canada Fraser River Panel (FRP) that takes into consideration pre-season forecasts of abundance, timing, diversion rate, and environmental conditions and/or values based on historical data. Final forecasts of timing and diversion rate are not completed until late June.

2024 Pre-season Fraser River Sockeye Run Size Forecast:

Pre-season forecasts of run size at a range of probability levels are developed for all individual Fraser Sockeye stocks, and then aggregated into the four management (run timing) groups. Fraser Sockeye run size forecasts are highly uncertain, largely due to the wide variability in annual survival rates, and observation error in the stock-recruitment data. Variability in Fraser Sockeye survival has been increasing in recent decades with a record high return in 2010 and the two lowest returns on record occurring consecutively in 2019 and 2020 (this brood year). In 2021, survival improved for several stocks, relative to their brood year abundance. Similarly, in 2022, abundance of early-timed runs exceeded forecasts; however, survival of later-timed runs varied with many stocks falling below their respective brood year abundance. In 2023, returns exceeded expectations for all MU's except Summers, with some variability at the stock level. 2024 is the first return of both 4-year-old and 5-year-old broods affected by Big Bar (i.e., both 2019 and 2020 brood years were affected). In addition, these broods faced poor marine survival with the 2020 returns experiencing exceptionally high enroute loss due to persistently high discharge in the Fraser Canyon. As such, many forecasted stocks are predicted to return well below cycle average with the overall forecasted 2024 abundance being the lowest on record.

Recent poor performance of the forecast methodology led to the inclusion of explanatory variables into the models incorporating environmental, climate indices, and biological indicators, and updated retrospective ranking tables with the most recent time series of productivities included. The revised approach attempts to better align forecasts with recent productivity observations, and was continued for the 2024 forecast. Although the model selection process has changed to accommodate recent variability in productivity, whether the

actual return will fall within the forecast distribution remains uncertain. Within the 2024 forecast distribution, recent productivity observation falls between the p25 and p50 forecast but is closer to the p25. This will be an important consideration for pre-season and in-season planning.

The forecast uses a suite of models, which were selected on a stock-specific basis based on their ability to predict true returns given low productivity associated with the recent stock-recruitment time series while also considering the impact of the Big Bar landslide on predicted returns of affected stocks. The forecast is highly uncertain as represented by the cumulative probabilities, which largely represent uncertainty in stock survival. If survivals fall outside a stock's historical stock-recruitment time series, then returns could fall outside the forecast distribution. It is more appropriate to reference individual stock forecast distributions, versus the total Fraser Sockeye forecast, since not all stocks exhibit the same survival in a particular year. Therefore, the total forecast distribution of 167,000 to 2,173,000 at the 10% to 90% probability levels will likely under-estimate or over-estimate total returns at the ends of the probability distribution. The median or 50% probability (p50) of the total 2024 forecast distribution is 569,000 (there is a 50% chance the return will be at or below this value). Median forecast returns are dominated almost entirely by Early Summer run (28%) and Summer run stocks (67%). Nadina (11%) and Chilliwack (6%) dominate the Early Summers, with Chilko (31%), Harrison (19%) and Stellako (11%) dominating the Summer run component. Early Stuart and Lates comprise ~5% of the total forecast, which includes a highly uncertain Early Stuart hatchery component (1,400).

In recent years, with the exception of 2021, total Fraser Sockeye have returned at or below the median forecast, with many returns at the low end (~10% probability level) of the forecast range, including the 2019 and 2020 brood years. Although returns have fallen to lower probability levels, the exact response between individual stocks has varied.

In response to recent declining productivity, climate change and the increased variability that accompanies it, as well as low Sockeye abundances, the Department reviews forecast model methods as part of adaptive management. DFO examines adjustments/improvements to current harvest control rules, alternative strategies that account for changing conditions and uncertainties, and what implications there may be for future advice. Work was completed from 2019 to 2022 through the Fraser River Sockeye Spawning Initiative (FRSSI).

For further details, refer to the Fraser Stock Assessment Technical Memo Pre-season Run Size Forecasts for Fraser River Sockeye (*Oncorhynchus nerka*); this document is anticipated to be published in mid-2024.

Fraser Sockeye run sizes will be updated in-season through the PSC Fraser River Panel process.

Table 13-37: 2024 Pre-season Fraser Sockeye return forecasts by stock and timing group (DFO, 2024)

Run timing group	Forecast	Probability that Return will be at/or Below Specified Run Size				
Stocks	Model	10%	25%	50%	75%	90%
Early Stuart	*Ricker (Ei)*	76	115	181	284	421
Early Stuart Hatchery	*Chilko proxy*	494	825	1,386	1,936	2,275
Early Summer Total		57,795	92,596	158,950	281,036	464,523
Total excluding misc. stocks		37,340	65,971	121,189	226,075	379,250
Bowron	*RickerCyc*	398	663	1,224	2,230	3,544
Upper Barriere (Fennell)	*Ext_PowerBasicAge4.SiblingAge5*	1373	2,631	5,311	11,684	22,654
Gates	*RickerPi*	9,048	15,099	26,958	47,191	75,883
Nadina	*Ext_RickerFRDPeakAge4.SiblingAge5*	17,627	33,469	64,871	127,399	216,351
Pitt	*LarkinBasicCycAge*	6,682	10,058	15,608	24,015	35,842
Scotch	*LarkinBasic*	1,492	2,904	5,261	10,026	18,489
Seymour	*RickerPi*	720	1,147	1,956	3,530	6,487
Misc (EShu)	*R/S*	105	145	660	1,245	1,737
Misc (Taseko)	*R/S*	14	17	67	89	126
Misc (Chilliwack)	*Ext_RickerAge4.SiblingAge5*	19,838	25,546	34,274	48,049	71,387
Misc (Nahatlatch)	*R/S*	498	917	2,760	5,578	12,023
Summer Total		101,268	191,874	379,247	774,186	1,554,481
Total excluding misc. stocks		101,139	191,645	378,743	772,114	1,551,433
Chilko	*Ext_RickerCycAge4.SiblingAge5*	50,557	95,967	175,508	316,890	563,610
Late Stuart	*R1C*	1,878	4,563	12,236	32,815	79,738
Quesnel	*R2C*	318	898	2,851	9,048	25,583
Stellako	*Ext_R2CAge4.SiblingAge5*	25,079	39,420	64,840	106,915	168,513
Harrison	*TSAAge3.SiblingAge4*	16,929	40,783	106,456	277,456	662,647
Raft	*PowerBasicCycAge*	6,378	10,014	16,852	28,990	51,342
Misc (N. Thomp. Tribs)	*R/S*	54	82	208	475	705
Misc (N. Thomp River)	*R/S*	55	84	214	488	723
Misc (Widgeon)	*R/S*	20	63	82	1,109	1,620
Late Total		8,060	14,666	28,958	65,541	154,011
Total excluding misc. stocks		8,013	14,520	28,766	62,961	150,240
Cultus	*PowerJuvPi*	35	65	140	290	587
Late Shuswap	*Ext_RickerPiAge4.SiblingAge5*	137	531	2,319	10,258	42,385
Portage	*RickerPi*	30	80	221	560	1,474
Weaver	*RickerCyc*	359	721	1,784	5,429	18,596
Birkenhead	*RickerEi*	7,452	13,123	24,302	46,424	87,198
Misc Harrison/Lillooet	*R/S*	47	146	192	2,580	3,771
TOTAL SOCKEYE SALMON		167,199	299,251	567,336	1,121,047	2,173,436
Total Sockeye excluding misc. stocks		146,568	272,251	528,879	1,061,434	2,081,344

a. See Table 4 for model descriptions
b. Misc. Early Shuswap uses Scotch & Seymour R/EFS
c. Misc. Taseko uses Chilko R/EFS
d. Misc. Nahatlach uses Early summer-run stocks R/EFS
e. Raft, Harrison, Misc. North Thompson stocks moved to Summer run-timing group
f. Misc. North Thompson stocks use Raft & Fennell R/EFS
g. Misc. Late Run stocks (Harrison Lake down-stream migrants including Big Silver, Cogburn, etc.), and river-type Widgeon use Birkenhead R/EFS
h. Results above 1,000 have been rounded to the nearest 1,000. Between 100 and 1,000 have been rounded to 100. Between 10 and 100 have been rounded to 10.

2024 Pre-season Fraser River Sockeye Run Timing Curves:

Preliminary run timing estimates shown in the figure below are based on historical, cycle-line (2020) median run timings. All timing estimates may be updated for pre-season planning once timing forecasts are developed for Early Stuart and Chilko Sockeye. As shown below (Figure 13) it is expected that there will be considerable overlap between the run timing groups in 2023.

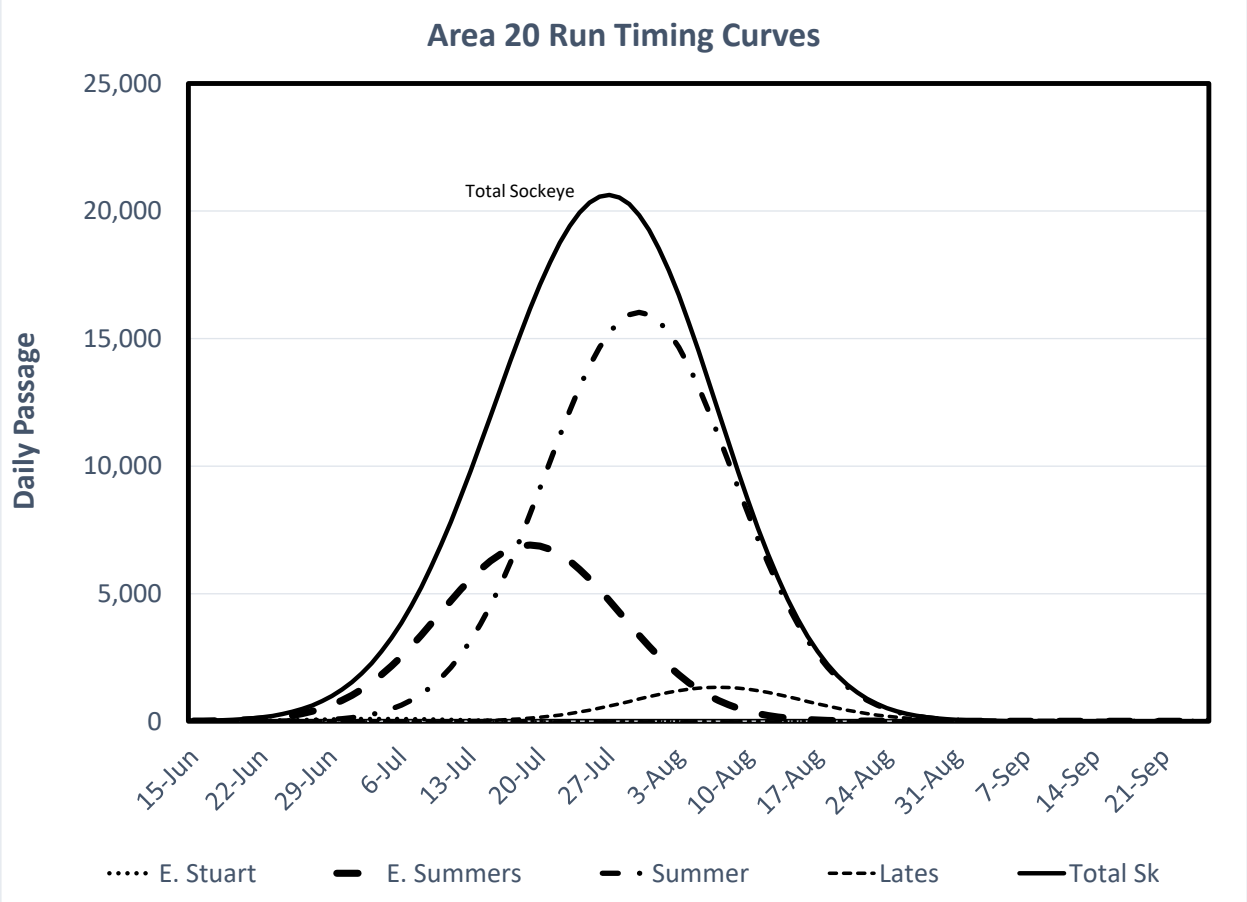


Figure 13.5-8: Pre-season Area 20 Run Timing Curves for 2024 Fraser Sockeye Salmon

Test fishery plans to assess in-season abundances of Fraser Sockeye are developed annually by the FRP. The plan takes into account conservation concerns for all stocks and species, assessments required for in-season management, total allowable catch and cost. The pre-season planned test fishing schedule will also be responsive to in-season information.

13.5.6.2.2 In-season

In-season information including estimates of abundance, run timing, stock composition, and other technical information are used to assess potential fishing opportunities relative to pre-season fishing plans.

In-season information derived from catches in test and other fisheries, and in-river hydroacoustic estimates of salmon passage is provided by the Pacific Salmon Commission (PSC) staff to the DFO and the FRP for consideration when planning fisheries.

The FRP meets regularly from early July to late-September to review information as it becomes available over the course of the Sockeye migration. During this period, in-season information is regularly updated by the FRP to set spawning escapement objectives, management adjustments, and calculate the Total Allowable Catch (TAC). The availability of the TAC to harvesters will be affected by other factors, including migration pathways and conservation requirements for co-migrating stocks or species.

In-season information including fishery openings is posted online regularly throughout the fishing season by the DFO and the PSC at the following websites:

Weekly PSC News Release:
http://www.psc.org/news_frpnews.htm

Aboriginal, Commercial and Recreational Fishery Notices:
http://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm

Sockeye Test Fisheries:

- FRP approved test fishery results are available from the PSC at: http://www.psc.org/publications/fraser-panel-in-season-information/test-fishing-results/
- Other test fishery results are available from DFO at: http://www.pac.dfo-mpo.gc.ca/fm-gp/fraser/index-eng.html

13.5.6.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Fraser Sockeye Run Timing Groups

The four run timing groups (Early Stuart, Early Summer, Summer, and Late Run) identified under the Pacific Salmon Treaty Annex generally contain stocks with similar migration timing in the marine area.

Proportional Management Adjustments & Proportional Difference Between Estimates

Proportional management adjustments (pMA) and/or proportional difference between estimates (pDBEs) may be adopted by the FRP to assist in the achievement of escapement goals. Management adjustments (pMA x escapement goal) are added to the escapement goal when necessary to account for differences between Mission hydroacoustic estimates of fish passage (plus catch upstream of the hydroacoustics site) and spawning ground escapement estimates. That is, sometimes additional fish are allowed to pass upstream of Mission (in the Lower Fraser River) than is required by the escapement goal (plus expected catch upstream of Mission) in order to achieve the escapement goal on the spawning grounds. Differences between estimates at Mission and the spawning grounds (DBEs) occur for many reasons, including measurement errors in the number of fish estimated at Mission, on the spawning grounds, caught along the way, stock ID error, en-route losses due to migration difficulties, and unaccounted for removals (e.g., predation). DBEs expressed as a proportion (pDBE) can be interpreted as the percentage of fish estimated to pass Mission that would not be expected to be enumerated by the spawning ground assessment programs, assuming no additional catch.

The pre-season pMAs shown in the escapement plan are comprised of historical median pDBEs. Prior to the start of the season in 2016, a change was made by the FRP regarding how pMAs are calculated to better reflect the pDBE of individual stocks. Within the management groups, the pDBEs for some individual stocks (e.g., Chilliwack, Pitt, Harrison, and Birkenhead type stocks) were weighted with the pDBEs from the remaining aggregated stocks in their respective timing groups over the range of forecast values. This results in different pMAs within a management group across the range of forecast run sizes. When combining pMAs and escapement goals that both change across the range of forecast run sizes, the resulting allowable exploitation rate can sometimes decrease as the run size increases. However, as expected, the total number of fish that can be harvested does increase with run size in these instances.

When forecasts or in-season information on temperature, discharge and/or timing is available, the pMA and pDBE for each management group can be adjusted based on historical relationships between the temperature and discharge or the timing of a particular run timing group, and the discrepancy between the number of fish estimated at Mission and the spawning grounds.

The Fraser Panel may update the pMAs and/or pDBEs pre-season and in-season as methods are finalized and information on environmental conditions, run timing, abundance and fish health becomes available.

2024 Escapement Strategy

The Fraser River Sockeye Spawning Initiative (FRSSI) was undertaken to develop escapement strategies for Fraser River Sockeye.

A range of harvest rules (also called Total Allowable Mortality or "TAM" rules) have been evaluated in the FRSSI model. An illustration of the harvest rules, taken from the Pestal *et al.* 2011 CSAS paper, is shown below.

It is important to note that each harvest or TAM rule is characterized by Lower Fishery Reference Points (vertical dashed line through the No-Fishing Point) and Upper Fishery Reference Points (vertical dashed line through the Cut-Back Point) to describe the shape of the Total Allowable Mortality (TAM) rule for each management group (Figure 13). The TAM cap and the Low Abundance Exploitation Rate (LAER) describe the upper and lower ranges of exploitation rates, respectively. These four values define the harvest rule for each management group in the escapement plan, and once finalized, do not change in-season. During the fishing season, in-season estimates of run size and pMAs are used in conjunction with the escapement plan to determine the total allowable harvest for a given management group at a given time.

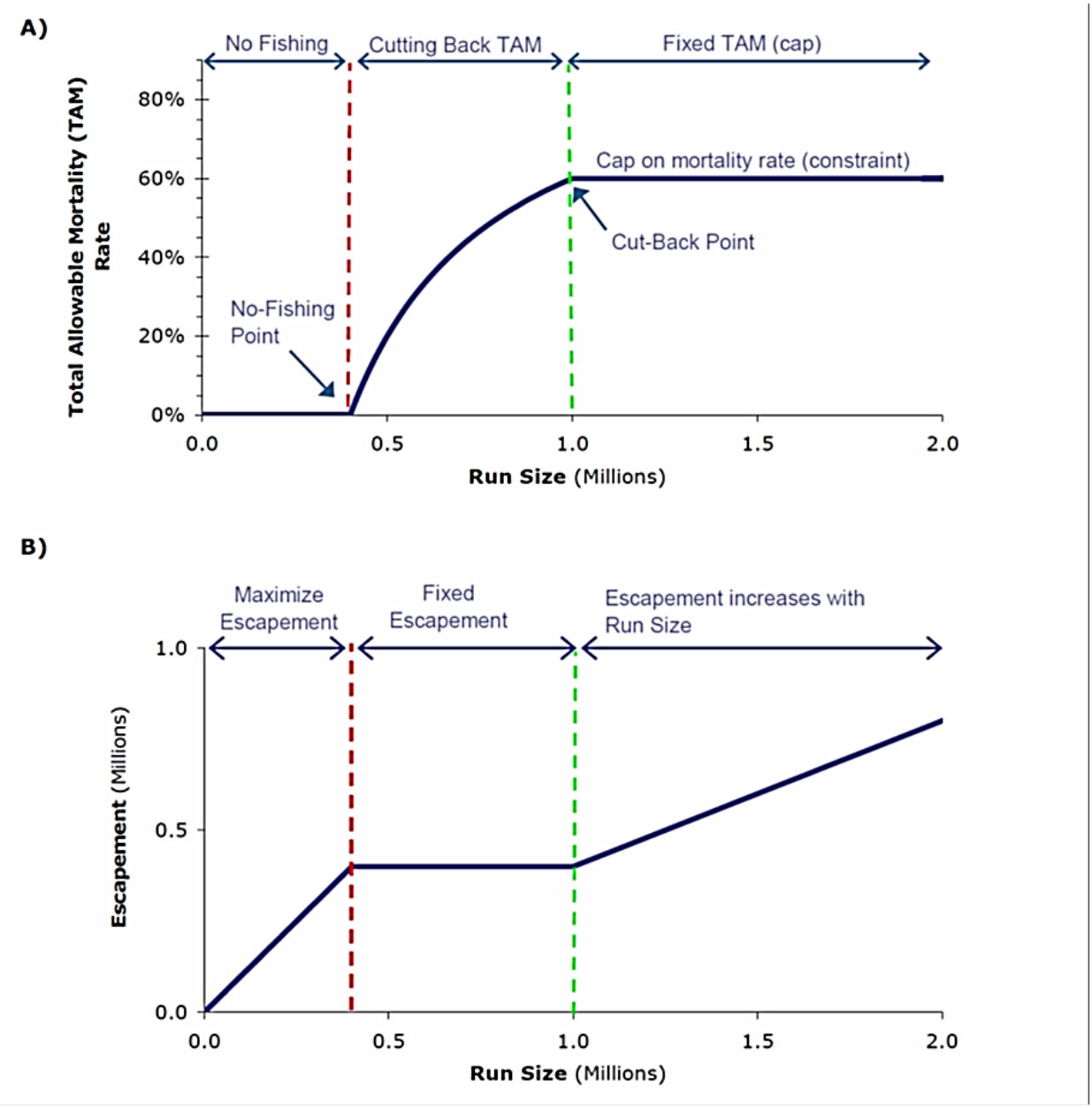


Figure 13.5-9: Shape of Total Allowable Mortality (TAM) rule.

Note: The Low Abundance Exploitation Rate (LAER) is applied after the TAM rule and is not shown in the figure.

The Lower & Upper Fishery Reference Points interact with the TAM cap to describe the shape of the TAM rule:

The Upper Fishery Reference Point describes the run size above which the TAM plateaus at the TAM cap (e.g., 50%) and the remaining proportion goes to escapement (e.g., 50% of the run at run sizes above the Upper Fishery Reference Point).

The Lower Fishery Reference Point describes the numerical escapement target when the run size is between the Upper and Lower Fishery Reference Points.

When the run size is below the Lower Fishery Reference Point, the escapement target is the run size, but it is recognized that there will be some low incidental fisheries mortality in the form of low abundance exploitation rates (LAERs) to allow for fisheries directed on co-migrating stocks and species.

In 2023, the LAERs for the run timing groups were as follows: a maximum of 10% for the Early Stuart Run, Early Summer, Summer, and Late (including Cultus Lake) Run Sockeye. When a LAER is implemented, to the extent possible, the objective is to allow as many fish to pass to the spawning grounds while keeping the exploitation rates as low as possible.

2024 Escapement Plan

For 2024, given the low forecasted returns and resulting limited harvest opportunities, the Department is seeking input on 2 proposed escapement options and their respective components (Table 13- a & b). **The Fraser Salmon Management Board (FSMB) supports inclusion of these 2 options with the understanding that other options can be explored via the IFMP development process.** Consistent with previous years the Department will consider all input provided, including alternative options, to inform the final escapement plan. The final escapement plan that will be included in the IFMP may differ from the options described in this draft IFMP based on input received.

Option 1 escapement plan is consistent with the brood year (2020) plan and is described in Table 13-a. Option 2 (Table 13- b) is a more precautionary approach that presents reduced LAERs for Early Stuarts and Early Summers while maintaining some flexibility in incidental fisheries mortalities on Summers and Lates. In general, selecting a more precautionary escapement plan may improve stock recovery time frames at the expense of harvest opportunities.

For MUs in a LAER situation, which is all groups at the median forecast, the objective will be to plan fisheries directed on other species in a way that allows as many Sockeye to reach the spawning grounds as possible by minimizing Sockeye bycatch impacts. The fishery reference points shown in the tables are evaluated for the stocks that have a long-term stock-recruitment relationship. For the Early Summer, Summer, and Late Run Management Units, the lower

fishery reference points are scaled up to account for the expected contribution of the unforecasted, or "miscellaneous" stocks to the run timing group over the entire forecast range.

Table 13-38 a, b & c 2024 Fraser Sockeye Escapement Plan –brood year (2020) escapement plan.

Option 1- Brood Year (2020) Escapement Plan

	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%	50%	108,000	216,000	1.17
Early Summer (w/o	10%	50%	100,000	200,000	0.59
Summer (w/o misc)	10%	50%	640,000	1,280,000	0.09
Late (w/o misc)	10%	50%	300,000	600,000	0.54

b. Option 2 2024 Fraser Sockeye Escapement Plan – Precautionary Escapement Plan with reduced LAER on Early Stuarts and Early Summers and TAM cap on Early Stuarts. Blue highlights emphasize changes between Option 1 and Option 2.

Option 2- Reduced LAER Escapement Plan

	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	5%	20%	108,000	135,000	1.17
Early Summer (w/o	5%	50%	100,000	200,000	0.59
Summer (w/o misc)	10%	50%	640,000	1,280,000	0.09
Late (w/o misc)	10%	50%	300,000	600,000	0.54

Table 13-40. Option 1 2024 Escapement Plan (2020 Brood Year) for the Fraser River Sockeye management groups over a range of pre-season forecasts. Note, the bolded columns represent the pre-season planning values, green shading indicates when a harvestable surplus may become available.

shows, at the management group level, the range of expected outcomes (e.g., exploitation rates, potential available harvest, management adjustments and expected numbers of spawners to the grounds) for the range of the abundance forecast and fisheries reference points for the two options. Green shading highlights when a harvestable surplus may be available (i.e., when the forecast exceeds the escapement target plus the MA). Note, that these values do not take into account the pre-spawn mortality which can occur after adult salmon reach spawning grounds and will be updated in season. The DFO currently do not have any methods to predict pre-spawn mortality rates.

Table 13-39: Description example of information shown in Table 13.5-9

From Escapement Options Table		Description
	p10	run size forecast probability level being used for calculations in this column
forecast	39,000	forecast associated with p-level (above) and this management group
TAM Rule (%)	0%	total allowable mortality (TAM) at this run size forecast
Escapement Target	39,000	escapement goal at this run size
MA	34,700	management adjustment (MA=pMA x escapement target)
Esc. Target + MA	73,700	adds up escapement target and management adjustment
LAER*	10%	low abundance exploitation rate
ER at Return	0%	exploitation rate given TAM rule, run size, escapement target, & MA
Max. Allowable ER	10%	larger of the values in the two previous rows
Max. Available Harvest	3,900	harvest available for test fish, US, and Canada (=allowable ER x run size)
Performance		
Projected S (after MA)	18,600	projected adult spawners to the grounds (NOT accounting for pre-spawn mortality (PSM))
BY Spawners	48,489	number of adult spawners four years previous (compare to line above)
Proj. S as % BY S	38%	projected spawners as a percentage of brood year spawners
Cycle avg S	35,041	average number of spawners on this cycle line (NOT accounting for PSM)
Proj. S as % cycle S	53%	projected spawners as a percentage of cycle line average spawners

*The low abundance exploitation rate (LAER) is not a target. The objective of the LAER is to allow as many fish to pass to the spawning grounds as possible while allowing some limited incidental mortality, and in some cases some limited directed harvest when there is little opportunity for harvest directed on other Fraser Sockeye stock groups or species.

Table 13-40. Option 1 2024 Escapement Plan (2020 Brood Year) for the Fraser River Sockeye management groups over a range of pre-season forecasts. Note, the bolded columns represent the pre-season planning values, green shading indicates when a harvestable surplus may become available.

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)	216,000	216,000	**216,000**	216,000	216,000
Early Stuart	forecast	570	940	**1,567**	2,220	2,696
	TAM Rule (%)	0%	0%	**0%**	0%	0%
	Escapement Target	570	940	**1,567**	2,220	2,696
	MA	700	1,100	**1,800**	2,600	3,200
	Esc. Target + MA	1,270	2,040	**3,367**	4,820	5,896
	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	57	94	**157**	222	270
	2024 Performance					
	Projected S (after MA)	200	400	**600**	900	1,100
	BY Spawners	30	30	**30**	30	30
	Proj. S as % BY S	667%	1333%	**2000%**	3000%	3667%
	cycle avg S	42,694	42,694	**42,694**	42,694	42,694
	Proj. S as % cycle S	0%	1%	**1%**	2%	3%

Management Unit		Pre-season Forecast Return				
		p10	p25	**p50**	p75	p90
Early Summer (w/o RNT)	*lower ref. pt. (w misc)*	154,800	140,400	**131,200**	124,300	122,500
	upper ref. pt. (w misc)	309,600	280,700	**262,300**	248,600	245,000
	forecast (incl. misc)	57,795	92,596	**158,950**	281,036	464,523
	TAM Rule (%)	0%	0%	**17%**	50%	50%
	Escapement Target	57,795	92,596	**131,200**	140,518	232,262
	MA	34,100	54,600	**77,400**	82,900	137,000
	Esc. Target + MA	91,895	147,196	**208,600**	223,418	369,262
	LAER	10%	10%	**10%**	10%	10%
	Available ER at Return	0%	0%	**0%**	21%	21%
	Max. Allowable ER	10%	10%	**10%**	21%	21%
	Max. Allowable Harvest	5,800	9,300	**15,900**	57,600	95,300
	2024 Performance					
	Projected S (after MA)	33,000	52,900	**90,900**	141,900	234,300
	BY Spawners	80,300	80,300	**80,300**	80,300	80,300
	Proj. S as % BY S	41%	66%	**113%**	177%	292%
	cycle avg S	144,327	144,327	**144,327**	144,327	144,327
	Proj. S as % cycle S	23%	37%	**63%**	98%	162%

Management Unit		Pre-season Forecast Return				
		p10	p25	**p50**	p75	p90
Summer (w. RNT & Har)	*lower ref. pt. (w misc)*	769,600	814,000	**891,400**	1,001,700	1,119,400
	upper ref. pt. (w misc)	1,539,300	1,628,000	**1,782,800**	2,003,300	2,238,700
	forecast	101,268	191,874	**379,247**	774,186	1,554,481
	TAM Rule (%)	0%	0%	**0%**	0%	28%
	Escapement Target	101,268	191,874	**379,247**	774,186	1,119,400
	MA	9,100	17,300	**34,100**	69,700	100,700
	Esc. Target + MA	110,368	209,174	**413,347**	843,886	1,220,100
	LAER	10%	10%	**10%**	10%	10%
	Available ER at Return	0%	0%	**0%**	0%	22%
	Max. Allowable ER	10%	10%	**10%**	10%	22%
	Max. Allowable Harvest	10,127	19,187	**37,925**	77,419	334,381
	2024 Performance					
	Projected S (after MA)	80,800	151,500	**294,800**	590,900	1,018,200
	BY Spawners	186,916	186,916	**186,916**	186,916	186,916
	Proj. S as % BY S	43%	81%	**158%**	316%	545%
	cycle avg S	667,166	667,166	**667,166**	667,166	667,166
	Proj. S as % cycle S	12%	23%	**44%**	89%	153%

Management Unit		Pre-season Forecast Return				
		p10	p25	**p50**	p75	p90
Late (w/o Har)	*lower ref. pt. (w misc)*	302,000	302,000	**302,000**	302,000	302,000
	upper ref. pt. (w misc)	604,000	604,000	**604,000**	604,000	604,000
	forecast	8,060	14,666	**28,958**	65,541	154,011
	TAM Rule (%)	0%	0%	**0%**	0%	0%
	Escapement Target	8,060	14,666	**28,958**	65,541	154,011
	MA	3,600	6,900	**15,600**	41,900	130,900
	Esc. Target + MA	11,660	21,566	**44,558**	107,441	284,911
	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	806	1,467	**2,896**	6,554	15,401
	2024 Performance					
	Projected S (after MA)	5,000	8,900	**17,000**	35,800	74,300
	BY Spawners	6,563	6,563	**6,563**	6,563	6,563
	Proj. S as % BY S	76%	136%	**259%**	545%	1132%
	cycle avg S	445,337	445,337	**445,337**	445,337	445,337
	Proj. S as % cycle S	1%	2%	**4%**	8%	17%
Allowable Harvest (TF, US, CDN)		16,790	30,048	**56,877**	141,795	445,352
Total projected spawners		119,000	213,700	**403,300**	769,500	1,327,900

b. Option 2 2024 Fraser Sockeye Escapement Plan – Precautionary Escapement Plan with reduced LAERs on Early Stuart and Early Summer. Note, the bolded columns represent the pre-season planning values, green shading indicates when a harvestable surplus may become available.

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	570	940	**1,567**	2,220	2,696
	TAM Rule (%)	0%	0%	**0%**	0%	0%
	Escapement Target	570	940	**1,567**	2,220	2,696
	MA	700	1,100	**1,800**	2,600	3,200
	Esc. Target + MA	1,270	2,040	**3,367**	4,820	5,896
	LAER	5%	5%	**5%**	5%	5%
	Available ER at Return	0%	0%	**0%**	0%	0%
	Max. Allowable ER	5%	5%	**5%**	5%	5%
	Max. Allowable Harvest	29	47	**78**	111	135
	2024 Performance					
	Projected S (after MA)	200	400	**700**	1,000	1,200
	BY Spawners	30	30	**30**	30	30
	Proj. S as % BY S	667%	1333%	**2333%**	3333%	4000%
	cycle avg S	42,694	42,694	**42,694**	42,694	42,694
	Proj. S as % cycle S	0%	1%	**2%**	2%	3%

Management Unit		Pre-season Forecast Return				
		p10	p25	**p50**	p75	p90
Early Summer (w/o RNT)	*lower ref. pt. (w misc)*	154,800	140,400	**131,200**	124,300	122,500
	upper ref. pt. (w misc)	309,600	280,700	**262,300**	248,600	245,000
	forecast (incl. misc)	57,795	92,596	**158,950**	281,036	464,523
	TAM Rule (%)	0%	0%	**17%**	50%	50%
	Escapement Target	57,795	92,596	**131,200**	140,518	232,262
	MA	34,100	54,600	**77,400**	82,900	137,000
	Esc. Target + MA	91,895	147,196	**208,600**	223,418	369,262
	LAER	5%	5%	**5%**	5%	5%
	Available ER at Return	0%	0%	**0%**	21%	21%
	Max. Allowable ER	5%	5%	**5%**	21%	21%
	Max. Allowable Harvest	2,900	4,600	**7,900**	57,600	95,300
	2024 Performance					
	Projected S (after MA)	34,800	55,900	**96,000**	141,900	234,300
	BY Spawners	80,300	80,300	**80,300**	80,300	80,300
	Proj. S as % BY S	43%	70%	**120%**	177%	292%
	cycle avg S	144,327	144,327	**144,327**	144,327	144,327
	Proj. S as % cycle S	24%	39%	**67%**	98%	162%

Management Unit		Pre-season Forecast Return				
		p10	p25	**p50**	p75	p90
Summer	*lower ref. pt. (w misc)*	769,600	814,000	**891,400**	1,001,700	1,119,400
(w. RNT & Har)	*upper ref. pt. (w misc)*	1,539,300	1,628,000	**1,782,800**	2,003,300	2,238,700
	forecast	101,268	191,874	**379,247**	774,186	1,554,481
	TAM Rule (%)	0%	0%	**0%**	0%	28%
	Escapement Target	101,268	191,874	**379,247**	774,186	1,119,400
	MA	9,100	17,300	**34,100**	69,700	100,700
	Esc. Target + MA	110,368	209,174	**413,347**	843,886	1,220,100
	LAER	10%	10%	**10%**	10%	10%
	Available ER at Return	0%	0%	**0%**	0%	22%
	Max. Allowable ER	10%	10%	**10%**	10%	22%
	Max. Allowable Harvest	10,127	19,187	**37,925**	77,419	334,381
	2024 Performance					
	Projected S (after MA)	80,800	151,500	**294,800**	590,900	1,018,200
	BY Spawners	186,916	186,916	**186,916**	186,916	186,916
	Proj. S as % BY S	43%	81%	**158%**	316%	545%
	cycle avg S	667,166	667,166	**667,166**	667,166	667,166
	Proj. S as % cycle S	12%	23%	**44%**	89%	153%

Management Unit		Pre-season Forecast Return				
		p10	p25	**p50**	p75	p90
Late	*lower ref. pt. (w misc)*	302,000	302,000	**302,000**	302,000	302,000
(w/o Har)	*upper ref. pt. (w misc)*	604,000	604,000	**604,000**	604,000	604,000
	forecast	8,060	14,666	**28,958**	65,541	154,011
	TAM Rule (%)	0%	0%	**0%**	0%	0%
	Escapement Target	8,060	14,666	**28,958**	65,541	154,011
	MA	3,600	6,900	**15,600**	41,900	130,900
	Esc. Target + MA	11,660	21,566	**44,558**	107,441	284,911
	LAER	5%	5%	**5%**	10%	10%
	Available ER at Return	0%	0%	**0%**	0%	0%
	Max. Allowable ER	5%	5%	**5%**	10%	10%
	Max. Allowable Harvest	403	733	**1,448**	6,554	15,401
	2024 Performance					
	Projected S (after MA)	5,300	9,400	**17,900**	35,800	74,300
	BY Spawners	6,563	6,563	**6,563**	6,563	6,563
	Proj. S as % BY S	81%	143%	**273%**	545%	1132%
	cycle avg S	445,337	445,337	**445,337**	445,337	445,337
	Proj. S as % cycle S	1%	2%	**4%**	8%	17%
Allowable Harvest (TF, US, CDN)		13,458	24,568	**47,351**	141,684	445,217
Total projected spawners		121,100	217,200	**409,400**	769,600	1,328,000

13- shows the projected escapement for each forecasted stock relative to the cycle average and brood year(s) total escapement, over the range of forecast probability levels (i.e., the "projected S" (after MA) from Table 13-40. Option 1 2024 Escapement Plan (2020 Brood Year) for the Fraser River Sockeye management groups over a range of pre-season forecasts. Note, the bolded columns represent the pre-season planning values, green shading indicates when a harvestable surplus may become available.

are distributed to the component stocks). Note significant differences relative to cycle average and brood year for some stocks. 2019 and 2020 broods experienced very poor returns and high en-route loss due to in river migration challenges. As such, many stocks throughout the forecasted range are predicted to return well below cycle average in 2024 yet above their respective brood years. In addition, the 2024 forecasted age composition indicates some stocks

(e.g., Pitt and Late Shuswap) are predicted to return predominately as 5 year olds (i.e., 2019 brood). When examining at the stock level, this can create unrealistic outcomes in the comparison to brood year columns if projected escapements are compared to a single, largely non-contributing brood (i.e., comparing a forecast of predominantly 5 year old fish to a brood from four years prior). In response to comments from the 2023 escapement plan and to better illustrate the realistic comparisons to the dominant contributing brood, the below tables use a weighted average brood (2019 and 2020) based on the forecasted 2024 age composition for the individual stock. Please note that these weighted brood comparisons are for illustrative purposes only and may not indicate the relative contributing age composition from each brood. The department is currently exploring alternative methods to better indicate the relative brood contributions to the forecasted escapements.

Table 13-41: Projected spawners by forecasted stock over the forecast range, applying 2024 TAM rules and historical pMAs. Colour code shows comparison of p50 abundance forecast outcomes compared to cycle average and weighted brood year escapement (green = greater than 125%, no colour = between 75% - 125%, yellow = between 25% - 74%, red = less than 25%).

Option 1: Projected Spawner Comparisons for the 2020 Brood Year Escapement Plan

Run timing group	Total Escapement		Comparisons @p10		Comparisons @p25		Comparisons @p50		Comparisons @p75	
Stocks	Cycle Ave	Weighted Brood Years	Cycle Ave	Brood Year	Cycle Ave	Brood Year	Cycle Ave	Brood Year	Cycle Ave	Brood Year
Early Stuart	**42,694**	**42**	**0%**	**478%**	**1%**	**957%**	**1%**	**1435%**	**2%**	**2153%**
Early Summer	**144,327**	**78,436**	**23%**	**42%**	**37%**	**68%**	**64%**	**117%**	**98%**	**180%**
Bowron	16,248	312	1%	74%	2%	122%	4%	225%	7%	356%
Upper Barriere	7,609	899	10%	88%	20%	168%	40%	340%	77%	649%
Gates	10,541	7,109	49%	73%	82%	122%	147%	218%	224%	331%
Nadina	17,793	28,796	57%	35%	108%	67%	210%	130%	358%	221%
Pitt	32,946	3,968	13%	111%	20%	166%	31%	258%	42%	345%
Scotch	9,438	1,487	9%	58%	18%	112%	32%	204%	53%	337%
Seymour	33,602	959	1%	43%	2%	69%	3%	118%	5%	184%
Misc (EShu)	4,267	1,389	1%	4%	2%	6%	9%	27%	15%	45%
Misc (Taseko)	5,272	60	0%	17%	0%	17%	1%	67%	1%	67%
Misc (Chilliwack)	2,290	31,467	476%	35%	612%	45%	822%	60%	998%	73%
Misc (Nahatlatch)	4,321	1,991	7%	15%	12%	27%	37%	80%	64%	140%
Summer	**667,166**	**179,461**	**12%**	**45%**	**23%**	**85%**	**45%**	**166%**	**89%**	**332%**
Chilko	424,983	84,087	10%	50%	19%	96%	35%	175%	62%	315%
Late Stuart	46,043	7,687	3%	20%	8%	50%	22%	133%	60%	357%
Quesnel	17,655	4,949	2%	5%	4%	15%	14%	48%	43%	153%
Stellako	101,900	44,895	21%	47%	32%	73%	53%	121%	88%	199%
Harrison	63,665	32,507	17%	34%	42%	81%	108%	212%	282%	553%
Raft	5,987	4,561	89%	117%	140%	184%	236%	309%	405%	532%
Misc (N. Thomp. Tribs)	370	237	14%	21%	19%	29%	46%	72%	108%	169%
Misc (N. Thomp River)	5,916	224	1%	22%	1%	31%	3%	80%	7%	183%
Misc (Widgeon)	647	313	2%	3%	6%	13%	8%	16%	111%	230%
Late	**445,337**	**12,270**	**1%**	**42%**	**2%**	**76%**	**4%**	**143%**	**8%**	**301%**
Cultus	19,727	111	0%	9%	0%	18%	0%	27%	0%	63%
Late Shuswap	294,927	5,211	0%	1%	0%	2%	0%	10%	1%	46%
Portage	3,584	320	0%	3%	1%	6%	1%	16%	4%	41%
Weaver	27,986	1,480	0%	5%	1%	11%	2%	28%	5%	86%
Birkenhead	96,420	4,364	5%	115%	9%	203%	17%	376%	33%	718%
Misc. non-Shuswap	2,693	784	0%	1%	1%	4%	1%	5%	22%	77%

Option 2: Projected Spawner Comparisons for the Precautionary Escapement Plan with reduced LAERs for Early Stuarts and Early Summers

Run timing group	Total Escapement		Comparisons @p10		Comparisons @p25		Comparisons @p50		Comparisons @p75	
Stocks	Cycle Ave	Weighted Brood Years	Cycle Ave	Brood Year	Cycle Ave	Brood Year	Cycle Ave	Brood Year	Cycle Ave	Brood Year
Early Stuart	**42,694**	**42**	**0%**	**478%**	**1%**	**957%**	**2%**	**1675%**	**2%**	**2392%**
Early Summer	**144,327**	**78,436**	**24%**	**45%**	**37%**	**68%**	**64%**	**117%**	**98%**	**180%**
Bowron	16,248	312	1%	77%	2%	128%	5%	237%	7%	356%
Upper Barriere	7,609	899	11%	92%	21%	178%	42%	359%	77%	649%
Gates	10,541	7,109	52%	77%	87%	129%	156%	231%	224%	331%
Nadina	17,793	28,796	60%	37%	114%	71%	222%	137%	358%	221%
Pitt	32,946	3,968	14%	117%	21%	176%	33%	273%	42%	345%
Scotch	9,438	1,487	10%	61%	19%	119%	34%	215%	53%	337%
Seymour	33,602	959	1%	46%	2%	73%	4%	124%	5%	184%
Misc (EShu)	4,267	1,389	1%	4%	2%	6%	9%	29%	15%	45%
Misc (Taseko)	5,272	60	0%	n/a	0%	n/a	1%	n/a	1%	n/a
Misc (Chilliwack)	2,290	31,467	502%	37%	647%	47%	868%	63%	998%	73%
Misc (Nahatlatch)	4,321	1,991	7%	15%	13%	28%	39%	84%	64%	140%
Summer	**667,166**	**179,461**	**12%**	**45%**	**23%**	**85%**	**45%**	**166%**	**89%**	**332%**
Chilko	424,983	84,087	10%	50%	19%	96%	35%	175%	62%	315%
Late Stuart	46,043	7,687	3%	20%	8%	50%	22%	133%	60%	357%
Quesnel	17,655	4,949	2%	5%	4%	15%	14%	48%	43%	153%
Stellako	101,900	44,895	21%	47%	32%	73%	53%	121%	88%	199%
Harrison	63,665	32,507	17%	34%	42%	81%	108%	212%	282%	553%
Raft	5,987	4,561	89%	117%	140%	184%	236%	309%	405%	532%
Misc (N. Thomp. Tribs)	370	237	14%	21%	19%	29%	46%	72%	108%	169%
Misc (N. Thomp River)	5,916	224	1%	22%	1%	31%	3%	80%	7%	183%
Misc (Widgeon)	647	313	3%	6%	8%	16%	11%	22%	144%	297%
Late	**445,337**	**12,270**	**1%**	**45%**	**2%**	**80%**	**4%**	**152%**	**8%**	**301%**
Cultus	19,727	111	0%	9%	0%	18%	0%	27%	0%	63%
Late Shuswap	294,927	5,211	0%	1%	0%	2%	0%	10%	1%	46%
Portage	3,584	320	0%	3%	1%	6%	1%	16%	4%	41%
Weaver	27,986	1,480	0%	6%	1%	12%	2%	28%	5%	86%
Birkenhead	96,420	4,364	6%	122%	10%	214%	17%	376%	33%	718%
Misc. non-Shuswap	2,693	784	0%	1%	1%	5%	5%	17%	22%	77%

13.5.6.4 HARVEST CONSTRAINTS INCLUDING INCIDENTAL SOCKEYE CATCH, BYCATCH, AND LAER

Although unlikely, fisheries targeting late-run Fraser Sockeye may be affected in 2024 by conservation measures to protect Interior Fraser River (IFR) Steelhead. Dates and areas for rolling window closures can be found in Appendix 9.

Harvest Constraints: Fishing plan options are evaluated for a range of possible Fraser Sockeye run sizes and return timing. In-season run size and timing estimates form the basis for management once these estimates are available. There is significant overlap between Fraser run timing groups as well as stocks and species of concern (e.g., Fraser Chinook, Cultus Sockeye, and IFR Coho). The overlap of one timing group may constrain harvest opportunities on another timing group and the directed harvest of one species may be constrained by another. In some cases, full harvest targets may not be harvestable due to conservation concerns and management considerations that are identified in-season.

Though a total allowable catch (TAC) may be identified for various Fraser Sockeye management groupings in some years, conservation and management constraints on co-migrating stocks, management groups, or other species can affect harvest opportunities. In recent years the less abundant Fraser Sockeye management groups (i.e., Early Stuart, Early Summer, and Late Run Sockeye), as well as Spring 4_2 and Spring and Summer 5_2 Chinook, IFR Coho, and IFR Steelhead have been the primary harvest constraints when planning directed Fraser Sockeye fisheries.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

If in-season assessment information indicates that the escapement targets in the Fraser Sockeye escapement plan are not going to be achieved, then the priority is conservation. In cases when the total allowable mortality minus any management adjustment results in a zero or very low total allowable mortality for a timing group, the Department may consider measures to protect 80-90% or greater of the return of that Fraser Sockeye timing group, while allowing directed harvest of co-migrating stock groups or species. In the escapement plan table, this concept is expressed as the **low abundance exploitation rate (LAER)**. For example, in 2023 the LAER was 10% for all Fraser Sockeye run timing groups.

The low abundance exploitation rate (LAER) is the maximum allowable ER; it's not a harvest target and may be managed to well-below the maximum ER. The objective of the LAER is to allow as many fish to pass to the spawning grounds as possible while allowing some limited

incidental mortality, and in some cases, some limited directed harvest when there is little opportunity for harvest directed on other Fraser Sockeye stock groups or co-migrating species. Fisheries are only considered if they provide scientific information necessary for conservation (test fisheries) or have reasonably low catch impacts on Fraser Sockeye. **All fishery impacts, including test fisheries, are to be accounted for under the LAER.** Additional considerations under LAER management necessary for fishery planning include: current and projected catch accounting for all U.S. and Canadian fisheries, the distribution of impacts between gear groups, gear selectivity, release mortality rates, Sockeye mortality relative to target species, compliance with licence regulations, and environmental conditions.

For First Nations FSC fisheries, the LAER is not a harvest target, the above considerations apply, and a sharing plan may be required to enable a fair distribution of impacts between marine and Fraser River First Nations. When FSC fisheries are prosecuted using the LAER, the licence amounts by area (South Coast, Lower Fraser, Middle/Upper Fraser) are generally used to guide low impact fisheries for other species or stocks.

Early Stuart Management

The 2024 Early Stuart return represents the historically non-dominant cycle year. The main contributor to the 2024 return is forecasted to be age four fish from the 2020 brood year. Similar to the management of all timing groups, the implications of the escapement strategy for Early Stuart fishing plans will be influenced by in-season run size estimates and management adjustments which may be adjusted based on water temperature and discharge conditions in the Fraser River, and considerations for Big Bar landslide, during the return migration. Based on the escapement plan, the pre-season forecast, and pre-season management adjustments, Early Stuart Sockeye will remain in a low abundance exploitation rate (LAER) situation throughout the entire forecast range.

In recent years, window closures and other fishing restrictions have been required in commercial, recreational, and First Nations fisheries to stay within the LAER objectives identified in the escapement plan. Management measures in 2024 will include a rolling early season window closure based on the run timing of the Early Stuart migrations through various fishing areas until arrival at the spawning grounds.

Table 13- shows the window closure dates to protect Early timed Sockeye stocks (i.e., Early Stuart and the early-timed Early Summer Run Sockeye). Typically a 3-week closure has been implemented to protect the Early Stuart Run. However, since 2019 a one-week extension of the typical 3-week closure (resulting in a 4-week closure in total) has been implemented to also provide protection to weak, early-timed stocks of the Early Summer Run management group (e.g., Bowron, Taseko). In 2023, an additional week (5-week closure in total) was implemented to provide additional protection for early-timed Sockeye stocks. In 2024, the Department is also seeking feedback on a proposed 5-week window closure to provide additional protection for early-timed stocks that were impacted by Big Bar. **However, note that the actual closure dates**

and duration may be revised pre-season or in-season based on updated timing or other in-season information.

Table 13-42: Dates for the 2024 Early Stuart window closure (4-weeks) plus 1 week extension to provide additional protection for earlier-timed stocks of the Early Summer run Sockeye (i.e., 5-week total closure)

Area	Start Date	4-Week End Date	5-Week End Date	Management Actions[2]
Areas 24 to 27, 111, 121, 123 to 127	19-Jun	22-Jul	29-Jul	No Fraser Sockeye directed fisheries before July 22 (Sn, Gn, Tr); July 29 for 5 week end date
Area 11	24-Jun	22-Jul	29-Jul	No Fraser Sockeye directed fisheries before July 22; July 29 for 5 week (Gn, Tr); July 25 (Sn)[1] August 1 for 5 week end
Area 12	24-Jun	22-Jul	29-Jul	No Fraser Sockeye directed fisheries before July 22; July 29 for 5 week end (Gn, Tr, Sn)[1]
Area 13	24-Jun	22-Jul	29-Jul	No Fraser Sockeye directed fisheries before July 22; July 29 for 5 week end (Gn, Tr,Sn)[1]
Areas 14 to 16	24-Jun	22-Jul	29-Jul	No Fraser Sockeye directed fisheries before July 22; July 29 for 5 week end (Gn, Tr)[1] or August 15 (Sn)
Areas 17, 19, 20 and 21	24-Jun	22-Jul	29-Jul	No Fraser Sockeye directed fisheries before July 22; July 29 for 5 week end (Gn, Tr,Sn)[1]
Areas 18 and 29	28-Jun	27-Jul	3-Aug	No Fraser Sockeye directed fisheries before July 27; August 3 for 5-week end
Steveston-Mission Bridge	28-Jun	27-Jul	3-Aug	
Mission Bridge-Sawmill Cr	30-Jun	29-Jul	5-Aug	No Fraser Sockeye directed fisheries before July 29; Agust 5 for 5-week end
Sawmill Cr-Texas Cr	3-Jul	1-Aug	8-Aug	No Fraser Sockeye directed fisheries before August 1, August 8 for 5-week end
Texas Cr-Kelly Cr	3-Jul	1-Aug	8-Aug	
Kelly Cr-Deadman	3-Jul	1-Aug	8-Aug	
Deadman-Chilcotin	9-Jul	7-Aug	14-Aug	No Fraser Sockeye directed fishereies before August 7; August 14 for 5-week end
Chilcotin-Quesnel	9-Jul	7-Aug	14-Aug	
Quesnel-Hixon	9-Jul	7-Aug	14-Aug	
Hixon-Prince George	11-Jul	9-Aug	16-Aug	No Fraser Sockeye directed fishereies before August 9; Augsut 16 for 5-week end
Prince George-Stuart R	13-Jul	11-Aug	18-Aug	No Fraser Sockeye directed fisheries before August 11; August 18 for 5-week end except for potential First Nations FSC harvest in terminal areas.

Note: dates are based on pre-season Area 20 peak run timing forecasts. Exate dates are subject to change based on in-seasor run timing

[1] Gear restrictions remain in place to protect Sakinaw Sockeye until July 25 (Queen Charlotte and Johnstone Straits) and August 15 (northern Strait of Georgia).

[2] Management actions described here are just for Fraser River Sockeye-directed fisheries. Any fisheries directed on other stocks or species in the areas and times described may also have measures to limit impacts on Fraser-bound Sockeye (e.g. gear restrictions in licence conditions).

Early Summer Management

Forecasted returns for stocks within this management group are variable but well below average given the poor escapements in the brood year and comprise ~28% of the total median

forecast. Nadina is the largest contributor (41%) to the Early Summer MU, but comprise only 11% of the total forecast.

Based on the escapement options, the pre-season forecast range and long-term median management adjustment values, Early Summers will be in a LAER near or below the p75 forecast level. Directed harvest opportunities on Early Summer Run Sockeye are anticipated to be low at even the upper forecast range and harvest may be limited by constraints on co-migrating groups (e.g., Early Stuart) and other stocks of concern. In 2024, the Department is seeking feedback on a 4-week and a 5-week window closure to provide added protection for the early component of the Early Summer Run Sockeye (e.g., Bowron, Taseko) and other stocks affected by Big Bar. **For fishery planning and management, see Table 13- for the 2024 window closure dates; however, note that the actual closure dates and duration may change pre-season or in-season based on updated timing or other in-season information.**

Summer Run Management

Summer Run Sockeye comprise approximately 67% of the total 2024 return at the median forecast. Chilko and Harrison are the largest contributors of the Summer run stocks (46% and 28%, respectively) and comprise a significant portion of the overall 2024 forecast (50%). Based on the escapement plan, the pre-season forecast range, and long-term median management adjustment values, the Summer Run is estimated to be in a LAER at returns below the p90 forecast. Directed harvest opportunities on the Summer run are unlikely in 2024; however, some AFE harvest may be available at the upper end of the forecast but will be limited by constraints on co-migrating groups (e.g., Early Summer, and Late Run) and stocks of concern (e.g., Fraser Chinook, Cultus Lake Sockeye, Interior Fraser Coho)..

Late Run and Cultus Lake Sockeye Management

The Late Run return in 2024 represents a non-dominant cycle line and is expected to be well below the cycle line average. Late Run Sockeye comprise approximately 5% of total forecasted return in 2024 with Birkenhead being the largest contributor.

Historically, the ocean migration timing of Late Run Sockeye was similar to Summer Run Sockeye, however, Late Run Sockeye typically delayed entering the Fraser River by 4 to 6 weeks. Beginning in the mid-1990s, Late Run Sockeye entered the Fraser River much earlier, and experienced very high levels of en-route and/or pre-spawn mortality. More recently, the trend towards shorter periods of delay and earlier upstream timing appears to be reversing. While a range of studies have been undertaken to understand the cause and impact of this phenomenon, no causal factors have been identified. Planning for 2024 may take timing into account, specifically when calculating in-season management adjustments for this group.

Based on the pre-season forecast, directed harvest opportunities on Late Run Sockeye are not expected in 2024 as Late Run Sockeye are forecasted to be in a LAER across the forecast range. Late Run Sockeye may be indirectly harvested in fisheries directed on Summer Run Sockeye, should Summers return at p90 or above, and will be subject to constraints on co-migrating stocks of concern such as Cultus Lake Sockeye and Interior Fraser Coho.

Cultus Lake Sockeye

Management of Cultus Lake Sockeye will be based on the Cultus Lake Sockeye recovery objectives and an assessment of in-season information for the Late Run Sockeye stock aggregate. For more information on the recovery objectives, refer to Section 6.7 of the IFMP under Fishery Management Objectives for Stocks of Concern.

Due to the low numbers of Cultus Lake Sockeye compared to co-migrating stocks, the abundance and exploitation rate for Cultus Lake Sockeye cannot be calculated directly. For management purposes, the Cultus abundance, exploitation rate and en-route mortality is assumed to be the same as the abundance (relative to run size forecast p-values), exploitation and en-route mortality rate for similarly timed Late Run stocks caught seaward of the confluence of the Fraser and Vedder Rivers. Exploitation rates are based on DNA analysis of Sockeye sampled either directly from fisheries or indirectly, from nearby test fisheries. En-route mortality estimates are based on the Late Run management adjustment which may be updated in-season.

Assessment of the Cultus population shown in Table 13- is sensitive to assumptions about en-route and pre-spawn mortality. Assuming the average estimated pre-spawn mortality (PSM) since the early upstream migration of Late Run began in 1996 (approximately 40%), the Late Run (excluding Birkenhead) pDBE, and the p10 to p90 pre-season forecast abundance range, the short-term minimum recovery objectives 1 and 2 (see below and Section 6.7 of the IFMP under Fishery Management Objectives for Stocks of Concern) for the Cultus population are unlikely to all be met in 2024. The values in the table are also limited to the maximum exploitation rate permissible for Late Run Sockeye based on the escapement plan (i.e., LAER), abundance and management adjustment. In-season, these maximum exploitation rates for Cultus Sockeye may be higher or lower than indicated, due to interactions between run size, management adjustment, pre-spawn mortality, Late Run escapement plan and Cultus recovery objectives. These exploitation rates are not intended to be used as management targets and in-season fishery management planning will take into account a range of considerations including updated assumptions based on in-season information as well as objectives for other Fraser Sockeye management groups and/or other stocks/species. Table 13- shows how the projected successful spawners compared to Objectives 1 & 2 across the middle forecast range, with pre-

season assumptions of en-route and pre-spawn mortalities. Objectives 3 and 4 are longer-term objectives and the performance of Cultus in relation to these objectives is not being assessed in Table 13-.

Table 13- illustrates the potential differences in outcomes based on varying levels of exploitation, including a zero percent (no harvest) scenario. For this table, brood stock removals are set at 200 adults, which is the objective in 2024. The 2024 calculations assume the average pre-spawn mortality rate since 1996 of approximately 40%.

Table 13-43: Assessment of Cultus Lake Sockeye population performance, based on the escapement plan, a range of pre-season run sizes and management adjustments to account for en-route losses.

2024 projected Cultus successful spawners

		p10			p25			p50			p75			p90		
run size		35			65			140			290			587		
exploitation rate (ER)		20%	10%	0%	20%	10%	0%	20%	10%	0%	20%	10%	0%	20%	10%	0%
pDBE	-0.74															
projected adults to the fence		7	8	9	14	15	17	29	33	36	60	68	75	122	137	153
brood stock (excluded from calculations)	200															
potential wild spawners		4	4	5	7	8	8	15	16	18	30	34	38	61	69	76
pre-spawn mortality (PSM)*	40%															
projected successful adult spawners		0	0	0	0	0	10	10	10	10	20	20	20	40	40	50

Cultus Management Objectives - projected 2024 evaluation

Management Objectives	value	p10			p25			p50			p75			p90		
1a. 4 year avg successful spawners **		173	173	173	173	173	175	175	175	175	178	178	178	183	183	185
	> 1000	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
1b. minimum 500 in each year (2019-2023)**		no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
2a. 4 year avg > previous 4 year avg	> 189	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
2b. current year > brood year	> 67	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no

* PSM value of 40% used in these calculations are based on the average PSM since 1996, some of which were not directly attained through stock assessment programs - see note below

** successful spawners estimates are highly dependent on PSM assumptions, which can be difficult to assess due to difficulties in retrieving Cultus sockeye carcasses after spawning

Because conditions for fry survival in Cultus Lake continue to be extremely poor, enhancement is focussed on producing hatchery smolt releases that will bypass the use of the lake, thereby improving freshwater survival. Broodstock collection will continue in 2024, with a primary release strategy of 50,000 smolts to be released into Sweltzer Creek near the outlet of Cultus Lake in the spring of 2026. Alternative fry programs that release juveniles into Cultus Lake in 2025 will take place only if additional enhancement rearing capacity is achieved through facility improvements.

13.5.6.5 ALLOCATION AND FISHING PLANS

13.5.6.5.1 FIRST NATIONS FISHERIES

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic

disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Food, social and ceremonial (FSC) fisheries in the Fraser River, including sub-Areas 29-6, 29-7, 29-9, and 29-10, could be affected by 2024 IFR Steelhead conservation measures. A 27-day rolling window closure will be applied to FSC fisheries according to the times and areas outlined in Appendix 9. These measures will not extend to marine FSC fisheries.

Actual opportunities and catches will be dependent on, among other factors: in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance. For these reasons, in some cases, groups may not be able to harvest their full shares. FSC fisheries will be planned to maximize the use of selective gear types and reduce bycatch where possible.

Refer to Section 10.2 for Table 10- - Communal Licence Harvest Target Amounts in Southern BC/Fraser River First Nations Fisheries.

Specific Conservation Measures for First Nations Fisheries

Early Stuart Sockeye

Refer to Section 13.5.6.3, and LAER for details.

Cultus Lake and Late Run Sockeye

Refer to Section 13.5.6.3, and LAER for details.

Fishery Monitoring and Catch Reporting

Marine Waters

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations are asked to keep records of harvest and provide catch information to DFO in a variety of formats. Under this licence, if a commercial vessel is used for fishing, First Nations are asked to provide information respecting the species and quantity of fish harvested by this vessel, to the DFO Catch Reporting Officer within 24 hours from landing harvested catch. In addition, catch reporting timelines for First Nations fisheries are outlined in Comprehensive Fisheries Agreements and/or Aboriginal Communal Fishing Licences. Where in-season management requires, catch reports are sought weekly during the respective fishing season.

Fraser River and Tributaries

Catch monitoring programs are managed through Activity Funding or Comprehensive Fisheries Agreements.

In the lower Fraser River (below Sawmill Creek), monitoring programs implemented vary between Nations but typically include landing site or vessel based collection of catch and effort information paired with validation of effort by vessel patrols or overflights. Catch reports are received by DFO from catch monitoring programs on a weekly basis, within 48 hours of a fishery closing.

For fisheries on the Fraser watershed above Sawmill Creek, catch monitoring programs typically range from basic census type to more enhanced programs that include collecting effort and catch rate information in creel sample programs.

Treaty Fisheries

Treaty fisheries in the Fraser River, including sub-Areas 29-6, 29-7, 29-9, and 29-10, could be affected by 2024 IFR Steelhead conservation measures. A 27-day rolling window closure will be applied to Treaty fisheries according to the times and areas outlined in Appendix 9. These measures will not extend to marine Treaty fisheries.

Tsawwassen First Nation (TFN) Fisheries (Domestic)

The domestic allocation for Sockeye salmon under the Tsawwassen First Nations Final Agreement (TFN FA) is as follows:

- When the Canadian Total Allowable Catch (CTAC) for Fraser River Sockeye Salmon is 500,000 or less, 1.0% of the CTAC for Fraser River Sockeye Salmon;
- When the CTAC for Fraser River Sockeye Salmon is greater than 500,000 and less than 3.0 million, then 5,000 Fraser River Sockeye Salmon plus 0.40904% of that portion of the CTAC for Fraser River Sockeye that is greater than 500,000 and less than 3.0 million; and
- When the CTAC for Fraser River Sockeye Salmon is equal to or greater than 3.0 million, then 15,226 Fraser River Sockeye Salmon.

The monitoring program for TFN Domestic fisheries includes fisher logs supplemented by validations of catch and effort through on-water patrols and/or observations of landings.

Details of monitoring programs in place can be found in the Tsawwassen First Nation Fisheries Operational Guidelines (TFN FOG).

Tla'amin Fisheries (Domestic)

The Domestic allocations for Fraser River Sockeye Salmon under the Tla'amin Final Agreement are as follows:

- In any year, the Tla'amin Fish Allocation for Sockeye Salmon is: a number of Fraser River Sockeye Salmon equal to:
- When the CTAC for Fraser River Sockeye Salmon is less than or equal to 2.0 million, 0.5% of the CTAC for Fraser River Sockeye Salmon; or
- When the CTAC for Fraser River Sockeye Salmon is greater than 2.0 million and less than or equal to 6.5 million, 10,000 Fraser River Sockeye Salmon plus 0.1% of that portion of the CTAC for Fraser River Sockeye Salmon that is greater than 2.0 million and less than or equal to 6.5 million; or
- When the CTAC for Fraser River Sockeye Salmon is greater than 6.5 million, 14,500 Fraser River Sockeye Salmon plus 0.048% of that portion of the CTAC for Fraser River Sockeye Salmon that is greater than 6.5 million.

The Tla'amin Nation provides catch reports to the Department through the Aboriginal Harvest Management System (AHMS). The information recorded on catch reports includes the gear type, fishing time period, location of harvest, harvest count by species, harvest effort, and biological samples.

Maa-nulth Fisheries (Domestic)

The domestic allocation for Sockeye Salmon under the Maa-nulth First Nations Final Agreement is an amount of Fraser River Sockeye Salmon equal to 0.13366% of the Fraser River Sockeye Salmon Canadian Total Allowable Catch.

The Maa-nulth First Nations provide catch reports to the Department through the Maa-nulth Electronic Reporting Program (MERP). The information recorded on catch reports includes the gear type, fishing time period, location of harvest, harvest count by species, harvest effort, and pieces of salmon harvested.

Five Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht / Muchalaht, and Tla-o-qui-aht First Nations) Multi-species Fishery

Five Nuu-chah-nulth First Nations located on the west coast of Vancouver Island – Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) – have an

Aboriginal right to fish for any species, with the exception of Geoduck, within their court-defined fishing territories and to sell that fish. For further information please see Section 10.3.1.

The Five Nations Multi-species fishery for Fraser River Sockeye will not be affected by 2024 IFR Steelhead conservation measures.

13.5.6.5.2 Recreational Fisheries

Recreational fisheries in the Fraser River (including sub-Areas 29-6, 29-7, 29-9, and 29-10) will be affected by 2024 IFR Steelhead conservation measures, amongst other closures. A 42-day rolling window closure will be applied to recreational fisheries according to the times and areas outlined in Table 13- below and in Appendix 9. These measures will not extend to marine recreational fisheries.

Table 13-44: Dates and Area for the Interior Fraser River 42-day Rolling Closure for Recreational Fisheries in the Fraser River.

Fishery Location	Start	End
Area 29: 29-6, 29-7, 29-9, and 29-10	19-Sep	30-Oct
Mouth to Port Mann Bridge	19-Sep	30-Oct
Port Mann Bridge to Mission	21-Sep	1-Nov
Mission to Hope	22-Sep	2-Nov
Hope to Sawmill Creek	26-Sep	6-Nov
Sawmill Creek to Lytton (Thompson Confluence)	28-Sep	8-Nov
Lytton to Texas Creek	1-Oct	11-Nov
Texas Creek to Kelly Creek	3-Oct	13-Nov
Kelly Creek to Deadman Creek	6-Oct	16-Nov
Deadman Creek to Chilcotin River	9-Oct	19-Nov
Chilcotin River	12-Oct	22-Nov
Thompson River – Thompson Confluence to Bonaparte	1-Oct	11-Nov
Thompson River – Bonaparte River to Kamloops Lake	5-Oct	15-Nov

Opportunities for targeted Fraser River Sockeye fisheries will be determined based upon in-season assessment and abundance of Fraser River Sockeye stocks. Sockeye non-retention will be in effect in most South Coast waters until such time as in-season information indicates a total allowable catch of Fraser Sockeye.

In years when opportunities are available for recreational Sockeye, fisheries typically take place in August and September, and updates are provided via Fishery Notice and on the recreational fisheries website: http://www.bcsportfishingguide.ca. The normal daily limit is four Sockeye in marine waters and two Sockeye in non-tidal waters. In some cases, recreational fisheries may be reduced or closed due to conservation concerns and management considerations that are identified in-season. Due to conservation concerns for other species of Fraser River salmon, Sockeye opportunities may be delayed or forgone. Refer to Section 13.5.6.3, and LAER for details.

As part of the 2024 Chinook management measures, Fraser River recreational fisheries will remain closed to salmon fishing until open. Opportunities for species other than Chinook will be informed by in-season abundance and other conservation issues (IFR Coho, IFR Steelhead, etc.). As noted in Section 13.1, if these fisheries proceed, there may be no fishing for Chinook Salmon if stocks of concern may be encountered. Reduced fishing opportunities may be provided in tributary areas during times and locations where at-risk Chinook stocks would not be encountered and where abundance of the target species permits. This may include, but is not limited to, the following times and areas:

Fraser River, Region 5A - The waters of Horsefly Bay: August 23 to September 15

Fraser River, Region 7 - Nechako River downstream of the Foothills Bridge: August 27 to September 30

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Fishery Monitoring and Catch Reporting

Marine Waters

Catch monitoring programs including creel surveys, logbooks and the Internet Recreational Effort and Catch (iREC) reporting program, are the main tools used to capture recreational catch and effort information for this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational effort and harvest in each area.

Fraser River and Tributaries

Creel surveys are conducted in portions of the lower Fraser River and select tributaries in order to estimate recreational catch and effort for the times and areas surveyed. Typically, the creel survey in the lower Fraser River mainstem begins when the river is opened to recreational salmon fishing; however, recently the survey end date has trended toward the end of

November as the mainstem opening has trended later in the year. The creel surveys conducted on the Chilliwack River and Nicomen-Norrish recreational fisheries have remained relatively stable over the last number of years both in times and areas surveyed (generally, Chilliwack is surveyed from mid-September to mid-November and Nicomen-Norrish is surveyed from early October to the end of November).

Catch monitoring programs in the Fraser watershed upstream of Alexandria will range from fisher reported catch to highly intensive creel surveys; however, some times and areas are unmonitored. Expected effort and catch, harvest rates, potential bycatch, and any biological sampling requirements are taken into account when planning the catch monitoring program for these areas.

13.5.6.5.3 Commercial Fisheries

As of 2021, additional mitigation measures were implemented in this fishery to increase protection for stocks of conservation concern. See Appendix 8 for a complete list of fisheries where additional mitigation measures were implemented.

Conservation measures to protect Interior Fraser River Steelhead will affect Fraser Sockeye fisheries if fisheries persist late in the season. Dates and areas for rolling window closures can be found in Appendix 9.***New for 2024:** A review of the Interior River Steelhead Window Closure boundary in portions of Area 29 is currently underway and any in-season changes will be announced by Fishery Notice or included in the final IFMP.

Commercial fisheries for Fraser River Sockeye may occur both in the marine approach waters and within the Fraser River and tributaries. In the marine waters, these commercial fisheries include the Area B seine and the Area H troll individual transferable quota (ITQ) fisheries, and the Area D gill net full fleet competitive (derby) fishery. Additionally, in years with large returns, Area G troll fishing opportunities on the West Coast of Vancouver Island may be considered. Within the Fraser River and tributaries, commercial fisheries include the Area E gill net full fleet competitive (derby) fishery, along with First Nations economic opportunity (EO) and demonstration fisheries. There may also be consideration for escapement surplus to spawning requirement (ESSR) fisheries in terminal areas.

Opportunities for targeted Fraser River Sockeye fisheries are determined by in-season assessment and abundance of Fraser River Sockeye stocks. Fishing opportunities will be subject to achieving fisheries management objectives for constraining stocks and species of concern (Early Stuart Sockeye, Cultus Lake Sockeye, Nimpkish Sockeye, Sakinaw Sockeye, IFR Coho, IFR Steelhead, and Fraser River Spring 4_2 and Spring/Summer 5_2 Chinook) in areas where they are present. Even if fishing opportunities are available, in some cases full harvest targets may

not be harvestable due to conservation concerns and management considerations that are identified in-season.

Allocation

Table 13-45: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South – Fraser – Small Return Years	11 to 20, 29, 121, 123 to 127	48.5%	21.6%	25.1%	0.0%[d]	4.8%

Notes on Sockeye allocation (south):
[d] a 1% share to occur in large Fraser River return years only. A 1% reduction will be proportionately applied across other fleets in those years.

Johnstone Strait (Areas 11 to 13)

*Area B (Seine) and Area D (Gill Net)**

Early to Late July

- Commercial fisheries in Queen Charlotte Strait and Johnstone Strait will be closed until July 25 in order to protect Sakinaw Lake and July 22nd or July 29th (depending the Final IFMP) to protect Fraser River Early Stuart and early-timed Early Summer Run Sockeye. No fishing opportunities are available above Lewis Point prior to late July to protect returning Nimpkish River Sockeye.

August to Early-September

- Opportunities will be based on in-season assessment and abundance information. If a fishery occurs, Area B seines will be managed as an ITQ demonstration fishery (along with Area H troll - see details below in demonstration fisheries section). Area D gill nets will be managed as an open, competitive (derby-style) fishery.

Strait of Georgia (Area 14 and 16)

Area B (Seine)

Consideration may be given for Fraser River Sockeye seine fisheries in portions of Area 14 and Area 16 (Sabine) subject to in-season information, as well as constraints for Sakinaw Sockeye and for other stocks of concern.

Juan de Fuca Strait, Strait of Georgia and Fraser River (Areas 18, 20 and 29)

Area B (Seine)

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Subject to in-season information, Area B seine opportunities will be considered in Juan de Fuca (Area 20), Area 18, and Area 29. Opportunities and fishing locations will be confirmed based on in-season information.

The Fraser River Panel in conjunction with DFO will develop and implement Fraser River Sockeye fishing plans for these areas, as they fall within Fraser River Panel management responsibilities.

Early to Late July

- No fisheries anticipated prior to early August in order to protect early-timed Fraser River Sockeye stocks.

Late July to Mid-August

- Fraser River Sockeye fishing plans will be based on in-season estimates of abundance and timing.
- Coho release mortalities, TAC and diversion rate will be factors determining available harvest opportunities during this period.

Late August to early September

Opportunities for harvesting Sockeye will be based on in-season abundance and assessment information, and subject to IFR Coho, Cultus (Late Run) Sockeye and IFR Steelhead constraints.

Area 29 and Tidal Waters of the Fraser River

Area E (Gill Net)

Subject to in-season information, Area E gill net opportunities will be considered in Area 29, including tidal waters of the Fraser River and off the Fraser River mouth. Opportunities and fishing locations will be confirmed based on in-season information. Fisheries may take place in August. Fisheries in early September will be subject to constraints due to co-migrating IFR Coho salmon. Sockeye fisheries will not be considered after the IFR Coho window closure date as described under Fraser River Fisheries in Section 13.3.2.5 of the southern Coho Species plan.

A combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Queen Charlotte Strait and Johnstone Strait (Areas 11 to 13), and lower Strait of Georgia (Areas 18 and 29)

Area H (Troll)

Actual opportunities for targeted Fraser River Sockeye fisheries will be determined based upon in-season assessment and abundance of Fraser River Sockeye stocks and also subject to achieving fisheries management objectives for constraining stocks and species of concern (Early Stuart Sockeye, Cultus Lake Sockeye, Nimpkish Sockeye, Sakinaw Sockeye, IFR Coho, IFR Steelhead, and Fraser River Spring 4_2 and Spring/Summer 5_2 Chinook) in areas where they are present.

If an opportunity is available, ITQ fisheries could occur in Queen Charlotte Strait and Johnstone Strait (Areas 11 to 13), and in the lower Strait of Georgia (Areas 18 and 29). Fishing opportunities will be confirmed in-season following consultation with industry and will depend on run size, diversion rate and Area H TAC. If a fishery occurs, Area H troll will be managed as part of the Area B Seine and Area H Troll ITQ demonstration fishery (see details below in demonstration fisheries section).

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

West Coast Vancouver Island and Queen Charlotte Strait (Areas 11, 12, 20, 111, 121 to 127)

Area G (Troll)

Fishing opportunities for Fraser River Sockeye are not planned in 2024 given Area G only receives an allocation for Fraser in years of large returns based on commercial allocation agreements.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for SRKW and reduce physical and acoustic disturbances to these whales. Fishing restrictions promote foraging for SRKW within key foraging areas in their identified critical habitat. These measures are outlined in Section 5.6.

Fishery Monitoring and Catch Reporting

Fishery Monitoring and Catch Reporting includes the following:

- Over-flights conducted to count vessels (effort) in each Area D gill net opening; counts of Area B seine and Area H troll vessels are also made if they are present in the fishing area.
- On-grounds DFO funded charter patrol coverage in portions of Areas 12 and 13.
- Vessel counts conducted to verify number of vessels (effort) in each Area E gill net opening.
- On-water observer coverage (on grounds charter patrol and DFO roving catch monitoring coverage) in each Area E gill net openings to conduct net haul observations and gather independent information on encounters of target and non-target species.
- Mandatory requirement to file fishing reports in all commercial fisheries, including "Start/Pause/Cancel/End" Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest log and electronic transmission with an electronic harvest log (E-log). Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type.
- 100% dockside catch validation for Area B seine and Area H troll ITQ fisheries.
- Partial independent on-board/at-sea observer coverage for Area B seine and Area H troll fisheries in areas where species and stocks of concern are present (e.g. Areas 16, 20, 29).

South Coast Fraser Sockeye Demonstration Fisheries

Area B Seine and Area H Troll Fraser River Sockeye Individual Transferable Quota (ITQ) Demonstration Fishery

Please see Appendix 7 for more information on the Area B and Area H Fraser Sockeye a ITQ demonstration fishery guidelines for 2024.

This demonstration fishery will be similar to the quota based ITQ Fraser River Sockeye fishery that was planned for 2009-2023. Note that a separate demonstration fishery proposal is provided for a demonstration – experimental seine fishery in the lower Fraser River.

Region: South Coast and Lower Fraser River Areas

Participants: All Area B seine and Area H troll licence holders

Location of Fishery: Seine fishing areas that will be considered in the fishery include: Johnstone Strait (portions of Area 12 and 13), Juan de Fuca (portions of Area 20), portions of Areas 16 and 18, and portions of Area 29 off the Fraser River mouth, which may include depths shallower than 45 m.

- In Area 20, additional measures may be in place to minimize impacts on Coho. Consideration for seine fishing opportunities in Area 20 will also be dependent on diversion rate estimates.
- Troll fishing areas that will be considered in the fishery include; Johnstone Strait (portions of Areas 12 and 13), portions of Areas 16 and 18, and portions of Area 29 off the Fraser River mouth. In Areas 12, 13 and 20, additional restrictions will be identified around test-fishing locations to minimize impacts on test-fishery assessment requirements.

Gear Type: Seine and troll gear, selective fishing measures are mandatory and are specified by licence conditions.

- Power skiffs may be used where conditions of licence permit. Shallow seine nets may be used in areas off the mouth of the Fraser.

Time Frame: This fishery is planned to occur when Fraser River Sockeye Canadian Commercial TAC is identified. It is anticipated that this fishery will take place within the time period of early August to early September.

- The Area H troll fishery is anticipated to be open on a 7 day per week basis as TAC permits. The Area B seine fishery is expected to be open 5 to 7 days per week and will be dependent on the amount of available TAC and the available time frame for the fishery.
- It is expected that Area B seine fishing opportunities in Area 20 and Area 29 will also be managed to a boat day limit to control impacts on Interior Fraser Coho.

Allocation: The fishery will be based on available Fraser River Sockeye commercial TAC. Shares for each fleet will be based on the commercial allocation plan.

- The Fraser River Sockeye quota (ITQ) will be determined by DFO by dividing the respective Area B and Area H Fraser River Sockeye allocations by the total number of licences for Area B and Area H multiplied by the available commercial Fraser River Sockeye Total Allowable Catch (TAC) determined in-season.
- The quota share will be expressed as a percentage of the TAC and the percentage will remain fixed in-season, subject to amendments for in-season quota transactions. The TAC may be distributed over the course of the fishery in

increments. The TAC will be announced by fishery notice and adjusted as required. Updates will typically be announced following Fraser River Panel meetings (usually Tuesdays and Fridays).

- Quota will be transferable within each licence area (e.g., Area B to Area B; or, Area H to Area H) as well as between licence areas (e.g., Area B to Area H; or vice versa).
- Transfers to or from other commercial fisheries are currently under review by the Department.
- The target species is Sockeye and bycatch retention of Pink may be permitted. Due to the absence of scientific information on the impacts of Fraser Sockeye fisheries on summer-timed Chum populations, the Department will follow the precautionary approach and not permit the retention of Chum bycatch during Fraser Sockeye fisheries. The use of at-sea observers will be required to gather samples during these fisheries. There will be non-retention of Coho, Chinook and Steelhead.

Monitoring Plan: Start, end, pause and daily catch reports will be required by phone-in or electronic logbook. There is a requirement for 100% third-party dockside validation of the catch at designated landing locations. Over flights will be conducted and charter patrol will monitor the fishery.

Additional on-grounds observer coverage/monitoring may be required to assess the releases of non-target species in Area B and H Sockeye fisheries. Observer requirements will be determined in-season, subject to areas fished and effort.

Additional monitoring requirements are required and in place for the Area 20 seine fishery including on-grounds management, set by set reporting in established grid zones and observer coverage.

Area B Seine Fraser River Sockeye Demonstration (ITQ) Fishery in the Lower Fraser River

This demonstration fishery proposal is similar to the proposal that was provided by Area B to DFO in 2010.

The purpose of this experimental fishery project is to demonstrate the effectiveness of harvesting Fraser River Sockeye salmon within the confines of the Fraser River, employing the selective capabilities of a purse seine and secondly to capitalize on the ability to continue the harvest of Sockeye salmon that may not be available in marine areas due to other constraints.

This fishery would be managed as part of the Area B and H demonstration ITQ fishery for Fraser River Sockeye salmon.

Region: Lower Fraser River Area

Participants: All Area B licence holders will be eligible. However, as this is an experiment, effort controls will be in place to limit participation to a maximum of eight to ten vessels fishing on any given day

Location of Fishery: Area 29 in-river: Area B has indicated there are a number of potential locations around New Westminster, Glenrose, the Cement Plant and down to the Deas Tunnel that would be suitable for seining and would for the most part, be out of the shipping lanes

Gear Type: Seine gear using shallow seine nets, the use of power skiffs and selective fishing measures are mandatory and are specified by licence conditions

Time Frame: This fishery is planned to occur when Fraser River Sockeye Canadian Commercial TAC is identified. It is anticipated that this experimental fishery would take place sometime within the time period of mid-August to late September.

- Consideration of other fisheries in the area will be taken into account when planning Area B in- river fishing activities. Specific fishing times would be confirmed in-season through an integrated planning process. The amount of available fishing days for this experiment will be confirmed in-season.

Allocation: For this experimental fishery to proceed, it will require available Fraser River Sockeye commercial TAC. The harvest from this fishery will be part of the Area B and H Fraser River Sockeye ITQ demonstration fishery. The quota share will be expressed as a percentage of the commercial TAC.

- As this is an experimental fishery, there will be a cap on the total allowable harvest in this fishery and the amount will be confirmed in-season. The target species is Sockeye salmon, retention Pink may be permitted; there will be non-retention of all other species.

Monitoring Plan: As per the Area B and H Fraser River Sockeye demonstration ITQ fishery, start, end, pause and daily catch reports will be required by phone-in or electronic logbook. There is a requirement for 100% dockside validation of the catch at designated off- loading locations.

- There will be a requirement for observer coverage on all vessels participating in this fishery. In addition to monitoring catch, observers will be available to collect any DNA sampling that is required and identified.

13.5.6.5.4 Fraser First Nations Commercial Sockeye Harvest

As of 2021, additional mitigation measures were implemented in this fishery to increase protection for stocks of conservation concern. See Appendix 8 for a complete list of fisheries where additional mitigations measures were implemented.

Conservation measures to protect Interior Fraser River Steelhead will affect Fraser Sockeye fisheries if fisheries persist late in the season. Dates and areas for rolling window closures can be found in Appendix 9.

Opportunities for targeted Fraser River Sockeye fisheries will be determined based upon in-season assessment and abundance of Fraser River Sockeye stocks. Fishing opportunities will also be subject to achieving fisheries management objectives for constraining stocks and species of concern (Early Stuart Sockeye, Cultus Lake Sockeye, Nimpkish Sockeye, Sakinaw Sockeye, IFR Coho, IFR Steelhead, and Fraser River Spring 4_2 and Spring/Summer 5_2 Chinook) in areas where they are present. Even if fishing opportunities are available, in some cases full harvest targets may not be harvestable due to conservation concerns and management considerations that are identified in-season.

Demonstration Fisheries

Discussions regarding demonstration fisheries that will provide commercial opportunities for First Nations and allow for continued testing of inland fisheries will occur in season. As in previous years, the focus for First Nations demonstration fisheries will be on experimenting mainly in terminal areas on abundant stocks. These fisheries will be conducted separately from FSC fisheries, under comparable rules to the commercial fishery and fish harvested will be off-set with licences voluntarily relinquished from the commercial fishery.

Even if fishing opportunities are available, in some cases full harvest targets may not be harvestable due to conservation concerns and management considerations that are identified in-season.

Upper Fraser Indigenous Sustainable Harvesters (UFISH) – In-River Sockeye Fisheries

The UFISH Commercial Fishing Enterprise focuses on viable and sustainable fishing practices. Discussions are on-going with partners based on the viability of individual fisheries. The 2024 demonstration fishery will build on previous years' experiences to implement successful fisheries and address constraints and challenges to harvesting allocations, marketing, processing and acquiring infrastructure required for the emerging inland fisheries.

Participants: UFISH Partnership – Northern Shuswap Tribal Council (NSTC); Tsilhqot'in National Government (TNG)/Xeni Gwet'in First Nations Government; Carrier Sekani Tribal Council (CSTC); Lheidi T'enneh First Nations (LTFN)

North Shuswap Tribal Council

Location: Quesnel River, Quesnel Lake, Chilcotin River and mainstem Fraser

Gear Type: Beach seine, purse seine, dip nets, and fish wheels

Time Frame: Fishery will target Summer run (Quesnel / Chilko / Late Stuart / Nechako Rivers) Sockeye. Potential start date is August 16 for a six-week fishery

Tsilhqot'in National Gov't / Xeni'Gwet'in First Nations Government

Location: Chilko River, Chilko Lake and Chilcotin River and mainstem Fraser

Gear Type: Beach seine, purse seine, dip net, partial weir/fish trap, and fish wheel

Time Frame: Fishery will target Summer run (Quesnel / Chilko / Late Stuart / Nechako Rivers) Sockeye. Potential start date is August 16 for a three- to four-week fishery

Carrier Sekani Tribal Council and Lheidli T'enneh First Nations

Location: Fraser River, Fraser Lake and other suitable locations identified by the parties

Gear Type: Beach seine, dip net, partial weir/fish trap, and purse seine

Time Frame: Fishery will target Summer Run (Late Stuart/Stellako) Sockeye. Potential start date is August 15 for a four week fishery.

- NOTE: All fishery time frames are estimates and final dates will be determined based on in-season migration timing and abundance information.

Allocation: All fisheries described above

- Allocation to be determined but will be expressed as a percentage (%) share of Commercial Total Allowable Catch (CCTAC) of Fraser Sockeye stocks in the area utilizing relinquished licences from the PICFI program.

Monitoring Plan: All fisheries described above

- Fishery will be monitored using designated landing sites, electronic logbook system (ELOG) and validation of catch at either landing site or plant.

Harrison-Fraser River Demonstration Fishery

Region: Lower Fraser Area

Participants: Sts'ailes and Scowlitz First Nations

Location of Fishery: The waters of the Harrison River located between the outlet of Harrison Lake downstream to the orange boundary signs labelled 'Fishing Boundary HFA' approximately 1,000 meters below the CN Railway Bridge; and the waters of the

Fraser River bounded on the west by a line from a white boundary sign on the upstream side of the Fraser River at the mouth of the Sumas River, thence true north to a white boundary sign on the opposite shore and bounded on the east by the downstream side of the bridge across the Fraser River at Agassiz.

Gear Type: Set nets, drift nets or beach seines. Beach seines not to exceed a maximum mesh size of 2 ¾ inches and a length of 50 fathoms or 360 feet.

Allocation:

- Sockeye: To be determined but will be expressed as a percentage (%) share of Canadian Commercial Total Allowable Catch (CCTAC) utilizing relinquished licences form the PICFI program.

Time Frame: All fishery time frames are estimates and final dates will be determined according to in-season migration timing information.

- Sockeye: This fishery would be planned to take place once a Fraser River Sockeye Canadian Commercial TAC is identified, potentially late July/early August to early September.
- Fraser Chinook: Fraser Chinook bycatch retention may be permitted subject to abundance.

Monitoring Plan: During any set net or drift net fishing activity, the fishers will transport their catch to a predetermined Sts'ailes/Scowlitz landing site to have their catch monitored. During any beach seining activity, a Monitor must be present with every beach seine crew during all fishing activity and provide set-by-set updates to the Sts'ailes Fishery Manager, before the beach seine crews deploy their next set to ensure there is TAC available. The Harrison Fishing Authority will collect all catch statistics via these monitors and report this information to DFO immediately after the fishery closes.

Harvest Agreements

Even if fishing opportunities are available, in some cases full harvest targets may not be harvestable due to conservation concerns and management considerations that are identified in-season.

Tsawwassen First Nation (TFN) Fisheries (Commercial)

In addition to the allocation of salmon for domestic harvests, TFN have an allocation for commercial catch outside of the Treaty as identified via the Tsawwassen First Nations Harvest Agreement (TFN FA). Fishing undertaken via the TFN Harvest Agreement (HA) will be comparable to the requirements of the current Fraser River commercial fishery (First Nations economic opportunity (EO) fishery), or a general commercial fishery (e.g., Area E). TFN

harvesters will be expected to operate under the same rules that apply to other fishers taking part in that Fraser River commercial fishery.

Sockeye Salmon allocation under the Harvest Agreement: 0.78% of the Commercial Allowable Catch for Fraser River Sockeye Salmon for that year.

The monitoring program for Tsawwassen First Nation Harvest Agreement (TFN HA) fisheries includes a mandatory landing program (MLP) using 2 to 4 landing sites at which all fishers must land and have their catch validated and is supplemented by effort validation by vessel patrols. If selective gear is used (e.g., purse seines, modified shallow seine, fish trap), monitors must be present during all fishing activity to record catch information on a set-by-set basis.

Fishery Monitoring and Catch Reporting

Lower Fraser

In the Lower Fraser, catch monitoring programs are managed through Comprehensive Fisheries Agreements. While details will be finalized prior to fisheries occurring; the monitoring programs in place for 2024 are expected to be similar to recent years as follows:

Non-selective (e.g., gill net) EO fisheries will be monitored using a mandatory landing program (MLP) with packer and land-based sites. All fishers must land their catch at these sites and have their catch validated. This program is supplemented by effort validation by vessel patrols and overflights.

Selective (e.g., beach seine and purse seine) EO fisheries require monitors to be present during all fishing activity to record catch and release information on a set-by-set basis.

13.5.6.5.5 Fraser Sockeye FSC ESSR Fisheries

Please note that the Department is working with Nations to explore alternative strategies and language to evaluate terminal and stock-selective fisheries where abundance permits. This work will continue throughout 2024 with the below section updated in the Final IFMP.

FSC ESSR fisheries for individual Fraser Sockeye spawning populations may be considered if the projected number of spawners is expected to exceed the freshwater productive capacity of the system, measured as Spawners at Maximum Sustainable Yield, taking into account migration and environmental conditions. Stock specific spawning requirements may be determined based upon WSP benchmarks, TEK, and stock specific information, on a system-by-system basis upon receipt of a terminal access request. Given inherent uncertainties about freshwater capacity, a decision on whether an ESSR will proceed will be made by the Department and any amounts specified for harvest may take into account available information

and associated uncertainties on a range of factors including: stock-specific abundance, projected spawner abundances, productive capacity of the system, stock composition in the proposed fishing area and selectivity of fishing gear.

Given the uncertainties of in-season information, the Department may permit only a portion of any estimated surplus to be harvested. **Even if fishing opportunities are available, in some cases full harvest targets may not be harvestable due to conservation concerns and management considerations that are identified in-season.**

Table 13-46 : Potential framework to determine in-season harvest levels for ESSR fisheries on one terminal stock.

ESSR Fishery	Stock and In-season Assessment Method	In-season Assessment	In-season Assessment Uncertainty	ESSR Harvest Level	
Terminal Enhanced (hatchery or spawning channel)	Weaver- Fishway Gates- Fishway Nadina- Fishway Horsefly- Fishway	* Escapement Complete Count	Low	High	>50%
Terminal Wild	Scotch- Fence Quesnel- Sonar Stellako- Sonar Birkenhead- Sonar	* Escapement Complete Count	Low	Medium -High	26-50%
	Upper Barriere- Visual Misc North Thompson- Visual Raft- Visual	**Escapement Index Count	Medium	Medium	11-25%
	Chilliwack- Escapement Projection Chilko- Escapement Projection Pitt- Escapement Projection Late Stuart- Escapement Projection Late Adams- Escapement Projection Seymour- Escapement Projection Harrison- Escapement Projection	*** In-season Run Size Estimate	High	Low	0-10%

* Complete terminal escapement count (i.e., fence count, fishway count, hydroacoustic count (DIDSON)). Low uncertainty associated with this type of escapement estimate.

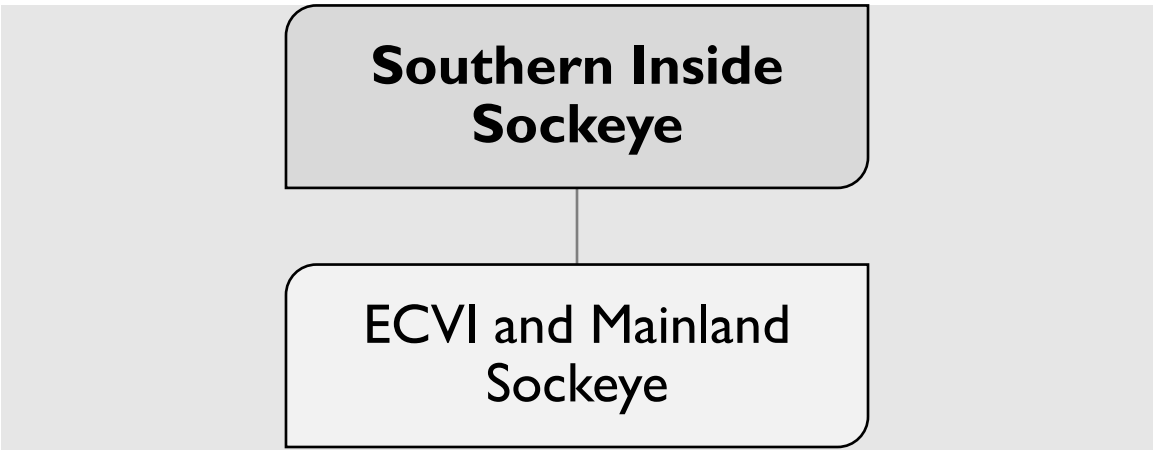
** Escapement index count (i.e., hydroacoustic count (DIDSON), visual count. Medium uncertainty associated with this type of escapement estimate.

*** In-season run size estimate- Estimate provided in-season in the Fraser Panel process. Escapement projections would consider projected catch above Mission and in-season estimates of the difference between the Mission hydro acoustic estimates and post season spawning ground estimates. High uncertainty associated with the escapement projections.

**** Actual ESSR assessment methodologies to be determined in-season.

13.5.7 EAST COAST VANCOUVER ISLAND AND MAINLAND SOCKEYE

13.5.7.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT



Conservation Units

Fulmore	*Quatse*
Heydon	*Schoen*
Ida/Bonanza	*Shushartie*
Kakweiken	*Southern Fjords*
Loose	*River Type*
Mackenzie	*Tzoonie*
Nahwitti	*Vernon*
Nimpkish	*Village Bay*
Pack	*Woss*
Phillips	*Sakinaw*

Figure 13.5-10: Overview of East Coast Vancouver Island and Mainland Sockeye

13.5.7.2 STOCK ASSESSMENT INFORMATION

Pre-season

Table 13-47: ECVI and Mainland Sockeye 2024 Salmon Outlook

Outlook Unit	2024 Outlook
Areas 11-13	Outlook Category '2'. No systems are assessed in Area 11. Crews observed adult Sockeye during snorkel surveys, but this should be considered a partial count, as a portion of the return resides in lakes that are not readily surveyed. Recent returns were below average, but improving from a low observed in 2017. For the 2024 return, the two main contributing brood years are 2019 (adults) and 2020 (adults), which are above and slightly below average respectively. For the 2024 return, the two main contributing smolt years are 2021 and 2022. Recent escapement to nearby systems from Coho and Pink Salmon are encouraging, and may indicate that marine conditions are improving. Nimpkish Sockeye returns are biased towards 4 year old fish (57%), so the improved escapement in 2018 and 2019 should result in slightly improved overall escapement in 2024. Given the considerations above, expectations are for an escapement that approaches the average return. Expectations for Quatse, Heydon and Phillips are similar to Nimpkish.
Sakinaw	Outlook Category '1'. Of the 169,190 smolts that left Sakinaw Lake in 2021, a total of 121 adult Sockeye returned in 2023. Marine survival continues to be extremely low; for the 2021 ocean entry year the smolt-to-adult survival was 0.07% for hatchery origin fish while too few natural-origin smolts were present in 2021 to generate an estimate. Returns from an experimental release of Sakinaw smolts at Big Qualicum were approximately 5x higher at 0.42% suggesting a localized survival bottleneck may exist. Smolt production in 2022 was below average at 68,036 with relatively few natural origin fish estimated at 2,280. If marine survival is near the 4-year average, a total of 69 adults are expected in 2024.

13.5.7.2.1 In-season

Historically, many of these Sockeye populations were assessed visually by fishery officers, charter patrol, and stock assessment personnel. In recent years, escapements have been consistently monitored for four populations: Quaste River, Heydon Creek, Nimpkish River and Sakinaw River.

The Quatse River Sockeye population has been estimated using a DIDSON acoustic system since 2006. With the installation of a new resistivity fence on the Quatse system, it is anticipated that future estimates will be provided from that program with a few years of DIDSON calibration.

Heydon Creek Sockeye enumeration program was reinstated in 2018 (previously monitored 2000-2012). This program is conducted in partnership with the Wei Wai Kum First Nation and involves monitoring Sockeye migration through an existing fence. In 2021, we resumed operations that were suspended due to Covid. The program will be fully operational for 2024.

The Nimpkish River Sockeye escapement has been estimated through a standardized swim survey program from 2002 until 2015. Since 2015, the 'Namgis First Nation has worked in partnership with DFO to enumerate Sockeye in the lower portion of the Nimpkish River using a DIDSON system and a deflection fence. Unfortunately, the program was unable to proceed in 2022 due to extreme flows during the migration period. This program will be improved and will continue in 2024.

In 2021, a new program was put in place to evaluate the Fulmore Lake Sockeye escapement in partnership with the Tlowitsis Nation and the A-Tlegay Fisheries Society. This project will continue in 2024 and is supported by TRM funding.

Sakinaw Lake Sockeye have been closely monitored since the early 1950s when a dam and fishway/trap was constructed. Early adult escapement assessments were conducted by DFO Fisheries Patrol Officers. Departmental changes resulted in decreased monitoring in the 1990s and by the late 1990s the population had declined to very low levels. After COSEWIC listed the stock as *Endangered,* DFO Stock Assessment and SEP programs and the shíshálh Nation restored the monitoring activity and eliminated illegal fishing activities. Both smolt (trap and bucket counts, then digital video) and adult Sockeye (digital video) have been enumerated since 2003. This intensive assessment methodology provides very accurate estimates of abundance, and also provides the adipose fin clip rate (used to identify hatchery origin fish) for further evaluation of freshwater survival rates of hatchery releases, number of natural smolts per spawner and enhanced contribution to the total return (marine survival rates of both hatchery and natural Sockeye).

13.5.7.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

This section of the IFMP is under development and further information will be provided in a subsequent year. There are no commercial or recreational directed fisheries on these Sockeye planned for 2024. However, there may be some small directed First Nations FSC harvests that occur on some of these stocks.

13.5.7.4 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO SOUTH LOCAL SOCKEYE FISHERIES

Fisheries are structured to reduce the harvest of Sakinaw Lake Sockeye and Nimpkish Sockeye in mixed stock areas.

Sakinaw Lake Sockeye have been closely monitored since the early 1950s when a dam and fishway/trap was constructed. Early adult escapement assessments were conducted by DFO Fisheries Patrol Officers. Departmental changes resulted in decreased monitoring in the 1990s and by the late 1990s the population had declined to very low levels. After COSEWIC listed the stock as *Endangered,* DFO Stock Assessment and SEP programs and the shíshálh Nation restored the monitoring activity and eliminated illegal fishing activities. Both smolt (trap and bucket counts, then digital video) and adult Sockeye (digital video) have been enumerated since 2003. This intensive assessment methodology provides very accurate estimates of abundance, and also provides the adipose fin clip rate (used to identify hatchery origin fish) for further evaluation of freshwater survival rates of hatchery releases, number of natural smolts per spawner and enhanced contribution to the total return (marine survival rates of both hatchery and natural Sockeye). New tools such as Parentage Based Tagging (PBT) and Passive Integrated Transponder (PIT) tags have been incorperated into recent assessments.

Harvest measures continue to be required to minimize impacts on Nimpkish Sockeye. In order to protect this stock, time and area closures may be implemented for First Nations, commercial, and recreational fisheries in the approach waters to the Nimpkish River (including the river). With the exception of test fisheries, marine waters north of Lewis Point on Vancouver Island (sub-Areas 11-1, 11-2, and 12-5 to 12-19) are scheduled to be closed to Sockeye retention in all fisheries until late July. However, marine waters north of Lewis Point may be open to Sockeye retention in First Nations FSC fisheries prior to late July if in-season abundance of Nimpkish Sockeye is higher than expected and no other weak stock constraints exist.

Further constraints to fisheries may include harvest restrictions based on in-season returns of Early Stuart, Early Summer, Summer and Late Run (Cultus) Fraser River Sockeye.

13.5.7.5 ALLOCATION AND FISHING PLANS

13.5.7.5.1 First Nations Fisheries

First Nations FSC fisheries harvest-related measures will continue in 2024 to ensure protection of Sakinaw Lake Sockeye. First Nations fisheries in Johnstone Strait will be restricted to gill net and troll only until July 25 and until August 15 in the northern Strait of Georgia. Furthermore, moving window closures to protect Early Stuart Sockeye and potentially additional closures to

protect early-timed Early Summer run Sockeye can limit or delay the start of Sockeye-directed FSC fisheries. The waters near the mouth of Sakinaw Creek in Area 16 will be closed to all fishing all season. First Nations fisheries targeting ECVI and Mainland Sockeye will not be impacted by 2024 IFR Steelhead conservation measures.

Food, Social and Ceremonial

The Department continues to work in partnership with the 'Namgis First Nations on the development of a lower river assessment program for Nimpkish Sockeye. This program will work towards providing a much earlier indication of Sockeye abundance in the Nimpkish River and help to develop a First Nations FSC harvest plan. If in-season abundance permits, some First Nations FSC harvest may occur in the Nimpkish River.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations are asked to keep records of harvest and provide catch information to DFO in a variety of formats. Under this licence, if a commercial vessel is used for fishing, First Nations are asked to provide information respecting the species and quantity of fish harvested by this vessel, to the DFO Catch Reporting Officer within 24 hours from landing harvested catch. In addition, catch reporting timelines for First Nations fisheries are outlined in Comprehensive Fisheries Agreements and/or Aboriginal Communal Fishing Licences. Where in-season management requires, catch reports are sought weekly during the respective fishing season.

Treaty Fisheries

Treaty fisheries targeting ECVI and Mainland Sockeye will not be impacted by 2023 IFR Steelhead conservation measures.

Tla'amin (Domestic)

The Domestic allocations for terminal Sockeye Salmon under the Tla'amin Final Agreement are as follows:

- In any year, the Tla'amin Fish Allocation for Sockeye Salmon is:

  A number of Sockeye Salmon equal to 25% of the Available Terminal Harvest for the Sockeye Salmon stocks that originate from a Terminal Harvest Area, other than Fraser River Sockeye Salmon stocks, if the Minister determines that there is an Available Terminal Harvest for those stocks.

Treaty fisheries targeting ECVI and Mainland Sockeye will not be impacted by 2024 IFR Steelhead conservation measures.

13.5.7.5.2 Recreational Fisheries

For southern BC tidal waters, it is anticipated that Sockeye non-retention will be in effect during those times and in those areas when stocks of concern are present. There are no directed recreational fisheries for ECVI and Mainland Sockeye populations. Updates to recreational fisheries will be provided in-season via Fishery Notice. In non-tidal waters, Sockeye non-retention is in effect year-round.

Fishery Monitoring and Catch Reporting

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch (iREC) reporting program are the main tools used to capture recreational catch and effort information in this fishery.

13.5.7.5.3 Commercial Fisheries

Allocation

For southern BC tidal waters, it is anticipated that Sockeye non-retention will be in effect during those times and in those areas when stocks of concern are present. There are no directed recreational fisheries for ECVI and Mainland Sockeye populations. Updates to recreational fisheries will be provided in-season via Fishery Notice. In non-tidal waters, Sockeye non-retention is in effect year-round.

Table 13-48: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South - Fraser	11 to 20, 29, 121, 123 to 127	48.5%	21.6%	25.1%	0.0%[d]	4.8%

Notes on Sockeye allocation (south):
[d] a 1% share to occur in large Fraser River return years only. A 1% reduction will be proportionately applied across other fleets in those years.

East Coast Vancouver Island and Mainland Commercial Sockeye Fisheries

There are no commercial Sockeye harvest opportunities for ECVI and Mainland Sockeye populations. Commercial fisheries target Fraser River Sockeye stocks and opportunities are

subject to achieving fisheries management objectives for constraining stocks which includes Nimpkish and Sakinaw Sockeye.

East Coast Vancouver Island and Mainland First Nations Commercial Sockeye Harvests

There are no First Nations commercial harvests for ECVI and Mainland Sockeye populations.

13.5.7.5.4 ESSR Fisheries

There are no ESSR fisheries for these populations.

13.5.8 OKANAGAN SOCKEYE

13.5.8.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

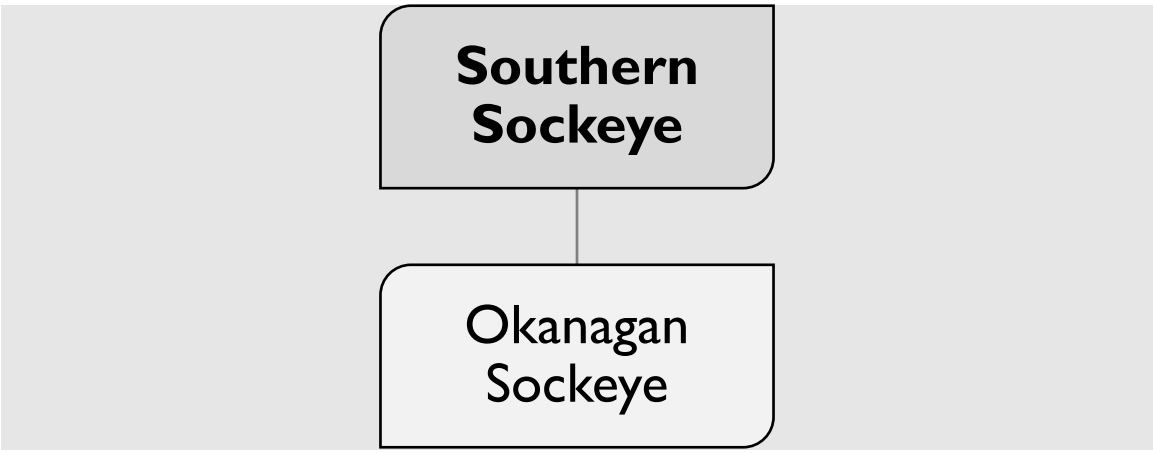


Figure 13.5-11: Overview of Okanagan Sockeye

Okanagan Sockeye is the last remaining viable Sockeye Salmon population returning to Canada within the Columbia River Watershed. Run timing into the Okanagan system is primarily affected by water temperature within the Okanagan River. Okanagan Sockeye tend to hold in the Columbia River until migration conditions are favourable. Peak spawning usually occurs from mid to late October. On average, approximately 60% of all Okanagan River Sockeye enumerated at Wells Dam on the Columbia River are accounted for on the spawning grounds in Canada (i.e., ~40% en-route loss).

13.5.8.2 STOCK ASSESSMENT INFORMATION

13.5.8.2.1 Pre-season

The total pre-season forecast for Okanagan Sockeye Salmon is 286,000, with a range from 240,000 to 336,000. This estimate is the return to the mouth of the Columbia River and is not adjusted for survival to the spawning grounds.

Recreational and commercial fisheries may be considered if abundance permits.

13.5.8.2.2 In-season

Assessment of returns is done via counts of escapement past dams located on the Columbia River in the United States. Spawning ground assessments are done on an annual basis by the Okanagan Nation Alliance fisheries staff and are comprised of visual/dead recovery surveys to determine spawner abundance in the Okanagan River and Skaha Lake system.

13.5.8.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

The current science based spawning objective is 35,500 fish as enumerated on an indexed section of the spawning ground which is equivalent to approximately 61,200 fish enumerated through Wells Dam on the Columbia River in Washington State.

The following decision rules are used to manage Okanagan Sockeye in Canada:

- If projected escapement past Wells Dam on the Columbia River is less than 10,000 Sockeye, limited fishing for FSC purposes is permitted by Okanagan Nation.
- If projected escapement past Wells Dam is between 10,000 and 60,000 fish, an Okanagan Nation FSC catch of 5% of the run that has migrated past Wells Dam is permitted.
- If projected escapement past Wells Dam exceeds 60,000 fish, an Okanagan Nation FSC minimum catch of 10% of the run that has migrated past Wells Dam is permitted.
- Should the projected escapement past Wells Dam exceed 80,000 fish; additional opportunities may be considered.

13.5.8.4 INCIDENTAL HARVEST, BYCATCH AND CONSTRAINTS TO OKANAGAN SOCKEYE FISHERIES

Fisheries are managed to avoid incidental capture of Okanagan River Chinook.

13.5.8.5 ALLOCATION AND FISHING PLANS

Allocations are described above in the Decision Guidelines and Management Actions section.

13.5.8.5.1 First Nations Fisheries

Food Social and Ceremonial

The Okanagan Nation Alliance opportunities to harvest salmon for food, social and ceremonial purposes are provided through a communal licence negotiated annually with DFO. This licence provides the details of the FSC fishery.

Fishery Monitoring and Catch Reporting

Okanagan Nation Alliance uses a variety of methods to estimate FSC harvests. Current methods include video monitoring, roving creel monitors, catch card reporting and phone interviews.

13.5.8.5.2 Recreational Fisheries

Recreational fisheries will take place if the Wells Dam counts indicate spawning escapement and FSC requirements could be met. The allowable catch will be determined in-season based on Sockeye counts over Wells Dam and movement of fish into Osoyoos Lake. This fishery takes place on Osoyoos Lake.

A creel survey utilizing access sites and boat patrols are conducted capturing effort, landed catch and release data during the fishery. The survey is conducted by the Okanagan Nation Alliance in conjunction with DFO.

13.5.8.5.3 Commercial Fisheries

Okanagan First Nations Commercial Sockeye Harvest

Okanagan Sockeye First Nations Demonstration Fishery

The Okanagan Nation Alliance (ONA) will be working towards sustaining commercial sales of Okanagan Sockeye in addition to working with strategic allies for increasing sales and trade from other inland commercial fisheries. If abundance permits, a 2024 fishery would be similar to previous years where abundance was sufficient. The fishery will continue to build on previous year's demonstration fisheries and address the challenges involved in informing business plans for in-river fisheries in the BC Interior where commercial fisheries are developing, and establishing markets for inland commercial Sockeye.

Region: BC Interior

Participants: Okanagan Nation Alliance partnership: Okanagan Indian Band, West bank First Nations, Penticton Indian Band, Osoyoos Indian Band, Upper Nicola Indian Band Lower and Upper Similkameen Indian bands.

Location of Fishery: Osoyoos Lake and Okanagan River

Gear Type: Purse seine(s), troll fleet and tangle net

Time Frame:
NOTE: All fishery time frames are estimates and final dates will be determined according to in-season migration timing information. Fishery will target Okanagan (Columbia) Sockeye. Potential start date of July 20 with end date determined on run timing and fish quality

Allocation: If abundance permits an opportunity, it will be identified based on in-season information of passage thru Wells Dam on the Columbia River. Commercial and recreational harvesting will only be conducted if the Wells Dam counts indicate spawning escapement and FSC requirements could be met. The allowable catch will be determined in-season based on Sockeye counts over Wells Dam and movement of fish into Osoyoos Lake.

Monitoring Plan: These fisheries will be monitored using designated landing sites and validation of catch at either landing site or plant. In addition, biotelemetry tracking of adult Sockeye will continue to be developed for estimating instantaneous mortality rates (natural or fishing) during spawner migration.

13.5.8.5.4 ESSR Fisheries

There are no ESSR fisheries for Okanagan Sockeye.

APPENDIX 1: LOGBOOK SAMPLES

SALMON TROLL Logbook I.D. # **T45001** ***SAMPLE*** **Report Catch to: 1-(888) 387-0007** Record all catch in pieces **Page #**

Vessel Name: ***Shirley May*** VRN (CFV#): ***12346***

Date Day	Date Mon.	Mgmt. Area	Zone or Subarea ☒	Hours Fished	Catch: Frozen or Iced?	[1] Kept or Released	Sockeye	Coho	Pink	Chum	[2] Legal Sized Chinook	[2] Sublegal Sized Chinook	[3] Grilse	Atlantic	[4] Rockfish	[5] Other Species
8	Aug	101	4	7.5	(F) or I	Kept		20	54							
Trip ID #:	***FOS-12345***					Rel.					4	2			*4 Yellowtail, 3 Canary*	*1 L, 2 H*
Comments:	***Lots of seals around***														[6]DCR Conf. #:	***FOS-12346***
Vessel Master Name:	***Dan Doe***					Signature:	***Dan Doe***								[7]F.I.N.:	***99999***
9	Aug	101	4	6	(F) or I	Kept		23	37							
Trip ID #:	***FOS-12345***					Rel.										
Comments:	***Released 2 Salmon Sharks***														[6]DCR Conf. #:	***FOS-12347***
Vessel Master Name:	***Dan Doe***					Signature:	***Dan Doe***								[7]F.I.N.:	***99999***
10	Aug	101	4	8	(F) or I	Kept		23	47							
Trip ID #:	***FOS-12345***					Rel.					2				*2 Chilipepper, 6 unknown rockfish*	*3 H*
Comments:															[6]DCR Conf. #:	***FOS-12348***
Vessel Master Name:	***Dan Doe***					Signature:	***Dan Doe***								[7]F.I.N.:	***99999***
12	Aug	101	3	12	F or (I)	Kept		17	17		19				*3 Black RF*	*4 L*
Trip ID #:	***FOS-12398***					Rel.						4	2			*10 D, 2 H*
Comments:	***Saw a sea turtle. Suspect it was Leatherback***														[6]DCR Conf. #:	***FOS-12402***
Vessel Master Name:	***John Smith***					Signature:	***John Smith***								[7]F.I.N.:	***77777***
13	Aug	142	2	14	F or (I)	Kept		79	12		36				*8 Yellowtail RF*	*2 L*
Trip ID #:	***FOS-12398***					Rel.	1									*2 D*
Comments:	***Killer Whales***														[6]DCR Conf. #:	***FOS-12403***
Vessel Master Name:	***John Smith***					Signature:	***John Smith***								[7]F.I.N.:	***77777***

1. Catch: **Kept** are species retained on board; **Released** are species returned to the ocean. **2.** As defined in the applicable Fishery Notice. **3. Grilse** are juvenile salmon under 30 cm. **4.** Rockfish are to be identified by species; if unsure of species, record as Unknown Rockfish. **5. Other Species:** L=Lingcod, H=Halibut, D=Dogfish, M= Mackerel, S= Steelhead. Please specify **White or Green Sturgeon** in Comments Section. If any **birds, marine mammals, or turtles** were encountered, give time of capture and full name of species in comments. **6. DCR Conf. #** is the confirmation number received upon completion of the Daily Catch Report. **7.** Vessel master's **Fisher Identification Number**.

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SALMON GILLNET Logbook I.D. # **G42001** **Report Catch to: 1-(888) 387-0007** Record all catch in pieces **Page #** ***11111***

Vessel Name: ***Shirley May*** VRN (CFV#): ***12346***

Net Details | Type[1]: ***A*** # Strands[2]: ***6*** Length: ***200*** (fathoms) Weedline Depth[3]: ***30cm*** Hang Ratio: ***3*** :1 Mesh Size[3]: ***4 7/8"*** # Meshes: ***90***

Daily Catch Records

Date Day	Date Mon.	Mgmt. Area	Sub-area(s)	Hours Fished	# of sets	[4]Kept or Released	Sockeye	Coho	Pink	Chum	Chinook	Steel-head	Atlantic	Dogfish	[5]Sturg-eon	[6]Other Fish	[7]Non-fish
4	Aug	12	12-4	5.5	5	Kept	4		23	127					X		Yes
Trip ID #:	FOS-12480					Rel.		9									No
Comments:	2 birds killed in 10AM set, kept for research program. Rhinoceros Auklets .															[8]DCR Conf. #: FOS-12346	
Vessel Master Name:	Dan Doe					Signature:	Dan Doe									[9]F.I.N.: 99999	
5	Aug	12	12-5	7	3	Kept	73		245	4			1		X		Yes
Trip ID #:	FOS-12480					Rel.		2						2		2M, 1 salmon shark	No
Comments:	Offloaded at CANFISCO in Port Hardy on August 5 at 14:00.															[8]DCR Conf. #: FOS-12367	
Vessel Master Name:	Dan Doe					Signature:	Dan Doe									[9]F.I.N.: 99999	
6	Aug	12	12-4	6	3	Kept	88		116	7			2		X		Yes
Trip ID #:	FOS-12480					Rel.						1				11 M, 2 R	No
Comments:	Steelhead released in good condition. 2 sea lions released alive around 11AM.															[8]DCR Conf. #: FOS-12382	
Vessel Master Name:	Dan Doe					Signature:	Dan Doe									[9]F.I.N.: 99999	
29	Aug	17	17-11	6	6	Kept	163		328						X		Yes
Trip ID #:	FOS-12773					Rel.					3	1					No
Comments:	Fished two management areas today															[8]DCR Conf. #: FOS-12521	
Vessel Master Name:	John Smith					Signature:	John Smith									[9]F.I.N.: 77777	
29	Aug	29	29-2	4	6	Kept	205		493						X		Yes
Trip ID #:	FOS-12773					Rel.		2			1	1					No
Comments:	Both coho put in rev. tank, one died, one released in good condition															[8]DCR Conf. #: FOS-12523	
Vessel Master Name:	John Smith					Signature:	John Smith									[9]F.I.N.: 77777	

1. **Net Types**: enter '*A*' for Alaska Twist, '*M*' for Multi Strand or '*C*' for Combination. 2. Enter number of strands if net is 'Alaska Twist' type mesh. 3. Give measurement units (*in* or " = inches, *cm* = centimeters, *mm* = millimeters). 4. **Kept** are species retained on board; **Released** are species returned to the ocean. 5. Please specify White or Green Sturgeon in **Comments** Section. 6. **Other Fish**: M= Mackerel, L= Lingcod, H= Halibut. Give full name for other species. 7. Circle Yes or No as appropriate if any **birds, marine mammals,** or **turtles** were encountered. Give time of capture and species details in comments. 8. **DCR Conf. #** is the confirmation number received upon completion of the Daily Catch Report. 9. **F.I.N**. Is the Fisher Identification Number.

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SALMON SEINE Logbook I.D. # S44001 **Report Catch to: 1-(888) 387-0007** Record all catch in pieces **Page #** *11111*

Vessel Name: *Shirley May* VRN (CFV#): *12346*

Daily Catch Records

Date Day	Date Mon.	Mgmt. Area	Sub-area(s)	Hours Fished	# of sets	[1] Kept or Released	Sockeye	Coho	Pink	Chum	*Adult* Chinook	[2] *Jack* Chinook	Steel-head	Atlantic	[3] Other Fish	[4] Non-fish
14	*Aug*	*3*	*3-3, 3-2*	*8*	*5*	Kept	*42*		*431*					*6*		Yes
Trip ID #:	*FOS-12281*					Rel.		*3*		*12*	*2*					No
Comments:	*2 Rhinoceros Auklets released alive at 10 AM,1 coho clipped, 2 coho dead, 1 rel'd alive*												DCR Conf. #: [5]	*FOS-12346*		
Vessel Master Name:	*Dan Doe*						Signature:	*Dan Doe*					[7] F.I.N.:	*99999*		
15	*Aug*	*4*	*5*	*5.5*	*2*	Kept	*38*		*850*							Yes
Trip ID #:	*FOS-12281*					Rel.				*2*	*1*		*1*		*4 D, 1 L, 1 salmon shark*	No
Comments:	*1 harbour seal released, steelhead revived in tank, then released in good condition*												DCR Conf. #: [6]	*FOS-12358*		
Vessel Master Name:	*Dan Doe*						Signature:	*Dan Doe*					[7] F.I.N.:	*99999*		
19	*Aug*	*4*	*5*	*9*	*4*	Kept	*53*		*560*							Yes
Trip ID #:	*FOS-12403*					Rel.		*2*		*17*	*4*	*12*				No
Comments:	*Both coho rel'd in good condition. 12 jack chinook squishers all dead.*												DCR Conf. #: [6]	*FOS-12428*		
Vessel Master Name:	*John Smith*						Signature:	*John Smith*					[7] F.I.N.:	*77777*		

Offload Catch Records

First date Day	First date Month	Last date Day	Last date Month	# Days Fished	Date Offloaded Day	Date Offloaded Month	Sockeye	Coho	Pink	Chum	Chinook	(Other)	Received from:	Offloaded to:	Vessel
							☐ Pieces ☒ Lbs ☐ Kgs	☐ Pcs ☐ Lbs ☐ Kgs	☐ Pieces ☒ Lbs ☐ Kgs	☐ Pieces ☐ Lbs ☐ Kgs	☐ Pieces ☐ Lbs ☐ Kgs	☐ Pcs ☒ Lbs ☐ Kgs			Complete if catch pooled with that of another vessel:
14	*Aug*	*15*	*Aug*	*2*	*15*	*Aug*	*471*		*3958*			*42*	☐	☐	Name:
Business and port offloaded to:	*Canfisco, Pr. Rupert*							Fish slip #:	*79768*		OCR Conf. #: 6 *FOS-12380*				VRN (CFV#):
19	*Aug*	*19*	*Aug*	*1*	*20*	*Aug*	*310*		*1692*				☐	☑	Name: *Wind Viper*
Business and port offloaded to:								Fish slip #:	*79801*		OCR Conf. #: 6 *FOS-12482*				VRN (CFV#): *12347*

1. Catch: Kept are species retained on board; Released are species returned to the ocean. 2. **Jack Chinook** are all chinook smaller than 67 cm fork length (approx 26 inches). 3. **Other Fish**: M= Mackerel, L= Lingcod, H= Halibut, D= Dogfish. Please specify **White or Green Sturgeon** in Comments Section. Give full name for other species. 4. Circle Yes or No as appropriate if any **birds**, **marine mammals**, or **turtles** were encountered. Give time of capture and full name of species in comments. 5. **DCR Conf. #** is the confirmation number received upon completion of the Daily Catch Report. 6. **OCR Conf. #** is the Offload Catch confirmation number. 7. Enter the vessel master's Fisher Identification Number.

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APPENDIX 2: FISHING VESSEL SAFETY

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1 OVERVIEW – FISHING VESSEL SAFETY

Vessel owners and masters have a duty to ensure the safety of their crew and vessel. Adherence to safety regulations and good practices by owners, masters and crew of fishing vessels will help save lives, prevent vessel damage and protect the environment. All fishing vessels must be in a seaworthy condition and maintained as required by Transport Canada (TC), WorkSafeBC, and other applicable agencies. Vessels subject to inspection should ensure that the certificate of inspection is valid for the area of intended operation.

In the federal government, responsibility for shipping, navigation, and vessel safety regulations and inspections lies with TC; emergency response with the Canadian Coast Guard (CCG) and DFO has responsibility for management of the fisheries resources. The Transportation Safety Board is an independent agency that advances transportation safety by investigating selected occurrences in the air, marine, pipeline and rail modes of transportation including fishing vessel occurrences. In BC, WorkSafeBC exercises jurisdiction over workplace health and safety and conducts inspections on commercial fishing vessels in order to ascertain compliance with the Workers Compensation Act (WCA) and the Occupational Health and Safety Regulation (OHSR).

Before departing on a voyage the authorized representative (normally the owner), must ensure that the fishing vessel is capable of and safe for the intended voyage and fishing operations. Critical factors for a safe voyage include the seaworthiness of the vessel, having the required personal protective and life-saving equipment in good working order, adequate number of properly trained crew, and knowledge of current and forecasted weather conditions. As safety requirements and guidelines may change, the vessel's authorized representative, crew, and other workers must be aware of the latest legislation, policies and guidelines prior to each trip.

There are many useful tools available for ensuring a safe voyage. These include:

- Education and training programs
- Marine emergency duties training
- Fish Safe – Stability Education Program & 1 Day Stability Workshop
- Fish Safe – SVOP (Subsidized rate for BC commercial fishers provided)
- Fish Safe – *Safest Catch* program – **FREE** for BC commercial fishers
- Fish Safe *Safe At Sea* DVD Series – Fish Safe
- Fish Safe Stability Handbook – *Safe at Sea* and *Safest Catch* – DVD Series
- Fish Safe *Safest Catch* Log Book
- Fish Safe *Safety Quiz*
- First Aid training

- Radio Operators Course (Subsidized rate for BC commercial fishers provided)
- Fishing Masters Certificate training
- Small Vessel Operators Certificate training

Publications:

- *Gearing Up for Safety* - WorkSafeBC
- https://tc.canada.ca/en/marine-transportation/marine-safety/tp-15393e-adequate-stability-safety-guidelines-fishing-vessels TP 15393E - Adequate stability and safety guidelines for fishing vessels
- TP 15392E - Guidelines for fishing vessel major modification or a change in activity. https://tc.canada.ca/en/marine-transportation/marine-safety/tp-15392e-guidelines-fishing-vessel-major-modification-change-activity
- Transport Canada Publication TP 10038 Small Fishing Vessel Safety Manual (can be obtained at Transport Canada Offices from their website at: http://www.tc.gc.ca/eng/marinesafety/tp-tp10038-menu-548.htm
- Amendments to the Small Fishing Vessel Inspection Regulations (can be obtained from: http://www.gazette.gc.ca/rp-pr/p2/2016/2016-07-13/html/sor-dors163-eng.php)
- Safety Issues Investigation into Fishing Safety in Canada report can be accessed: https://www.tsb.gc.ca/eng/rapports-reports/marine/etudes-studies/M09Z0001/M09Z0001.html

For further information see: https://tc.canada.ca/en/marine-transportation
www.fishsafebc.com
www.worksafebc.com
www.tsb.gc.ca/eng/rapports-reports/marine/index.html

2 IMPORTANT PRIORITIES FOR VESSEL SAFETY

There are three areas of fishing vessel safety that should be considered a priority. These are: vessel stability, emergency preparedness, and cold water immersion.

2.1 FISHING VESSEL STABILITY

Vessel stability is paramount for safety. Care must be given to the stowage and securing of all cargo, skiffs, equipment, fuel containers and supplies, and to correct ballasting. Fish harvesters must be familiar with their vessel's centre of gravity, the effect of liquid free surfaces on stability (e.g. loose water or fish on deck), loading and unloading operations, watertight integrity and the vessel's freeboard. Know the limitations of your vessel; if you are unsure contact a naval architect, marine surveyor or the local Transport Canada Marine Safety Office.

Fishing vessel authorized representatives/owners are required to develop detailed instructions addressing the limits of stability for each of their vessels. These instructions must include detailed safe operation documentation kept on board the vessel.

In 2017, Transport Canada Marine Safety (TC) issued Ship Safety Bulletin (SSB) No. 03/2017 announcing the coming into force of the New Fishing Vessel Safety Regulations. The initial regulations were published in the Canada Gazette Part II on July 13, 2016 and came into force on July 13, 2017. The bulletin includes important information on changes to requirements for Written Safety Procedures, Safety Equipment and Vessel Stability.

As of July 13, 2017, new regulations pertaining to stability assessments to be performed by a competent person came into effect, as follows:
A new fishing vessel that has a hull length of more than 9 m where the vessel construction was started or that a contract was signed for the construction after July 13, 2018;
A fishing vessel more than 9 m and that has undergone a major modification or a change in activity that is likely to adversely affect its stability;
A fishing vessel that is fitted with an anti-roll tank at any time;
A fishing vessel more than 15 gross tonnage and used for catching herring or capelin during the period beginning on July 6, 1977 and ending on July 13, 2017
For an existing fishing vessel that is not required to undergo a stability assessment, the owner shall be capable of demonstrating that their vessel has adequate stability to safely carry out the vessel's intended operations. Guidelines have been developed and are available online to help small fishing vessel owners and operators meet their regulatory requirements
Two good resources can be found here: TP 15393 - Adequate stability and safety guidelines for fishing vessels (2018) and TP 15392 – Guidelines for fishing vessel major modification or a change in activity (2018)

Further, the new Regulation requires a "Stability Notice" to be developed after a stability assessment. This notice includes a simple diagrammatic of the vessel, its tanks and fish holds, or deck storage as the case may be. It is intended to assist fishing vessel crews in quickly determining the safe carriage limits of the vessel without having to reference a complicated Trim and Stability Book.

Additionally, Transport Canada published a Stability Questionnaire (SSB No. 04/2006) and Fishing Vessel Modifications Form (SSB No. 01/2008) which enable operators to identify the criteria which will trigger a stability assessment. Please contact the nearest Transport Canada

office if you need to determine whether your vessel requires a stability assessment, or to receive guidance on obtaining competent assessor.

In 2019, TC provided an updated SSB 03/2019, which sets out a voluntary record of modifications for the benefit of owners/masters of any fishing vessels. For vessels of more than 15 gross tons, the record of modifications was to be reviewed by TC inspectors during regular inspections and entered on the vessel's inspection record. However, information gathered during the Transportation Safety Board's (TSB) Safety Issues Investigation into the fishing industry showed minimal recording of vessel modifications prior to this date.

The TSB has investigated several fishing vessel accidents since 2008 and found a variety of factors that effected the vessel's stability were identified as contributing factors in vessels capsizing, such as with: M08W0189 - *Love and Anarchy*, M09L0074 – *Le Marsouin I*, M10M0014 - *Craig and Justin*, M12W0054 – *Jessie G*, M12W0062 - *Pacific Siren*, M14P0121 – *Five Star*, M15P0286 – *Caledonian*, M16A0140 – *C19496NB*, M17C0061 – *Emma Joan*, M17P0052 – *Miss Cory*, M18P0073 – *Western Commander*,M18A0425 – *Charlene A*, M18A0454 – *Atlantic Sapphire*, M20P0229 – *Arctic Fox II*, M20A0434 – *Chief William Saulis and* M20A0160 – *Sarah Anne.*

Vessel masters are advised to carefully consider stability when transporting gear. Care must be given to the stowage and securing of all traps, cargo, skiffs, equipment, fuel containers and supplies and also to correct ballasting. Know the limitations of your vessel; if you are unsure contact a reputable marine surveyor, naval architect or the local Transport Canada Marine Safety office.

WorkSafeBC's Occupational Health and Safety Regulations (OHSR) require owners of fishing vessels to provide documentation on board, readily accessible to crew members, which describes vessel characteristics, including stability.

Fish Safe has developed a code of best practices for the food and bait/roe herring fisheries, dive fisheries and the prawn fishery: These Best Practices are available on Fish Safe's website for convenient download here: https://www.fishsafebc.com/best-practices. Please contact John Krgovich at Fish Safe for a copy of the program materials they developed to address safety and vessel stability in these fisheries. John Krgovich – office: (604) 261-9700 - Email: john@fishsafebc.com.

2.2 EMERGENCY DRILL REQUIREMENTS

The *Canada Shipping Act, 2001* requires that the Authorized Representative of a Canadian Vessel shall develop procedures for the safe operation of the vessel and for dealing with emergencies. The Act also requires that crew and passengers receive safety training. The Marine Personnel Regulations require that all personnel on board required to meet the minimum safe manning levels have received MED (Marine Emergency Duties) training to an A1 or A3 level, depending on the vessel's voyage limits, within 6 months of serving aboard. MED A3 training is 8 hours in duration and is applicable to seafarers on fishing vessels less than 150 GRT that are within 25 miles from shore (NC2). MED A1 training is 19.5 hours duration and is applicable to all other fishing vessels.

To assist fishers in meeting their crew training requirements, Fish Safe has created a downloadable '*New Crew Orientation Form and How To Guide'* available on Fish Safe's website here: https://www.fishsafebc.com/downloadable-tools

MED provides a basic understanding of the hazards associated with the marine environment; the prevention of shipboard incidents; raising and reacting to alarms; fire and abandonment situations; and the skills necessary for survival and rescue.

WorkSafeBC's Occupational Health and Safety Regulation (OHSR) requires written rescue and evacuation procedures for work on or over water. Additionally, fishing vessel masters must establish procedures and assign responsibilities to each crew member to cover all emergencies, including the following: crew member overboard, fire on board, flooding of the vessel, abandoning ship, and calling for help. Fishing vessel masters are also required to conduct emergency drills at the start of each fishing season, when there is a change of crew, and at periodic intervals to ensure that crewmembers are familiar with emergency procedures.

Between 2015 and 2021, 15 fishing vessel accidents were reported to the TSB which resulted in 34 fatalities. In all 15 occurrences, distress alerting devices (EPIRBs, PLBs) were not used. The report's findings highlighted the lack of safety drills and safety procedures and practices. The *Safest Catch* program, delivered by Fish Safe and free to BC commercial fishers, includes comprehensive practice of drills such as abandon ship, man overboard and firefighting drills.

2.3 COLD WATER IMMERSION

Drowning is the number one cause of death in BC's fishing industry. Cold water is defined as water below 25 degrees Celsius, but the greatest effects occur below 15 degrees C. BC waters

are usually below 15 degrees C. Normal body temperature is around 37 degrees Celsius; cold water rapidly draws heat away from the body. The effects of cold water on the body occur in four stages: cold shock, swimming failure, hypothermia and post-rescue collapse. Know what to do to prevent you or your crew from falling into the water and what to do if that occurs. More information is available in the WorkSafeBC Bulletin Cold Water Immersion (available from the WorkSafeBC website at www.worksafebc.com).

Under the recently amended (June 2019) OHS Regulation, section 24.96.1, a crewmember must wear a PFD or lifejacket when on board a fishing vessel that has no deck or deck structure or when on the deck of a fishing vessel that has a deck or deck structure. The use of a PFD will prepare a crewmember to remain afloat, to survive the effects of cold shock, reduce the need to swim and give rescuers time to respond.

Section 8.26, which requires workers to wear a PFD or lifejacket when working "under conditions which involve a risk of drowning", would continue to apply to fishing crewmembers and other workers (e.g. when they are working on shore, docks and other vessels). The specific requirements can be found on WorkSafeBC's PFD Primer provided on Fish Safe's website here: https://www.fishsafebc.com/cold-water-survival.

It has been demonstrated time and again that, when worn, PFD's save lives - and the chance of surviving a mishap increases significantly when these devices are worn while working on deck.

Resulting from the TSB investigations into the *Diane Louise* - M14P0110, *Caledonian* – M15P0286 and the *C19496NB* - M16A0140 fishing vessel accidents the Board recommended that both TC, WorkSafeBC and WorkSafeNB require that persons wear a suitable personal flotation devices (PFDs) at all times when: on the deck of a commercial fishing vessel; or, when on board a commercial fishing vessel without a deck or deck structure, and ensure that programs are developed to confirm compliance. Between 2015 and 2021, 15 occurrences were reported to the TSB, resulting in the loss of life of 34 fish harvesters. In 11 of the 15 occurrences, personal flotation devices (PFDs) were not used.

2.4 OTHER ISSUES

2.4.1 WEATHER

Vessel owners and masters are reminded of the importance of paying close attention to current weather trends and forecasts during the voyage. Marine weather information and forecasts can be obtained on VHF channels 21B, Wx1, Wx2, Wx3, or Wx4. Weather information is also

available from Environment Canada website at:
http://www.weatheroffice.gc.ca/marine/index_e.html

2.4.2 EMERGENCY RADIO PROCEDURES, EPIRB'S AND AIS

Vessel owners and masters should ensure that all crew are able to activate the Search and Rescue (SAR) system early rather than later by contacting the Canadian Coast Guard (CCG). All fishing vessels greater than 20m in length must carry a Class A AIS, as well as a float free 406 MHz Emergency Position Indicating Radio Beacon (EPIRB). These beacons must be registered with the Canadian Beacon Registry. When activated, an EPIRB transmits a distress call that is picked up or relayed by satellites and transmitted via land earth stations to the Joint Rescue Co-ordination Centre (JRCC), which will task and co-ordinate rescue resources. The TSB notes in the *Island Lady* – M21A0315 that there have been 15 similar occurrences reported to the TSB, resulting in the loss of life of 34 fish harvesters. In all 15 occurrences, distress alerting devices (e.g., emergency position-indicating radio beacons [EPIRBs] and personal locator beacons [PLBs] were not used. (M15A0189, M16A0140, M16A0327, M18A0076, M18A0303, M18A0078, M18P0184, M18P0394, M19A0082, M19A0090, M19P0242, M20A0258, M20A0160, M21A0412, and M21A0161). The carriage of both AIS, PLB and EPIRB is strongly encouraged for all fishing vessels who do not fall under the mandatory threshold.

Fish harvesters should monitor VHF channel 16 or MF 2182 KHz and make themselves and their crews familiar with other radio frequencies. All crew should know how to make a distress call and should obtain their restricted operator certificate from Industry Canada. However, whenever possible, masters should contact the nearest Canadian Coast Guard (CCG) Marine Communications and Traffic Services (MCTS) station (on VHF channel 16 or MF 2182 kHz) prior to a distress situation developing. Correct radio procedures are important for communications in an emergency. Incorrect or misunderstood communications may hinder a rescue response. Further information is available at Radio Aids to Marine Navigation General

Since August 1, 2003 all commercial vessels greater than 8 metres in length are required to carry a Class D VHF Digital Selective Calling (DSC) radio. A registered DSC VHF radio has the capability to alert other DSC equipped vessels in your immediate area and MCTS that your vessel is in distress. Masters should be aware that they should register their DSC radios with Industry Canada to obtain a Marine Mobile Services Identity (MMSI) number or the automatic distress calling feature of the radio may not work. For further information see the Coast Guard website at: http://www.ccg-gcc.gc.ca/eng/CCG/Home or go directly to the Industry Canada web page: www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01032.html

A DSC radio that is connected to a GPS unit will also automatically include your vessel's current position in the distress message. More detailed information on DSC can be found here: TC DSC Safety Bulletin. Questions regarding Coast Guard DSC capabilities can be obtained by contacting your local MCTS centre (Prince Rupert MCTS (250)627-3070 or Victoria MCTS (250)363-6333).

2.4.3 COLLISION REGULATIONS

Fish harvesters must be knowledgeable of the Collision Regulations and the responsibilities between vessels where risk of collision exists. Navigation lights must be kept in good working order and must be displayed from sunset to sunrise and during all times of restricted visibility. To help reduce the potential for collision or close quarters situations which may also result in the loss of fishing gear, fish harvesters are encouraged to monitor the appropriate local Vessel Traffic Services (VTS) VHF channel when travelling or fishing near shipping lanes or other areas frequented by large commercial vessels. Vessels required to participate in VTS include:

a) every ship twenty metres or more in length,
b) every ship engaged in towing or pushing any vessel or object, other than fishing gear,
c) where the combined length of the ship and any vessel or object towed or pushed by the ship is forty five metres or more in length; or
d) where the length of the vessel or object being towed or pushed by the ship is twenty metres or more in length.

Exceptions include:

a) a ship towing or pushing inside a log booming ground,
b) a pleasure yacht *less than* 30 metres in length, and
c) a fishing vessel that is *less than* 24 metres in length and not *more than* 150 tons gross.

More detailed information on VTS can be obtained by calling either Prince Rupert MCTS (250)627-3070 or Victoria MCTS (250)363-6333 or from the Coast Guard website: https://www.ccg-gcc.gc.ca/publications/mcts-sctm/ramn-arnm/part3-eng.html

2.4.4 BUDDY SYSTEM

Fish harvesters are encouraged to use the buddy system when transiting and fishing as this allows for the ability to provide mutual aid. An important trip consideration is the use of a sail/voyage plan which includes the particulars of the vessel, crew and voyage. The sail plan should be left with a responsible person on shore or filed with the local MCTS. After leaving port the fish harvester should contact the holder of the sail plan daily or as per another

schedule. The sail plan should ensure notification to JRCC when communication is not maintained which might indicate your vessel is in distress. Be sure to cancel the sail plan upon completion of the voyage.

3 WorkSafeBC

WorkSafeBC exercises jurisdiction over workplace health and safety, including the activities of crews of fishing vessels. Commercial fishing, diving and other marine operations are subject to the provisions of the *Workers Compensation Act (WCA)* and requirements in Part 24 of the Occupational Health and Safety Regulation (OHSR). Examples of Part 24 regulatory requirements related to fishing include, but are not limited to, the requirement to establish emergency procedures, to conduct emergency drills, to provide immersion suits for the crew, to provide stability documentation for the vessel, safe work procedures, injury reporting, correction of unsafe working conditions, the requirement to wear personal floatation devices (PFDs), etc.

Other sections of the OHSR also apply to commercial fishing operations. For example, Part 3 addresses training of young and new workers, first aid, and employer incident/accident investigations. Part 4 addresses general conditions such as maintenance of equipment, workplace conduct and impairment. Part 8 addresses issues related to safety headgear, safety footwear, eye and face protection, limb and body protection and personal flotation devices (PFDs) when working on the dock. Part 12 addresses issues related to tools, machinery and equipment, including safeguarding. Part 15 addresses issues related to rigging.

Both owners and masters of fishing vessels are considered to be employers. Under the *Workers Compensation Act* and the OHS Regulation (OHSR) they have varying and overlapping duties and responsibilities. Masters, because they have the most control during fishing and related activities, are considered to be the employer with primary responsibility for the health and safety of the crew.

The OHSR and the *WCA* are available from the Provincial Crown Printers or by visiting the WorkSafeBC website: www.worksafebc.com

NOTE: Regarding the OHSR requirement to wear PFD's, WorkSafeBC has produced a video entitled "Turning the Tide – PFD's in the Fishing Industry". For more information on PFD use, including a link to the video, please access the following site:

https://www.worksafebc.com/en/about-us/news-events/news-releases/2018/November/new-fishing-industry-safety-video?origin=s&returnurl=https%3A%2F%2Fwww.worksafebc.com%2Fen%2Fsearch%23q%3DTurning%2520the%2520Tide%26sort%3Drelevancy%26f%3Alanguage-facet%3D%5BEnglish%5D

For further information, contact an Occupational Safety Officer:

Bruce Logan	Field Services	Vancouver/ Richmond/Delta	(604) 244-6477
Cody King	Field Services	Courtenay	(250) 334-8733
Paul Matthews	Field Services	Courtenay	(250) 334-8741
Wayne Tracey	Field Services	Central	(604) 232-1939

or the Manager of Interest for Marine and Fishing, Pat Olsen (250) 334-8777

For information on projects and initiatives related to commercial fishing health and safety please contact Tom Pawlowski, Manager, OHS Consultation and Education Services, at (604) 233-4062 or by email: tom.pawlowski@worksafebc.com or Helen Chandler, OHS Consultant at (604) 276-3174 or by email: helen.chandler@worksafebc.com.

4 FISH SAFE BC

Fish Safe encourages Vessel masters and crew to take ownership of fishing vessel safety. Through this industry driven and funded program Fish Safe provides fishing relevant tools and programs to assist fishers in this goal. The Fish Safe Stability Education Program and 1 Day Stability Workshop are available to all fishers who want to improve their understanding of stability and find practical application to their vessel's operation. The SVOP (Small Vessel Operator Proficiency) Course is designed to equip crew with the skills they need to safely navigate during their wheel watch. The Safest Catch Program, along with fisher-trained Safety Advisors, is designed to give fishers the tools they need to create a vessel specific safety management system.

As referenced throughout the above documentation, Fish Safe provides a broad range of courses, programs and services that are either free for BC commercial fishers or highly subsidized.

Fish Safe is managed by John Krgovich, Program Manager and support staff including John Krgovich, Program Coordinator, Stephanie Nguyen, Program Assistant, Rhoda Huey, Bookkeeper/Administrative Assistant, and an experienced team of fisher Safety Advisors. All activities and program development is directed by the Fish Safe Advisory Committee (membership is open to all interested in improving safety on board fishing vessels). The Advisory Committee meets two to three times annually to discuss safety issues and give direction to Fish Safe in the development of education and tools for fish harvesters.

Fish Safe also works closely with WorkSafeBC to improve the fishing injury claims process. For further information contact:

John Krgovich
Program Coordinator
Fish Safe
#100, 12051 Horseshoe Way
Richmond, BC V7A 4V4

Cell: (604) 729-8407
Office: (604) 261-9700
Email: john@fishsafebc.com
www.fishsafebc.com

5 TRANSPORTATION SAFETY BOARD

The Transportation Safety Board (TSB) is not a regulatory board. The TSB is an independent agency that investigates marine, pipeline, railway and aviation transportation occurrences to determine the underlying risks and contributing factors. Its sole aim is the advancement of transportation safety by reporting publicly through Accident Investigation Reports or Marine Safety Information Letters or Advisors. It is not the function of the Board to assign fault or determine civil or criminal liability. Under the TSB Act, all information collected during an investigation is completely confidential.

In 2014 the TSB pacific region released three investigation reports:

- the collision between trawl fishing vessel *Viking Storm* and US long line fishing vessel *Maverick* and the subsequent fatality,
- the person over board off the prawn fishing vessel *Diane Louise* and the subsequent fatality, and
- the capsizing of the crab fishing vessel *Five Star* and subsequent fatality.

In 2016 the TSB pacific region released one investigation report:

- the capsizing of the trawl *Caledonian* and subsequent fatalities.

In 2018 the TSB pacific region released two investigation reports:

- the capsizing and sinking of the *Miss Cory* and subsequent fatality
- the sinking of the *Western Commander* and loss of life

In 2022 the TSB pacific region released one investigation report:

- the sinking of the *Arctic Fox II* and subsequent fatalities.

The TSB issued five recommendations following the *Caledonian* report. Three recommendations issued are aimed at ensuring all crews have access to adequate stability information that meets their needs. That means:

- All commercial fishing vessels should have a stability assessment appropriate for their size and operation.
- The information from that assessment must then be kept current, and it must be used to determine safe operating limits.

Moreover, these operating limits must be easily measurable, and relevant to the vessel's operation. For example, that could mean marking the sides of a vessel's hull to indicate the maximum operating waterline, or maximum permitted loads can be specified in the most relevant unit of measure—total catch weight for instance, or the safe number of traps. Regardless, for it to be of real, practical use, the information must be presented in a format that is clearly understood and easily accessible to crew.

The other two recommendations address the most basic step that harvesters can take: wearing a personal flotation device. Here in British Columbia, roughly 70 percent of all fishing-related fatalities in the past decade came while not wearing a PFD. Yet many harvesters still do not wear them. TC regulations currently require that PFDs be worn only if harvesters identify a risk, however; you never know when you could end up in the water. So the TSB is recommending to TC to require persons to wear suitable personal flotation devices at all times when on the deck of a commercial fishing vessel or when on board a commercial fishing vessel without a deck or deck structure and that programs are developed to confirm compliance. In June 2019, WorksafeBC amended its fishing regulation related to the use of PFDs. Under the amendments, crewmembers must wear a PFD or lifejacket when on board a fishing vessel that has no deck or deck structure, or when on the deck of a fishing vessel that has a deck or deck structure. Crewmembers are not required to wear lifejackets or PFDs below deck or when inside a deck structure where there is risk of entrapment. This amendment removes the need for a risk of drowning to be present before a PFD must be worn.

For more information about the TSB, visit the website at www.tsb.gc.ca

For information about the TSB's investigation into fishing safety, or to view a brief video, visit: http://www.tsb.gc.ca/eng/medias-media/videos/marine/m09z0001/index.asp

To view information on the TSB's recent safety Watchlist, visit: http://www.tsb.gc.ca/eng/surveillance-watchlist/marine/2020/marine-01.html

Reporting an Occurrence: www.tsb.gc.ca/eng/incidents-occurrence/marine/
After a reportable occurrence happens; you can fill out the TSB 1808 form or call the TSB at the contact information below.

Recently the TSB produced a Safe at Sea: Activity book on fishing safety intended for the next generation of fish harvesters (ages 4-7). Download a copy.
www.tsb.gc.ca › eng › medias-media › prudence-safe › safe-at-sea

Glenn Budden, –Senior Investigator/Safety Analyst / Marine - Investigations, Standards and Quality Assurance

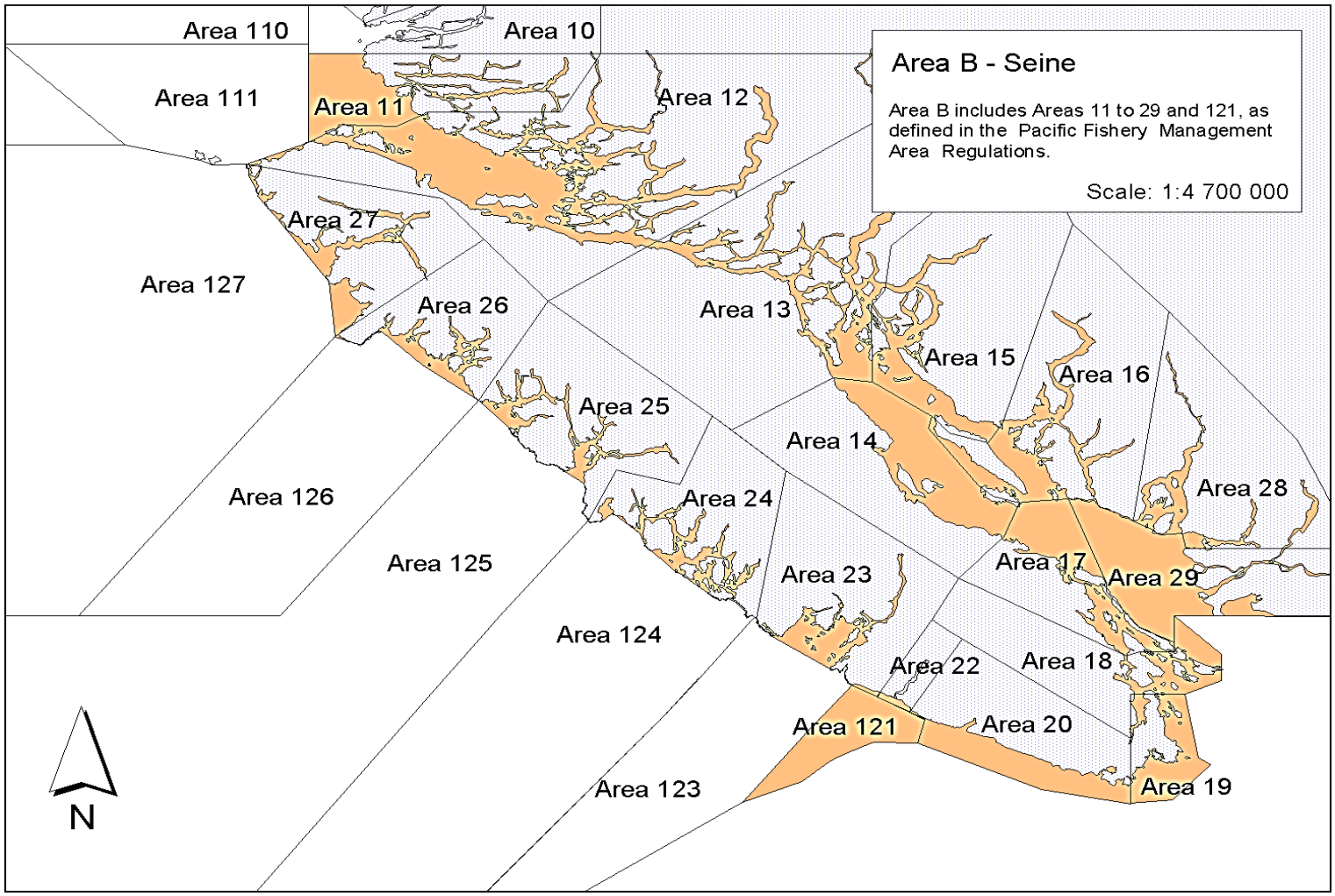
Transportation Safety Board of Canada
4 - 3071 No. 5 Road
Richmond, BC, V6X 2T4
Telephone: (604) 619-6090
Email: glenn.budden@tsb-bst.gc.ca

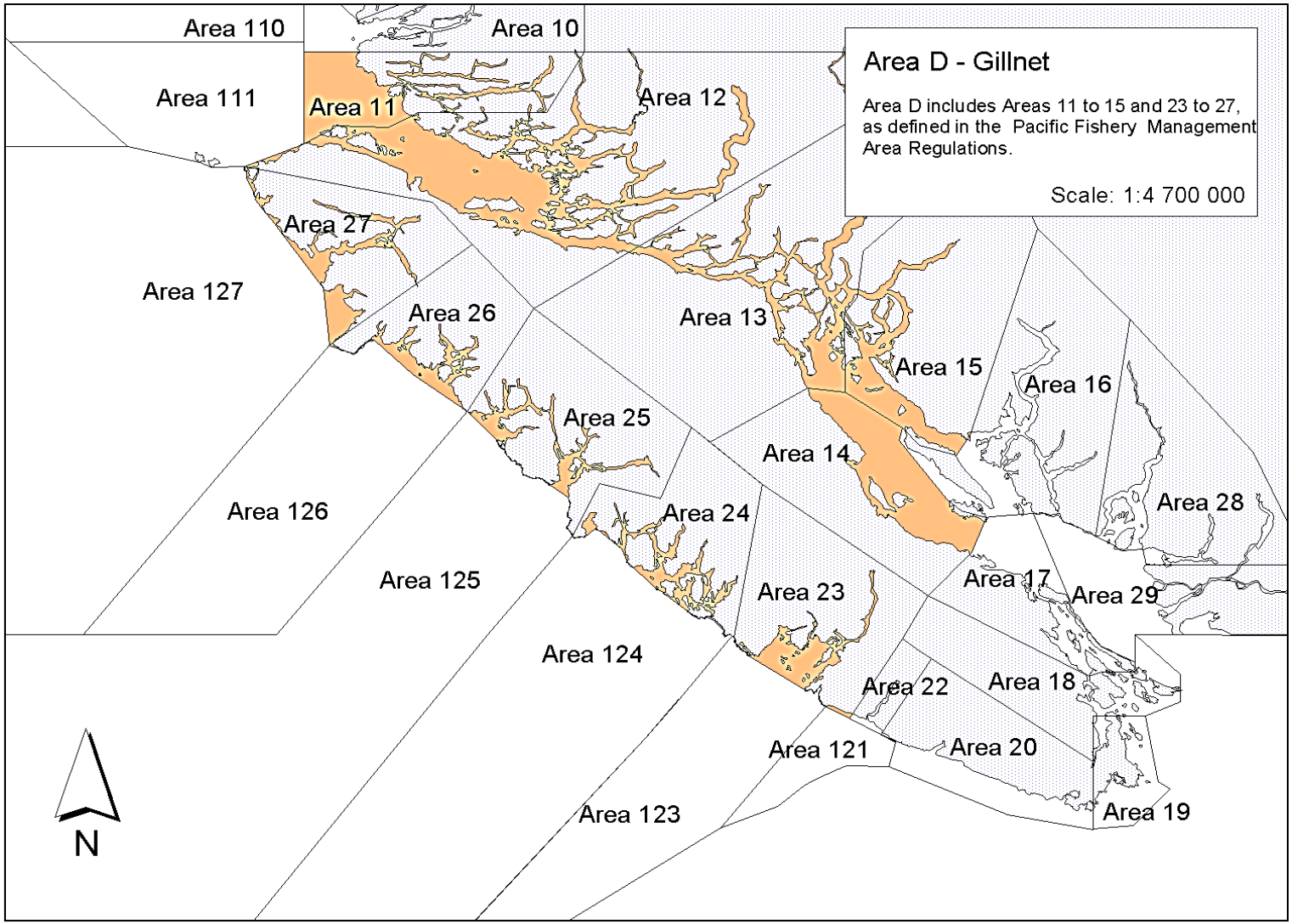
APPENDIX 3: COMMERCIAL SALMON LICENCE AREAS

Pacific Salmon Fishing Area	Gear	Corresponding Pacific Fisheries Management Areas (PFMA)
Salmon Area A	Seine	Areas 1 to 10, Subarea 101-7
Salmon Area B	Seine	Areas 11 to 29 and 121
Salmon Area C	Gill net	Areas 1 to 10, Subarea 101-7
Salmon Area D	Gill net	Areas 11 to 15 and 23 to 27
Salmon Area E	Gill net	Areas 16 to 22, 28, 29 and 121
Salmon Area F	Troll	Areas 1 to 10, 101 to 110, 130 and 142
Salmon Area G	Troll	Areas 11, 20 to 27, 111, 121, 123 to 127 and Subareas 12-5 to 12-6
Salmon Area H	Troll	Areas 12 to 19, 28 and 29

For maps of South Coast commercial licence areas, (Areas B, D, E, G, and H), please see Appendix 4.

APPENDIX 4: MAPS OF SOUTH COAST COMMERCIAL LICENCE AREAS

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Area 10
Area 111
Area 11
Area 12
Area D - Gillnet
Area D includes Areas 11 to 15 and 23 to 27, as defined in the Pacific Fishery Management Area Regulations.
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Area 27
Area 127
Area 26
Area 13
Area 15
Area 16
Area 25
Area 14
Area 126
Area 24
Area 28
Area 125
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Area 20
Area 123
Area 19
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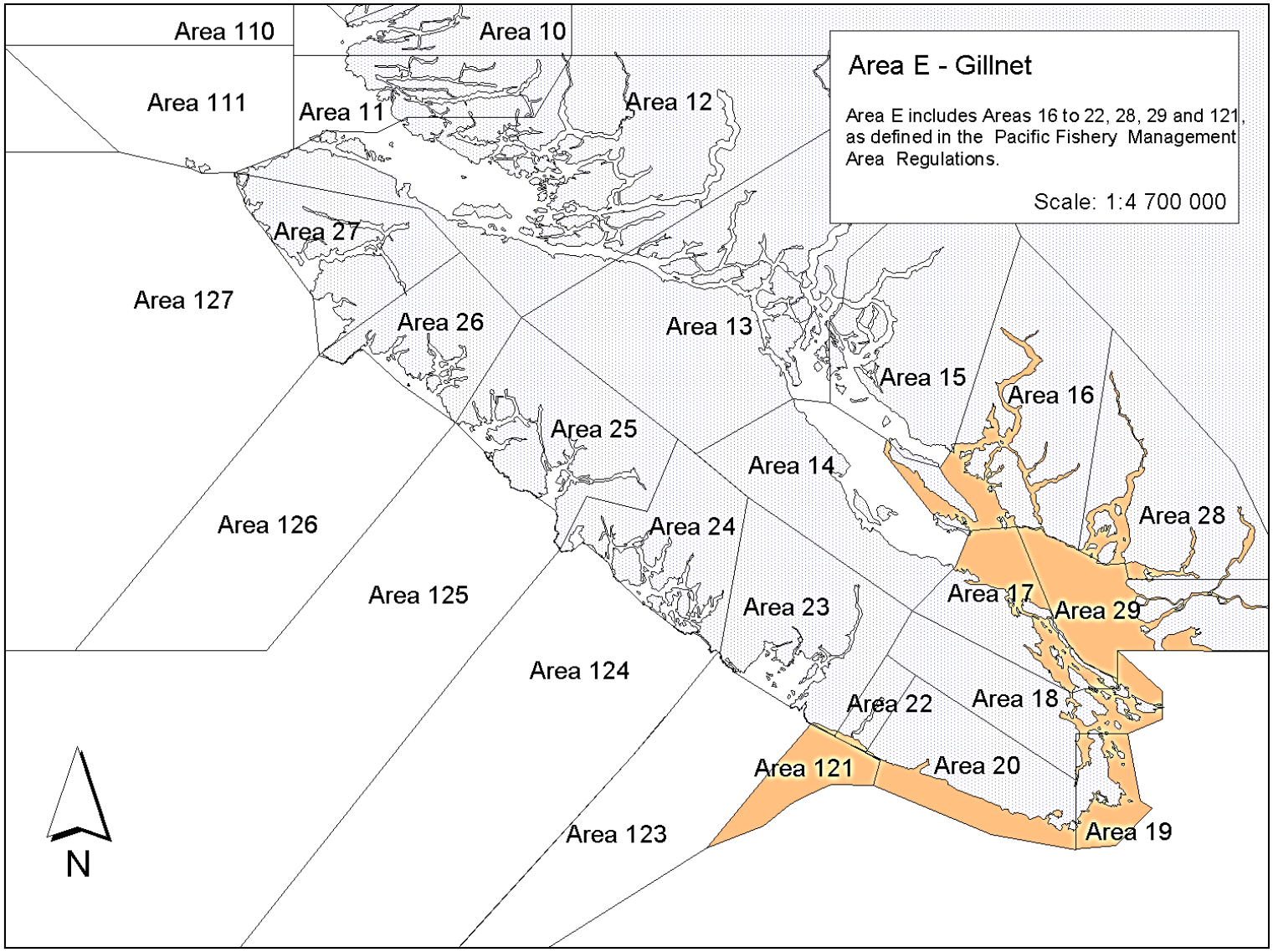
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Area 111
Area 11
Area 12
Area E - Gillnet
Area E includes Areas 16 to 22, 28, 29 and 121, as defined in the Pacific Fishery Management Area Regulations.
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Area 27
Area 127
Area 26
Area 13
Area 15
Area 16
Area 25
Area 14
Area 126
Area 24
Area 28
Area 125
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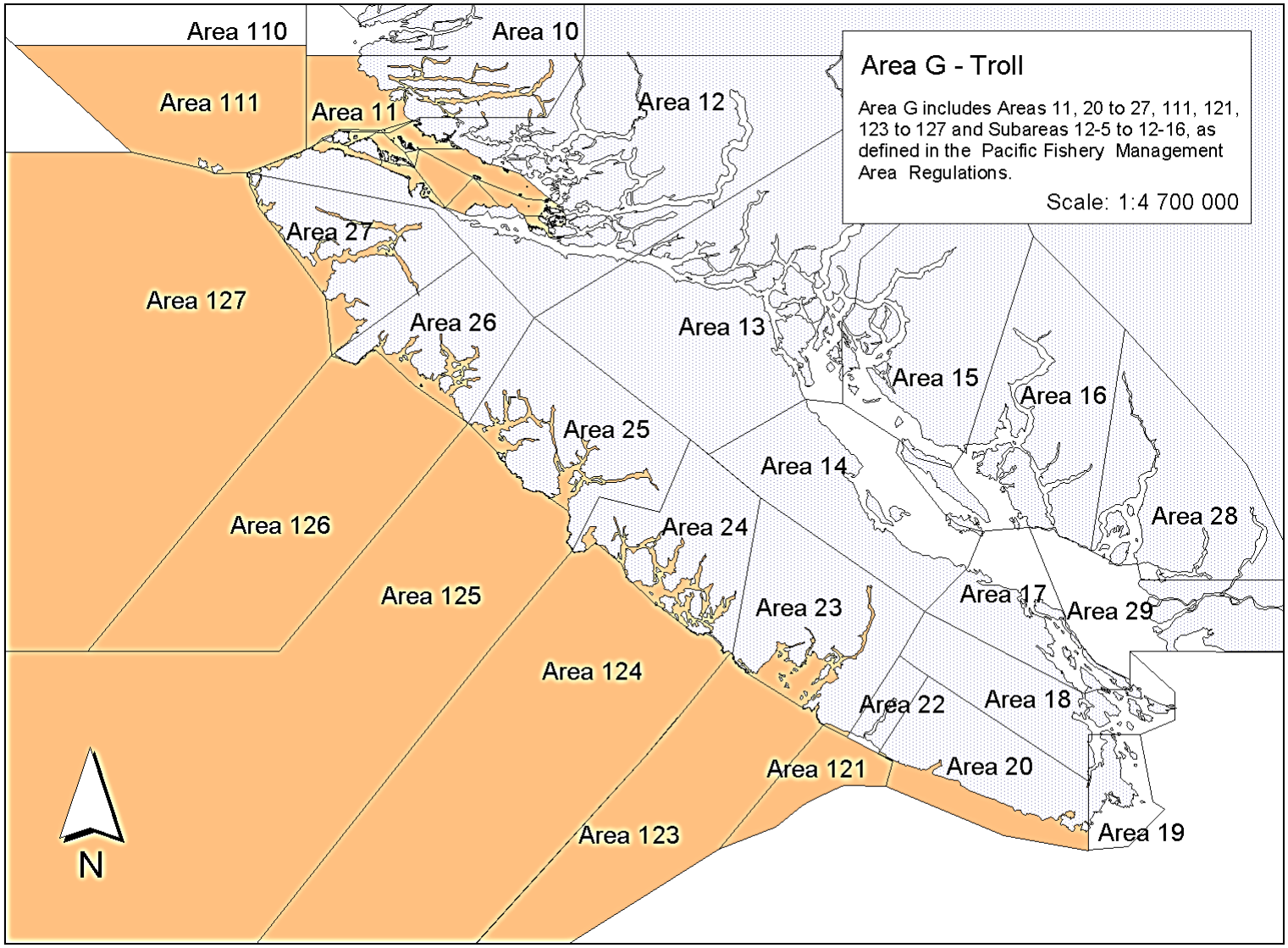
Area 20
Area 123
Area 19
N


Area 110
Area 10
Area 111
Area 11
Area 12
Area G - Troll
Area G includes Areas 11, 20 to 27, 111, 121, 123 to 127 and Subareas 12-5 to 12-16, as defined in the Pacific Fishery Management Area Regulations.
Scale: 1:4 700 000
Area 27
Area 127
Area 26
Area 13
Area 15
Area 16
Area 25
Area 14
Area 28
Area 126
Area 24
Area 125
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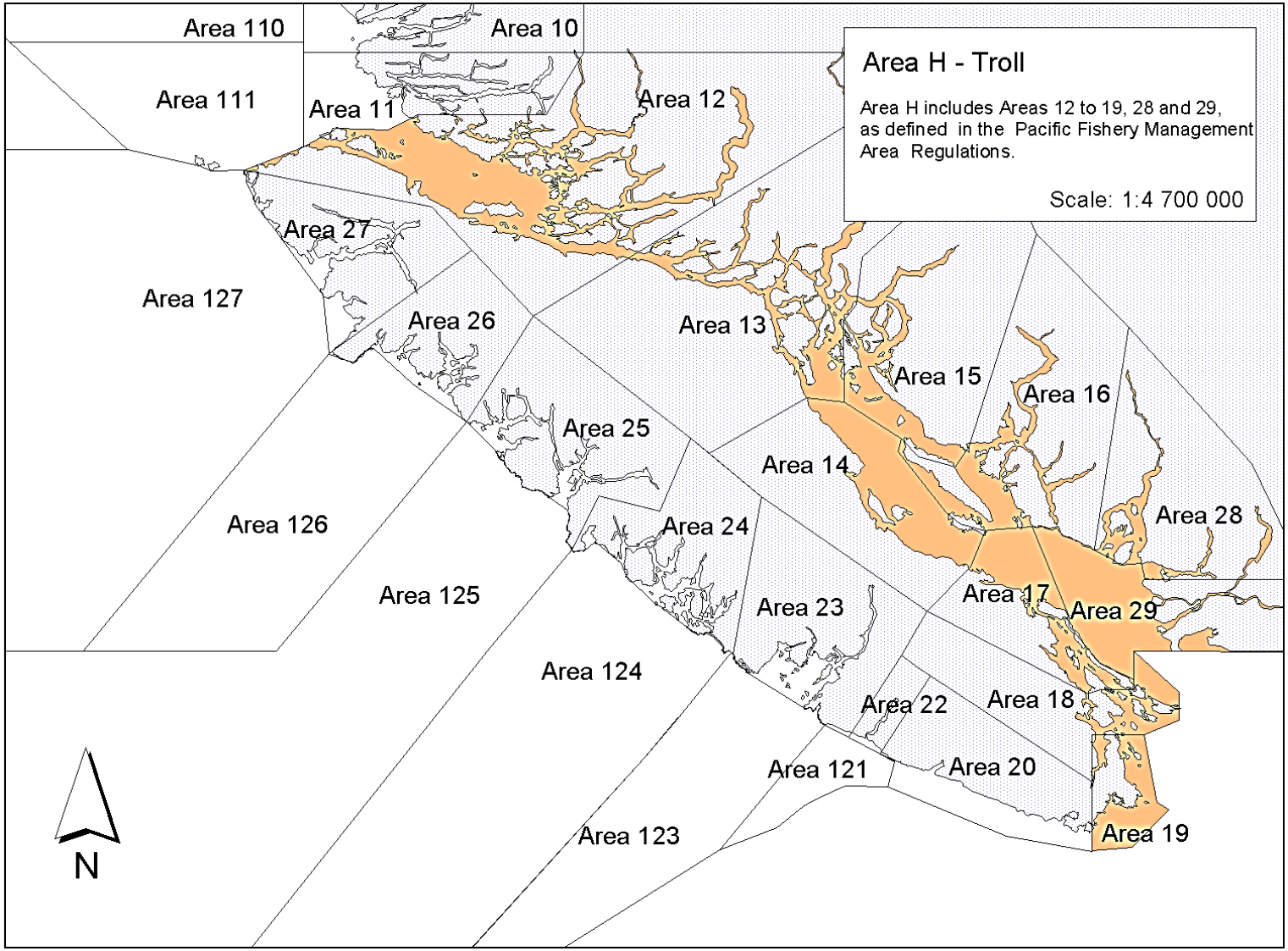
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Area 10
Area 111
Area 11
Area 12
Area H - Troll
Area H includes Areas 12 to 19, 28 and 29, as defined in the Pacific Fishery Management Area Regulations.
Scale: 1:4 700 000
Area 27
Area 127
Area 26
Area 13
Area 15
Area 16
Area 25
Area 14
Area 126
Area 24
Area 28
Area 125
Area 23
Area 17
Area 29
Area 124
Area 22
Area 18
Area 121
Area 20
Area 123
Area 19
N

APPENDIX 5: ADVISORY BOARD MEMBERSHIPS

The IHPC membership list can also be found on the DFO website at:
http://www.pac.dfo-mpo.gc.ca/consultation/smon/ihpc-cpip/membs-eng.html

INTEGRATED HARVEST PLANNING COMMITTEE SOUTH COAST SUBCOMMITTEE MEMBERS

RECREATIONAL (THREE) MEMBERS

Martin Paish ..... martinpaish1@gmail.com

Laurie Milligan ..... lmilligan@shaw.ca

Marilyn Scanlan ..... murphymar@shaw.ca

ALTERNATES

Rupert Gale ..... ruperta@telus.net

John Pew ..... N/A

Jeremy Maynard ..... j.maynard@shaw.ca

COMMERCIAL (SIX) MEMBERS

Bob Rezansoff - Area B ..... bob.rezansoff@telus.net

Brad Goodyear - Area D ..... tnbgoodyear@telus.net

Darrel McEachern - Area E ..... grandpadarrel@hotmail.com

Michael Wells - Area G ..... mcwells@shaw.ca

Dane Chauvel - Area H ..... dane@telus.net

Phil Young- Processor ..... phil.young@canfisco.com

ALTERNATES

Chris Ashton - Area B ..... areab@telus.net

Barry Crow - Area D ..... johncrow@shaw.ca

Ryan McEachern - Area E ..... ryanmceachern@shaw.ca

Ray Jesse - Area G ..... rjesse2@shaw.ca

Peter Sakich - Area H..... sakich@island.net

Kim Olsen - UFAWU..... president@ufawu.org

MARINE CONSERVATION CAUCUS (TWO) MEMBERS

Dave Mills ..... david@watershedwatch.ca

Allison Dennert ..... allison@raincoast.org

ALTERNATE

Misty MacDuffee..... misty@raincoast.org

FIRST NATIONS (FOUR) MEMBERS

Vacant

Vacant

Vacant

Vacant

PROVINCE (EX-OFFICIO) (ONE) MEMBER

Vacant

APPENDIX 6: UPDATES TO THE COMMERCIAL SALMON ALLOCATION FRAMEWORK

TABLE OF CONTENTS

1 INTRODUCTION AND PURPOSE

The purpose of this appendix is to outline progress related to updates to the Commercial Salmon Allocation Framework (CSAF), including

Document progress on key work plan items for the season agreed to by the Salmon Coordinating Committee, Commercial Salmon Advisory Board and DFO;

Describe principles and guidelines for sharing arrangements, building on guidelines approved in the 2015/2016 IFMP;

Outline CSAF demonstration fishery proposals assessed through the Departments' Evaluation Framework. These may be implemented subject to a final fishing plan being approved in the area which addresses any outstanding elements highlighted and sufficient returns for commercial fishing.

2 BACKGROUND

In September 2013, as part of the Pacific Salmon Treaty Mitigation program, Fisheries and Oceans Canada started a process to obtain advice on updating the CSAF to address deficiencies raised by commercial harvesters and First Nations. The Department engaged the existing advisory processes, principally the First Nations Salmon Coordinating Committee (SCC) and the Commercial Salmon Advisory Board (CSAB), and also sought the views of other First Nations and commercial interests on possible changes to the framework. Discussions with the SCC and CSAB were completed at the end of January 2015. Updates approved are detailed in the final 2015/16 IFMP. Work to address key issues raised continue. Key items being discussed include:

i) Supporting local area collaboration: to improve integration and collaboration among CSAF Demonstration, commercial marine and First Nation fishers;

ii) Providing support to local proponents and DFO area staff in reviewing and developing existing and new CSAF demonstration fishery proposals; and

iii) Using the CSAF small group forum to explore timelines and information needs to support the review of the CSAF sharing arrangements among fleets. Any proposed changes will be included in next year's draft IFMP for feedback prior to being implemented.

The Department's broad interests in continuing to support this process are to improve the long term sustainability of Pacific wild salmon, help commercial fishery participants achieve greater economic benefit, and create more resilient commercial salmon fisheries. The Department's role has not been to propose changes to the CSAF; rather its focus has been to consider proposed

changes to ensure that these were consistent with key Departmental objectives, policies, and programs.

A summary of previous work completed related to the initiative to update the CSAF is also available through the following link: http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html.

Principles and guidelines approved through the 2015 IFMP and expanded on in 2017 are included in Section 3 below.

3 PRINCIPLES AND GUIDELINES FOR CALCULATING SALMON SHARES

Below are principles and guidelines intended to provide clarity on commercial sharing arrangements. They have been developed as part of the initiative to update the CSAF in collaboration with the CSAB and SCC.

Please note: these guidelines and principles may be reviewed and updated annually to ensure they remain relevant and clear. Proposed changes will be included in draft IFMPs for feedback prior to being approved. There are no changes proposed for the 2023 season.

APPROVED PRINCIPLES

For simplicity, the updates to the CSAF are organized into three categories: 1. Stabilizing commercial shares; 2. Flexibility to harvest the shares and integrated planning process; and 3. Additional elements for future discussion.

CATEGORY 1: STABILIZING COMMERCIAL SHARES

The following recommendations form the basis for the commercial allocation plan starting in 2015:

- Commercial salmon shares (specified as a % allocation of the allowable commercial harvest) will be assigned by species, fleet and fishery production area. Shares at the species, fleet and fishery production area are provided in Section 12.7 of the IFMP;
- Shares will apply for a 5 year period with a provision for a review after year 4 to determine if adjustments should be made to Area A-H sharing arrangements in subsequent years. An earlier review could be considered if circumstances warrant by majority agreement of the commercial advisory board;
- Sockeye equivalents will no longer be used to adjust shares on an annual basis;

- Licences transferred to First Nations communities for commercial purposes, from an individual relinquished commercial licence, will be based on an equal percentage allocation of the allowable commercial harvest for all licences (e.g. 1/X where X = total licences per fleet) in that commercial licence area (i.e. Areas A to H). Please note that licence shares may change over time due to changes in fleet size (e.g. licence retirements, stacking) or updates to the A-H sharing arrangements outlined in the commercial salmon allocation plan based on the periodic review.
- A central, common tracking system developed to provide an open and transparent annual accounting of all commercial A to H licences/allocations and First Nation economic fishery allocations by each First Nations economic fishery.
- In addition to the 22 fishery production areas that existed pre-2015, three new areas have been added, as of 2015, to better define sharing arrangements for troll fisheries limited by the Pacific Salmon Treaty including the WCVI Aggregate Abundance Based Management (AABM) Chinook, Northern BC AABM Chinook and the AB-line Pink troll fisheries.
- Sharing arrangements in the commercial salmon allocation plan are not fixed entitlements. Although best efforts will be made to achieve fishery production area target allocations over the course of the season, no guarantees are offered that allocations will actually be achieved in any given year. The achievement of commercial allocations will depend upon the ability to fish selectively and the conservation needs of the resource. In the event that allocations are not achieved over the course of the season, no compensatory adjustments (i.e. overage/underage provisions) will be made to future allocations.
- Fishing opportunities for all commercial fisheries, including First Nations commercial fisheries, targeting the same fishery management unit should be planned to provide reasonable opportunities to harvest shares. No fishery should be allowed such that its operation puts another fleet out of the water (e.g. using a disproportionate amount of bi-catch to target share or using insufficient effort such that it takes an unreasonable amount of time to achieve weekly target). Post season reviews will address whether fisheries adjustments may be required in future years to address situations where allocations are not achieved.
- In the event of extenuating circumstances (e.g. when fisheries are opened until further notice after escapement objectives are met in a terminal fishery), commercial sharing arrangements may be set aside and commercial opportunities will focus on harvesting surplus salmon. These situations will be discussed at local processes where possible to coordinate fishing plans.

Further considerations on Stabilizing Commercial Shares

In addition to the three additional production areas which were approved starting in 2015, the SCC recommended adding an additional fishery production area for a total of 26. This 26th fishery production area would result by dividing the Fraser River Chum from the southern inside Chum production area. This additional production area was not approved, however may be considered in the future pending additional discussion.

It is expected that annual post-season reviews will be conducted to consider how well the approved allocation arrangements have been implemented in commercial fisheries that season.

CATEGORY 2: FLEXIBILITY TO HARVEST SHARES AND INTEGRATED PLANNING PROCESS

Both the CSAB and the SCC are seeking greater flexibility to harvest the shares that are assigned at the fishery production area level and/or are associated with voluntarily relinquished commercial licences transferred to First Nations.

The following principles and operational guidelines form the basis for the incremental testing of flexibilities to harvest shares which started in 2016 informed through the collaborative advisory process (CSAF small group, which includes participants of from the SCC, CSAB and DFO) and a Departmental evaluation framework (these are described in more detail under "further considerations on flexibilities" below).

- Greater flexibility, such as fishing location and methods, should be provided to harvest the shares; however, 'one size does not fit all' and each gear type through its area harvest committee or First Nations economic fishery should determine the best approach to harvest their shares;
- First Nations that have Area A-H licences may continue to fish those licences in the current A-H fisheries or they may choose to transfer the harvest share associated with those licences to a First Nation economic fishery. Under the SCC proposal, any First Nations economic fishery would have to be managed in coordination with other fisheries and would require approval from the Department (including proposed fishing method, location and time);
- A revised collaborative process will be required to coordinate the collective interests of the A-H fisheries and First Nations economic fisheries in order to produce integrated fishing plans. This could also include more local harvest planning processes as required;
- In-season transfers of shares among and between A-H and First Nation economic fisheries will be considered. These arrangements will be subject to operational

guidelines for pre-season and in-season transfers (see the current Guidelines and any proposals for Temporary Commercial Salmon Share Transfers, Section 12.7.1);

- Transfers between fisheries, including marine and inland areas, must account for similar stocks/species, as well as, any management adjustments that may need to be taken into consideration for transfers to inland areas;
- Bycatch and stocks of concern (i.e. non-targeted species that limit target species access) will not be formally allocated at this time. Available impacts must be shared between all commercial fisheries, including First Nation economic fisheries, in the development of operational plans to allow every fishery reasonable access to its target species. Operational plans should be discussed annually through a collaborative process among all commercial fishery participants, including First Nations economic interests. The use of bycatch will require more discussion to further clarify how bycatch is best used under different scenarios;
- There will be a requirement to have accurate, timely and accessible fisheries data, such that there is sufficient information for all Pacific salmon fisheries to be managed sustainably and to meet other reporting obligations and objectives; and
- Common standards and approach will be used for evaluating and approving flexibilities to harvest shares whether these are Area A-H or First Nations economic fisheries. Operational issues about how to operationalize harvest flexibilities in different areas has underscored the need for greater clarity and transparency in applying any of the proposed changes.
- Assessment fisheries should take into consideration existing sharing arrangements between A to H and First Nations commercial fisheries; opportunities for assessment fisheries should be proportionate with existing shares or as agreed to by the relevant parties.

Further Considerations on Flexibility to Harvest Shares:

The SCC proposal envisaged that any First Nations that have Area A-H licence(s) may continue to fish those licence(s) in A-H fisheries or choose to transfer the harvest share associated with that licence to a First Nation economic fishery. This could result in First Nation economic fisheries in marine or inland areas based on shares converted from A-H fisheries. The relevant First Nations economic fishery (including any proposed fishing methods, times and locations) would need approval from the Department. Any First Nations fishery would have to be managed in coordination with other commercial fisheries (including A-H), on the same species

and would have to meet Department requirements for stock assessment, catch monitoring, compliance and enforcement.

Similarly, the CSAB suggested that fleets in the A-H fisheries should decide how to best harvest their shares through harvest committee deliberations and thus endorsed the view that "one size does not fit all" when it came to how fleets may choose to harvest their shares.

The Department will adopt an incremental approach to implementation of harvesting flexibilities starting in 2016, informed through a collaborative advisory process and a common evaluation framework to review proposals submitted.

Collaborative Process

An inclusive commercial advisory process including commercial representatives from the A – H fisheries and First Nations economic fisheries will be required for the Department supporting implementation of any proposed flexibilities. Since 2015, a small working group comprised of CSAB, SCC and DFO representatives has been effective at exploring opportunities for collaboration and improving understanding of various perspectives, while communicating with each host organization to ensure consistency and accuracy of feedback included. The purpose of this CSAF small working group is as a forum to discuss and make recommendations for the Department's consideration on implementation of the revised allocation framework, the operational details associated with proposed flexibilities and how to prioritize testing of potential harvesting flexibilities including: reviewing and assessing proposals pre-season and considering the results of pilots against evaluation criteria post-season. The Department will continue to work with the existing CSAB and SCC to determine next steps, other priority items for discussion, relevant for this forum and support the use of the CSAF small group process for collaborative discussions.

Local Fishing Area Discussions:

Discussions on commercial harvest plans including which group fishes first, sequencing of opportunities, amounts of fishing time and other fishing plan parameters should be discussed among fishery participants at planning processes suitable to the scale of the fishery (e.g. local area) and included within the IFMP as required. The Department will continue to consider advice and recommendations on proposed fishing plans from the local First Nations, Area Harvest Committees, and other groups to promote integrated fishery planning.

Local management committees are encouraged to promote effective communication, consultation and support increased collaboration and integration of commercial fisheries. Structure and protocol for any local committees should promote effective management through open, transparent and collaborative process to develop and implement commercial fishing

plans. Existing processes will be used whenever possible/practical to support pre-season planning, in-season management and post-season review. Operational plans should be guided by the principles and guidelines outlined in this document and, where possible, identify clear decision guidelines that address the potential fishery configurations and effort associated with a range of potential commercial harvest scenarios.

Pre-agreed methods for calculating in-season harvest amounts associated with commercial allocations for all groups should be identified in local area fishing plans and/or the IFMP where appropriate and communicated preseason so all commercial participants have clarity on sharing arrangements. Methods should account for all commercial allocations including A to H fleets, FN demonstration, economic opportunities and harvest agreement fisheries.

Approaches for in-season communication (e.g. integrated conference calls, Fisheries Notices, etc.) of fishing opportunities, sharing arrangements and catch to date should be provided for discussion with First Nations and stakeholders.

Evaluation Framework

In 2016, DFO in collaboration with the SCC and CSAB developed an Evaluation Framework (E.F.) supported by all parties. The E.F. outlines the objectives and criteria that are used to assess CSAF proposals for flexible harvest arrangements for all commercial/economic fisheries. The E.F. may be reviewed and updated annually based on post-season discussions.

CATEGORY 3: ADDITIONAL ELEMENTS FOR DISCUSSION:

In addition to commercial allocation arrangements within Section 12.5 of the IFMP and those listed above in Category 2: *Flexibility to Harvest Shares*, there are a number of additional elements in the SCC and CSAB proposals where differences remain. These elements may have policy implications and require additional discussion, collaboration and analysis by commercial harvesters, First Nations and the Department.

Details are included within the original proposals received by both the SCC and CSAB in 2015 which can be reviewed at:
http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html

Further considerations on additional elements:

In 2024, DFO will again consider opportunities to pilot *Type B* dual fishing in Indigenous CSAF fisheries to support FSC harvest. Type B dual fishing enables retention of non-target bycatch for FSC purposes that the First Nation would otherwise be able to harvest under their FSC licenses, during a directed CSAF fishery. DFO is engaging several First Nations with CSAF

demonstration arrangements who have expressed an interested in piloting this approach. For more information on dual fishing, please see Section 10.3.6 Dual Fishing.

The following areas have been highlighted by the SCC and CSAB where there was no agreement concerning the proposed changes.

The CSAB has indicated concerns with the guidelines for the conversion of an existing marine A-H commercial licence (not including licences held in DFO inventory) into a First Nation economic fishery allocation (guidelines the CSAB would like to be consider prior to approval of conversions include timing (e.g. pre-season vs. in-season), notification, and transfer/tracking requirements. Please see the transfer guidelines in Section 12.7.1 for more details.

In addition, there are some proposed changes that are principally matters best handled between DFO and the relevant group. These matters will require further discussion with the Department.

The SCC has proposed a separate management body/process to manage First Nations salmon shares including a proposed body (a 'First Nations' licensing board') to administer use of shares associated with relinquished commercial salmon licences from the DFO inventory or licences otherwise set aside for First Nations use. The Department has not initiated development of a separate board; however DFO would be interested in hearing any principles for the distribution of licences which the SCC may suggest for consideration.

The CSAB had indicated interest in reviewing commercial licencing policy, however initial discussions highlighted the diversity of views and priorities on potential areas of work within the CSAB.

4 CSAF Demonstration Fishery Proposals for Flexible Harvest Arrangements

As part of implementing changes to the CSAF, the Department adopted an incremental approach to providing increased flexibility to harvest salmon shares starting in 2016. Each proposal is assessed by the same Evaluation Framework which defines the principles and operational guidelines required by DFO to ensure appropriate implementation of proposed harvesting flexibilities. The Department's Evaluation Framework was developed to assess proposals with input from the SCC and CSAB. There continues to be agreement from DFO, the SCC and CSAB to continue using the Evaluation Framework with no updates to the principles, objectives and criteria currently in use.

Below is a table outlining demonstration fishery proposals that were reviewed using the Department's Evaluation Framework. For details on proposals or fishing plans for CSAF

demonstrations which were included in the final IFMP and implemented in previous years, please contact the relevant resource manager in the area or Lindsay Begemann (Lindsay.Begemann@dfo-mpo.gc.ca).

Approved CSAF demonstration fisheries listed below will be implemented contingent on any remaining considerations being resolved with a fishing plan approved in the local area and sufficient returns for commercial harvest. The Department will be discussing operational details with First Nations and stakeholders in each demonstration fishery proposal area to develop fishing plans. Should operational considerations not be resolved or sufficient abundance not materialize, the demonstration fishery will not occur in the coming season.

Any demonstration fishery that does proceed in 2023 will be reviewed as part of the post-season review process. Below is a table which outlines the section and related demonstration fishery project included within this appendix.

Year Approved	Salmon Coordinating Committee	Commercial Salmon Advisory Board
	Northern B.C.	Northern B.C.
2016	Central Coast hatchery Chum (Heiltsuk/Kitasoo)	Central Coast Coho (Area F)
2016	Nass River Sockeye (Nisga'a Lisims Government)	
2016	Nass River Sockeye (Gitanyow Fisheries Authority)	
2016	Skeena Sockeye (NCSFNSS)	
2016	Skeena Sockeye (Lake Babine Nation)	
2016	Skeena Sockeye (Gitksan Watershed Authorities)	
2017	Central Coast Chum (Nuxalk)	
2017	Haida Gwaii Coho (CHN)	
2018	Skeena Pink – Area 3 / 4 (NCSFNSS)	

Year Approved	Salmon Coordinating Committee	Commercial Salmon Advisory Board
2018	Coho bycatch within existing Pink ESSR (Wet'suwet'en)	
2018	Central Coast Chinook (Nuxalk)	
2019	Skeena Sockeye (Metlakatla First Nation)	
2020	Central Coast Chum and Pink (Heiltsuk First Nation)	
2021	Skeena Sockeye (Lax Kw'alaams Band)	
2021	Nass Pink (Metlakatla First Nation and Lax Kw'alaams Band)	
2023	Skeena Sockeye (Lax Kw'alaams Band)	
	Southern B.C.	Southern B.C.
2016	Cowichan Chum (Cowichan Tribes)	
2017	Goldstream Chum (Saanich Tribes)	Qualicum/Puntledge (Chum Area D)
2017		Area 12 – 9 Encounter study (Area D)
2017		Mainland/Inlet Pink and Chum (Area H)
2018	Bute Inlet Chum (Homalco First Nation)	Bute Inlet Chum (Area H)
2018		Bute Inlet Chum (Area D)
2019	Terminal Chum (K'omoks First Nation)	Mainland Inlet Pink & Chum Fishery: Area 12 Broughton Archipelago (Area H)
2019	Nanaimo Terminal Chum (Snuneymuxw First Nation)	
2020		Fraser Chum ITQ (Area E)
2022		Inside Chinook Fishery (Area G)

Year Approved	Salmon Coordinating Committee	Commercial Salmon Advisory Board
2023	Local Marine Pink (A-Tlegay Fisheries Society)	Quinsam Pink (Area B)
2023		Quinsam Pink (Area H)

First Nations requests for access to salmon allocations associated with licences in the Departmental licence inventory will be reviewed internally by the Department and outcomes will be confirmed First Nations proponents. Demonstration fisheries that do not receive requested allocations will not proceed.

Full versions of the original proposals or final fishing plans is available upon request to Lindsay Begemann@dfo-mpo.gc.ca or the local fishery manager.

To view the list of North Coast CSAF demonstration fisheries, please see Appendix 6 of the Northern BC IFMP.

4.1 NEW FOR 2024

4.1.1 NEW - AREA G CHANGES TO EXISTING INSHORE CHINOOK FISHERY

- Area G has a previously approved demonstration fishery for inshore Chinook (section 4.5 of Appendix 6).
- Area G has submitted a change to their existing proposal.
- Proposal: include the 1 nautical mile corridor in the inshore demonstration fishery for 2024/25. This would be consistent with other ongoing fisheries.

4.1.2 NEW - AREA G SUMMER CHINOOK TROLL GEAR SELECTIVITY STUDY

I. Background

a. Fleet: Area G Troll
Allocation: Defined share of WCVI AABM Chinook
Number/type: 2 Area G vessels/licences

II. Proposal Overview

a. The Area G summer fishery requires the use of 6" plugs to reduce encounters of Coho while targeting Chinook. Plugs have been shown to be effective at reducing the encounters of Coho but in some situations may significantly reduce the Chinook catch rate as well. Area G proposes to test a variety of different gear (i.e. terminal tackle) and gear configurations (e.g. depths) to see if they could be equally or more effective than the use of plugs. Two Area G vessels would fish with at-sea observers to record all the relevant catch and effort information. These vessels would fish in the regular Area G summer troll fishery with all the same management rules and licence conditions except for the mandatory use of plugs.

III. Fishery Elements/Attributes

a. Area G summer troll fishery on the WCVI. Two vessels fishing in the open areas in the offshore of the WCVI. Purpose would be to identify gear and gear configurations that are better or equal to the use of plugs in avoiding Coho.
b. Occurs within the regular commercial fishery so no expected new impact to other sectors.
c. n/a

IV. Harvest Guidelines and Management Decision Rules

a. Fishing during the same open times and areas.
b. Managed within the Area G AABM Chinook allocation
c. Proposed fishery management controls

i. Input controls: Remove the plug licence condition to test different gear
ii. Output controls : Managed within the Area G AABM Chinook allocation

V. Monitoring and Compliance Plan

a) Type of program to monitor (effort, retained catch, at-sea, releases, biological sampling)
- At-sea observers to record encounters of retained and released species

b) Landing, site(s)
- Designated landing sites as per Area G licence conditions

c) Level of coverage
- 100% at-sea observer coverage for 2 vessels participating in study

d) Biological sampling requirements (e.g. coded wire tag, DNA, etc…)
- Standard CWT, DNA sampling for retained catch as per Area G plan

e) Who will implement monitoring plan
- Propose to work with contracted service provider to supply at-sea observers and help develop study design and report results.

f) Information , format and submission of data being collected
- Service provider will provide report with final results and statistical analysis

g) Communication protocol pre-season, in-season and post-season reporting (with service provider/DFO), including timing of reports (catch/effort and compliance reports)
- Final report to be available in the post-season to inform 2025 pre-season planning

VI. Communication Plan

- Post-season report, including final results and statistical analysis will be available for IHPC review to inform 2025 pre-season planning.
- In-season communications not required other than identifying the 2 vessels participating in the study for licence condition amendment and C&P awareness.

VII. Fishery Benefits

- Benefit would be to provide more legal gear options for Area G trollers to catch their WCVI AABM Chinook allocation while avoiding encounters of Coho (in particular Interior Fraser Coho that are known to be present in the fishing area).
- New gear options must be equally or more effective than current plug gear restriction in avoiding Coho.
- New gear options would allow Area G trollers to select which option maximizes Chinook catch rates while minimizing Coho encounters.

4.2 AREA B QUINSAM PINK

	Quinsam Pink
Included in Final IFMP	2023
Status (Implemented/ Developing)	2023: Not Implemented
Allocation	73% of the south coast pink allocation (dependent on area) as per the CSAF.
Location	Areas 12/13, and Area 29 targeting local abundances
Size	Limited vessels, TAC to be determined based on test fishery population size estimates.
Catch Monitoring (Key Elements)	Level of monitoring to be defined through consultation with DFO. At-sea-monitoring, and/or dock side monitoring may be provided by the Service Provider or local First Nation.
Communication	Detailed pre-season planning with the Area B Harvest Committee required for a successful fishery. Topics such as monitoring and compliance, TAC, and harvest guidelines will be discussed. Should this fishery be opened in 2024, fishery openings, closures and catch estimates to be provided in-season by Fishery Notice. Post-season results reviewed through IHPC and with First Nations.
Further Information	Madeline Wanless – DFO Fisheries Manager

4.3 AREA H QUINSAM PINK

	Quinsam Pink
Included in Final IFMP	2023
Status (Implemented/ Developing)	2023: Not Implemented
Allocation	18% of the south coast pink allocation (dependent on area) as per the CSAF.
Location	Portions of Area 13
Size	Limited vessels, TAC to be determined based on test fishery population size estimates.
Catch Monitoring (Key Elements)	Level of monitoring to be defined through consultation with DFO. At-sea-monitoring, and/or dock side monitoring may be provided by the Service Provider or local First Nation.

Communication	Detailed pre-season planning with the Area H Harvest Committee required for a successful fishery. Topics such as monitoring and compliance, TAC, and harvest guidelines will be discussed. Should this fishery be opened in 2024, fishery openings, closures and catch estimates to be provided in-season by Fishery Notice. Post-season results reviewed through IHPC and with First Nations.
Further Information	Madeline Wanless – Fisheries Manager

4.4 A-TLEGAY FISHERIES SOCIETY QUINSAM PINK

	Quinsam Pink
Included in Final IFMP	2023
Status (Implemented/ Developing)	2023: Not Implemented
Allocation	15.89% of the Mainland Pink
Location	Portions of Areas 13
Size	Limited vessels, TAC to be determined based on test fishery population size estimates.
Catch Monitoring (Key Elements)	Level of monitoring to be defined through consultation with DFO. At-sea-monitoring, and/or dock side monitoring may be provided by the Service Provider or local First Nation.
Communication	Detailed pre-season planning with the A-Tlegay Fisheries Society required for a successful fishery. Topics such as monitoring and compliance, TAC, and harvest guidelines will be discussed. Should this fishery be opened in 2024, fishery openings, closures and catch estimates to be provided in-season by Fishery Notice. Post-season results reviewed through IHPC and with First Nations.
Further Information	Kent Spencer – Aboriginal Affairs Advisor

4.5 AREA G INSHORE CHINOOK

	Inside Chinook
Included in Final IFMP	2022
Status (Implemented/ Developing)	Implemented in 2023
Allocation	Existing share of AABM Chinook as part of CSAF

Location	Inshore portions of the WCVI (Areas 23-27)
Size	TAC of 3,000 pieces
Catch Monitoring (Key Elements)	DFO DNA sampling program that will be done in conjunction with existing MRP (i.e. CWT); dockside monitoring programs; Start, end, pause, cancel and daily catch reporting; logbook or E-log entry for each day of fishing.
Communication	Detailed pre-season planning with the Area G Harvest Committee. Fishery openings, closures and catch estimates to be provided in-season by Fishery Notice. Post-season results reviewed through IHPC, Maa-nulth Salmon Sub-Committee, NTC Joint Technical Committee, and bilateral discussions with Five Nations.
Further Information	Brad Beaith – DFO Fisheries Manager

4.6 AREA 14 TERMINAL CHUM (K'OMOKS FIRST NATION)

	Terminal Chum
Included in Final IFMP	2019
Status (Implemented/ Developing)	2019: Insufficient returns 2020: Insufficient returns 2021: Insufficient returns 2022: Insufficient returns 2023: Insufficient returns
Allocation*	13.41% of Southern Inside Chum.
Location	A portion of 14 (TBC)
Size	1- 2 seines or 3-5 gillnet vessels. Final number based on the number of fish to be harvested.
Catch Monitoring (Key Elements)	TBC – consistent with commercial marine fisheries
Communication	A K'omoks Tribes Fisheries demonstration fishery manager will be identified and will be responsible for the coordination of the K'omoks fishery and will be the primary contact for all communication with DFO and fishers.
Further Information	Kent Spencer – Aboriginal Affairs Advisor

*Shares change annually based the respective gear shares for the production Area and licences in DFO Inventory. Shares were based on 24 Area B, 18 Area D, 68 Area E, and 19 Area H licences in the DFO Inventory.

4.7 NANAIMO TERMINAL CHUM (SNUNEYMUXW FIRST NATION)

	Nanaimo Terminal Chum
Included in Final IFMP	2019
Status (Implemented/ Developing)	2019: Not implemented 2020: Implemented 2021: Not implemented 2022: Implemented 2023: Insufficient returns
Allocation*	13.41% of Southern Inside Chum.
Location	Nanaimo River Approach Areas/Portions of Departure Bay (TBC)
Size	1- 2 seines or 3-5 gillnet vessels. Final number based on the number of fish to be harvested. (TBC)
Catch Monitoring (Key Elements)	TBC – consistent with commercial marine fisheries
Communication	A Snuneymuxw Tribes Fisheries demonstration fishery manager will be identified and will be responsible for the coordination of the Snuneymuxw fishery and will be the primary contact for all communication with DFO and fishers.
Further Information	Kevin Bruce – Fisheries Manager/Kent Spencer – Aboriginal Affairs Advisor

*Shares change annually based the respective gear shares for the production Area and licences in DFO Inventory. Shares were based on 24 Area B, 18 Area D, 68 Area E, and 19 Area H licences in the DFO Inventory.

4.8 MAINLAND INLET PINK & CHUM FISHERY: AREA 12 BROUGHTON ARCHIPELAGO (AREA H)

	Mainland Inlet Pink & Chum – Area 12 Broughton Archipelago (Area H)
Included in Final IFMP	2019
Status (Implemented/ Developing)	2019: Not implemented 2020: Not implemented 2021: Not implemented 2022: Not Implemented 2023: Not Implemented
Allocation	Existing share of Southern Inside Chum as per the CSAF.
Location	Sub-Areas 12 -26 to 12-30 and 12-35 to 12-42 (TBC)

Size	5 vessels. Final number based on the number of fish to be harvested.
Catch Monitoring (Key Elements)	Start, end, pause, cancel and daily catch reporting; logbook or E-log entry for each day of fishing; monitoring program to be determined.
Communication	Communication protocols with other fisheries and participants and DFO would be coordinated with the Resource Manager. The same type of program that occurs for southern inside Chum is envisioned.
Further Information	Madeline Wanless – DFO Fisheries Manager

4.9 COWICHAN CHUM (COWICHAN TRIBES)

	Cowichan Terminal Chum (Cowichan Tribes)
Included in Final IFMP	2016
Status (Implemented/ Developing)	2016: Implemented 2017: Implemented 2018: Implemented 2019: Not Implemented 2020: Implemented 2021: Not Implemented 2022: Insufficient returns 2023: Insufficient returns
Allocation*	13.41% of Southern Inside Chum.
Location	A portion of 18-6, a portion of 18-7, a portion of 18-8.
Size	1- 2 seines or 3-5 gillnet vessels. Final number based on the number of fish to be harvested.
Catch Monitoring (Key Elements)	At-sea observer; mandatory landing site; monitoring plan, in-season reporting
Communication	A Cowichan Tribes Fisheries demonstration fishery manager will be identified and will be responsible for the coordination of the Cowichan fishery and will be the primary contact for all communication with DFO and fishers.
Further Information	Kevin Bruce – DFO Fisheries Manager

*Shares change annually based the respective gear shares for the production Area and licences in DFO Inventory. Shares were based on 24 Area B, 18 Area D, 68 Area E, and 19 Area H licences in the DFO Inventory.

4.10 GOLDSTREAM CHUM (SAANICH TRIBES)

	Goldstream Chum (Saanich Tribes)
Included in Final IFMP	2016
Status (Implemented/ Developing)	2017: Insufficient returns 2018: Implemented 2019: Not Implemented 2020: Not Implemented 2021: Not Implemented 2022: Not Implemented 2023: Insufficient returns
Allocation*	13.41% of Southern Inside Chum.
Location	A portion of 19-8, subareas 19-10, 19-11, and a portion of subarea 19-12
Size	1- 2 seines or 3-5 gillnet vessels. Final number based on the number of fish to be harvested.
Catch Monitoring (Key Elements)	At-sea patrols; mandatory landing site; monitoring plan, in-season reporting
Communication	A Saanich Tribes Fisheries demonstration fishery manager will be identified and will be responsible for the coordination of the Saanich fishery and will be the primary contact for all communication with DFO and fishers.
Further Information	Kevin Bruce – DFO Fisheries Manager

*Shares change annually based the respective gear shares for the production Area and licences in DFO Inventory. Shares were based on 24 Area B, 18 Area D, 68 Area E, and 19 Area H licences in the DFO Inventory.

4.11 BUTE INLET CHUM (HOMALCO FIRST NATION)

	Bute Inlet Chum (Homalco First Nation)
Included in Final IFMP	2018
Status (Implemented/ Developing)	2018: Insufficient returns; final fishing plan pending 2019: Not implemented 2020: Not implemented 2021: Not implemented 2022: Not Implemented 2023: Insufficient returns
Allocation*	13.41% of Southern inside Chum

Location	13-21
Size	3-5 gillnet vessels. Final number based on the number of fish to be harvested.
Catch Monitoring (Key Elements)	To be determined in discussion with DFO
Communication	A Homalco First Nations representative will be identified and will be responsible for the coordination of the Bute Inlet fishery and will be the primary contact for all communication with DFO and fishers.
Further Information	Kent Spencer – DFO Aboriginal Affairs Advisor

*Shares change annually based the respective gear shares for the production Area and licences in DFO Inventory. Shares were based on 24 Area B, 18 Area D, 68 Area E, and 19 Area H licences in the DFO Inventory.

4.12 SOCKEYE, PINK AND CHUM ALTERNATE GEAR (AREA E)

	Fraser River Sockeye, Pink and Chum Alternate Gear (Area E)
Included in Final IFMP	2016
Status (Implemented/ Developing)	2016/2017: Not implemented, insufficient interest 2018: Not implemented, final fishing plan pending 2019: Not implemented, final fishing plan pending 2020: Not implemented
Allocation	Existing share of Area E Fraser River Sockeye, Pink and Chum as per the CSAF.
Location	Fraser River main stem
Size	Up to 15 shallow seines to harvest Pinks, Sockeye, Chum. 1-3 beach seine for Chum. The numbers of shallow seines and the beach seines would be limited by the uncaught Area E allocation.
Catch Monitoring (Key Elements)	Dock side monitoring for the shallow seines and on grounds monitor for the beach seines; 3 landing sites; 25% roving observer coverage
Communication	Area E would appoint a spokesperson for communication with other fisheries and DFO. It is expected that there would be at least weekly in-season communications with DFO and or a local harvest committee if one is struck.
Further Information	Barbara Mueller – DFO Fisheries Manager

4.13 QUALICUM AND PUNTLEDGE CHUM (AREA D)

	Qualicum and Puntledge Chum (Area D)
Included in Final IFMP	2017
Status (Implemented/ Developing)	2017: Implemented 2018: Insufficient returns 2019: Insufficient returns 2020: Implemented 2021: Insufficient returns 2022: Insufficient returns 2023: Insufficient returns
Allocation	Existing share of Southern Inside Chum as per the CSAF
Location	Area 14
Size	10 vessels
Catch Monitoring (Key Elements)	Start, end, pause, cancel and daily catch reporting; logbook or e-log entry for each day of fishing
Communication	Communication in-season would be via the Chum working group committee
Further Information	Teagan Wardrop – DFO Fisheries Manager

4.14 AREA 12-9 ENCOUNTER (AREA D)

	Area 12-9 Encounter Study (Area D)
Included in Final IFMP	2017
Status (Implemented/ Developing)	2014: Implemented 2018: Implemented 2020: Not implemented 2021: Not implemented 2022: Not implemented 2023: Not implemented
Allocation*	Existing share of Sockeye as per the CSAF
Location	Subareas 12-9, 12-10, and portion of 12-8
Size	10 to 25 vessels
Catch Monitoring (Key Elements)	Minimum of 20% on-board observer coverage; subject to regular Area D Gill Net licence conditions; logbook or e-log entry for each day of fishing

Communication	Communication in-season would be via the Fraser harvest committee
Further Information	Teagan Wardrop – DFO Fisheries Manager

4.15 BUTE INLET CHUM (AREA D)

	Bute Inlet Chum (Area D)
Included in Final IFMP	2018
Status (Implemented/ Developing)	2018: Insufficient returns; final fishing plan pending 2019: Insufficient returns 2020: Insufficient returns 2021: Insufficient returns 2022: Not implemented 2023: Insufficient returns
Allocation	Existing share of Southern Inside Chum as per the CSAF.
Location	Subareas 13-20 to 13-22
Size	Limited entry fleet (4-5 vessels). Final number based on the number of fish to be harvested.
Catch Monitoring (Key Elements)	Start, end, pause, cancel and daily catch reporting; logbook or E-log entry for each day of fishing
Communication	Communication in-season would be via the Chum working group committee.
Further Information	Teagan Wardrop – DFO Fisheries Manager

4.16 MAINLAND INLET PINK & CHUM – JERVIS INLET (AREA H)

	Mainland Inlet Pink & Chum – Jervis Inlet (Area H)
Included in Final IFMP	2017
Status (Implemented/ Developing)	2017: Not implemented - low forecast; final fishing plan pending 2018: Not implemented - low forecast; final fishing plan pending 2019: Not implemented - low forecast; final fishing plan pending 2020: Not implemented 2021: Not implemented 2022: Not Implemented 2023: Insufficient returns
Allocation	Existing share of Southern Inside Chum as per the CSAF.

Location	Areas 12 to 19 and 28
Size	2-3 vessels. Final number based on the number of fish to be harvested.
Catch Monitoring (Key Elements)	Start, end, pause, cancel and daily catch reporting; dockside catch validation; logbook or E-log entry for each day of fishing
Communication	Communication protocols with other fisheries and participants and DFO would be coordinated with the Resource Manager. The same type of program that occurs for southern inside Chum is envisioned.
Further Information	Madeline Wanless – DFO Fisheries Manager

4.17 BUTE INLET CHUM (AREA H)

	Area 13 – Bute Inlet Chum (Area H)
Included in Final IFMP	2018
Status (Implemented/ Developing)	2018: Insufficient returns; final fishing plan pending 2019: Insufficient returns; final fishing plan pending 2020: Not implemented 2021: Not implemented 2022: Not implemented 2023: Insufficient returns
Allocation	Existing share of Southern Inside Chum as per the CSAF.
Location	Subareas 13-20 and 13-23
Size	4 vessels
Catch Monitoring (Key Elements)	Start, end, pause, cancel and daily catch reporting; logbook or E-log entry for each day of fishing; monitoring program to be determined.
Communication	Communication protocols with other fisheries and participants and DFO would be coordinated with the Resource Manager. This fishery should form part of the southern inside Chum coordinated management program.
Further Information	Madeline Wanless– DFO Fisheries Manager

4.18 FRASER CHUM ITQ (AREA E)

	Fraser Chum ITQ (Area E)
Included in Final IFMP	2020

Status (Implemented/ Developing)	2020: Implemented 2021: Not implemented 2022: Not implemented 2023: Not implemented
Allocation	TBD (in-season)
Location	Fraser River
Size	Up to 100 vessels (est.)
Catch Monitoring (Key Elements)	Logbook or e-log entry for each day of fishing; dockside validation; roving at-sea observer coverage; subject to Area E Gill Net licence conditions;
Communication	Communication in-season via the Chum WG; Area E Harvest Committee (AEHC)
Additional Comments	For 2020/2021 Area E will proceed with a Chum ITQ demonstration fishery proposal. Area E has expressed interest in transition of all Fraser River (Area 29) salmon fisheries from open/competitive to transferable share based over time.
Further Information	Barbara Mueller – Resource Manager

APPENDIX 7: AREA B AND AREA H FRASER SOCKEYE ITQ DEMONSTRATION FISHERY

2024 GUIDELINES

The following information is provided as a guide to the Area B and Area H Individual Transferable Quota Demonstration fishery. These guidelines are intended for general purposes only. Where there is a discrepancy between the guidelines and the licence conditions, the Conditions of 2024/2025 Salmon Area B Licence or the Conditions of 2024/2025 Salmon Area H Licence are the final authority.

SETTING TAC AND ASSOCIATED QUOTA SHARES:

- The Area B Seine Fraser River Sockeye quota will be determined by DFO by dividing the Area B Seine Fraser River Sockeye allocation (percent), by the total number of licensed vessels for Area B multiplied by the available Fraser River Sockeye Commercial Total Allowable Catch (TAC) determined in-season.
- The Area H Troll Fraser River Sockeye quota will be determined using the same formula, i.e. by dividing the Area H Troll Fraser River Sockeye allocation (percent), by the total number of licensed vessels for Area H multiplied by the available Fraser River Sockeye Commercial TAC determined in-season.
- The quota share will remain fixed in-season subject to amendments for seasonal quota transactions and will be expressed as a percentage of the Commercial TAC.
- The Commercial TAC for Sockeye will be distributed over the course of the fishery in increments and will be cumulative over the course of the season.
- The Commercial TAC will be announced by Fishery Notice and adjusted if necessary following Fraser River Panel meetings (usually Tuesday and Friday) depending on abundance and stock composition. Note the Commercial TAC announced will be for the purpose of determining shares in pieces of salmon for the ITQ demonstration fishery only.

Sockeye	Area B	Area H
No. of licences	153	**59**
Fleet share of Sockeye	48.5%	**4.8%**
Individual licence share (Fleet Share/# licences)	**0.31699%**	**0.08135%**

CATCH MONITORING AND VALIDATION:

- Verification of at-sea releases is essential to the management of Fraser River Sockeye and other co-migrating stocks. Data collected by At-Sea Observers may be used to calculate fleet-wide releases. Poor compliance with permitting Observers on-board to collect this data will impact future fishing opportunities.
- The level of coverage for At-Sea Observers will be determined in-season based on areas open to fishing, effort, and gear type for each day of fishing.
- Start, end, pause, cancel, and daily catch reports (as per Conditions of Licence) must be made by, or on behalf of, all Area B and Area H vessel masters by cellular (call or text), land line, or satellite phone to the Salmon Catch Reporting Service provider or by E-log (please refer to your conditions of licence).
- Vessel masters must complete a logbook or E-log entry for each day of fishing. The vessel master must print and sign their name and Fisher Identification Number (FIN) beside each record made in the paper harvest log.
- Catch validation, which will include dockside and designated transport vessel landings, is a requirement of ITQ fisheries and must be arranged in advance by, or on behalf of, Area B and Area H vessel masters.
- Upon validation of the catch (including bycatch species) the vessel master must review and sign the validation form. The catch (including bycatch species) data will be entered into the ITQ database no later than 12 hours after the validation is complete.
- Mandatory fish hold checks will be performed.
- Conditions of Licence list the designated offload ports.

For reference purposes, Area B Seine Fishery and Catch Reporting Requirements are attached in Appendix 7A for Johnstone Strait, Area 20, and Area 29. The appendices also include further information regarding restrictions when fishing in designated seine test fishing locations (Appendix 7B).

CATCH VALIDATION REQUIREMENTS:

- Catch validation is mandatory and individual licence holders are required to make their own arrangements with a Landing Observer Service Provider authorized by the Department. Licence holders that plan to harvest Sockeye are encouraged to register with the Landing Observer Service Provider in advance of the fishery to confirm arrangements. The Landing Observer Service Provider will be announced by Fishery Notice prior to the fishery.
- Prior to any landing of fish, the vessel master shall call in to the Landing Observer Service Provider and provide the following information:

  - vessel name;
  - vessel registration number;
  - name and Fisher Identification Number of the vessel master;
  - contact phone number;
  - date, time, port and location of landing of the fish;
  - name of fish buying station where fish are to be landed;
  - product type;
  - estimated number of pieces by species, by day;
  - area fished; and
  - number of sets made.

Note: As much notice as possible should be given so the Landing Observer Service Provider can make arrangements for a Landing Observer to be present for the landing which is a mandatory licence requirement.

- A salmon Landing Observer shall be present during all landings of catch to record the number and weight of each species of salmon and by-catch (including non-salmon) delivered. This information will be entered into the ITQ database not later than 12 hours after validation has occurred.
- All salmon shall be landed at one of the following locations:
  - Area B Seine: Campbell River, French Creek, Greater Vancouver, Port Hardy, Port McNeill, Port Renfrew, Quadra Island or to a transport vessel **designated** for the quota fishery.

- Area H Troll: Campbell River, Comox, Cowichan Bay, French Creek, Greater Vancouver, Kelsey Bay, Nanaimo, Port Hardy, Port McNeill, Quadra Island or to a transport vessel designated for the quota fishery. Or if pre-arranged, any other mutually agreed upon location between the **designated** Landing Observer Service Provider and the vessel master.

OPENING AND CLOSING THE FISHERY:

Areas will be opened normally, using Variation Orders and Fishery Notices. Area B and Area H fisheries will open after a Commercial TAC is identified.

Certain fishing areas may be restricted to fisheries in order to avoid stocks of concern and to move the fleets into areas of lesser impact. Areas 12 and 13 as well as Areas 14, 16, 18, 20, and 29 may not be open at the same time due to species and stock composition, diversion rate, observer coverage, and/or Sockeye encounter rate.

If at any point at the start of, or during, the season there is no Commercial TAC available for Fraser Sockeye, or a conservation constraint (e.g. Cultus Sockeye exploitation rate constraint) limits further commercial Sockeye harvest, then the Department may close the fishery to retention of Sockeye. Area Fishing Plans:

Appendix 7A contains more detailed fishing plans, however at this time all fishing plans are very general and subject to change in-season following Fraser River Panel meetings. Fishery Notices will be posted throughout the season to ensure the most up to date information regarding the Area B and Area H fishing plans are available on a timely basis.

- **Areas 12 and 13:** The start date for the Area B and Area H fisheries will be confirmed by Fishery Notice dependent on in-season information. Area B and Area H fisheries are usually planned for five to seven days per week, to be confirmed by Fishery Notice. Fishing restrictions in test fishing areas are outlined in Appendix 7B and will be confirmed by Fishery Notice in-season.
- **Area 14 and 16:** Consideration may be given in-season for Fraser River Sockeye fisheries in Sabine Channel subject to Sakinaw constraints as well as constraints for other stocks of concern.
- **Areas 18 and 29:** Options for fishing off the river in Area 29 and in Area 18 for Area B and Area H will be confirmed by Fishery Notice. A proposal for an Area 29 in-river demonstration fishery for the Area B fishery is outlined in the IFMP.
- **Area 20:** In 2014, the Area B Harvest Committee requested the Department review the Coho release mortality rate previously set at 70%; the release mortality rate was set at 50%. The Coho release mortality rate will remain at 50% for the 2024 fishing

season and Observer coverage will be mandatory. The anticipated start date for the Area B fishery will be confirmed by Fishery Notice. Opportunities in this fishery will be dependent on in-season assessment information, diversion rate, and Coho impacts.

For 2024, a combination of fisheries closures as well as mandatory and voluntary measures will be in place to support prey availability for Southern Resident Killer Whales and to reduce physical and acoustic disturbances to these whales. Fishing restrictions help reduce prey competition, increase the availability of salmon and decrease vessel disturbance in key SRKW foraging areas in their identified critical habitat. More information Sin Section 5.6.

Test Fishing: To ensure test fishing information is not compromised during the ITQ fishery, restrictions are in effect when fishing near assessment boats (Appendix 7B). **Sub-area and opening times will be modified in-season and announced on the grounds by DFO representatives and by Fishery Notice. If any conflicts arise, changes to the opening times and fishing areas will be announced by Fishery Notice.**

QUOTA TRANSFERS:

Licence holders or designates are encouraged to register with the Quota Officer prior to the fishing season. The contact information will be used in season to contact the licence holder, designate or skipper in the event of an overage or discrepancy with catch data. Licence holders/designates can confirm their available quota by contacting the Quota Officer:

Heather Braun (Heather.Braun@dfo-mpo.gc.ca)

Quota may be reallocated as a percent (for the season) or by pieces (for example, to temporarily cover an overage). Note that once any pieces have been transferred from a licence you can no longer transfer the entire remaining percentage.

Quota will be transferable within each licence area (e.g. Area B to Area B or Area H to Area H) as well as between licence areas (e.g. Area B to Area H or Area H to Area B). The Department may consider transfers outside of Area B and Area H. Refer to Section 12.7.1 Transfer Guidelines for the Temporary Transfer of Commercial Salmon Shares of the 2024-2025 South Coast Salmon IFMP for more details.

Where the Department has received for processing two or more conflicting requests for trading, all of the requests for trading will be denied.

Given the short window of fishing opportunity, quota transfers will be permitted while vessels are on-grounds, however if a vessel is in an overage situation they cannot continue to fish until that overage has been covered.

DFO staff will enter the quota transfer into the ITQ database during normal working hours (8am to 4pm Monday to Friday). If required, additional hours will be available in-season.

Licence eligibility holders are strongly encouraged to designate a signing authority prior to the start of the fishery. The designation form allows an individual to authorize a quota transfer if the licence eligibility holder is fishing and unable to complete the required quota transfer application. Licence holders can authorize up to three individuals to act as a temporary signing authority by filling out a designation form. Quota reallocation forms and designation forms will be available from:

Heather Braun (Heather.Braun@dfo-mpo.gc.ca)

Or online at: https://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/licence-commercial-permis-eng.html

OVERAGES:

Overages must be covered by a quota reallocation within 24 hours of landing and validation (the '24 hour rule'). Vessels are not permitted to recommence fishing until all overages have been covered.

If a vessel recommences fishing when in an overage situation, Conservation and Protection (C&P) will be notified immediately. Vessels are not permitted to recommence fishing until all overages have been covered.

An increase in the TAC cannot be used to cover an overage. The quota being transferred to a vessel in an overage situation must be quota that was available prior to the TAC increase.

Overages as a result of a run downgrade must be covered by a quota reallocation.

An overage occurring as a consequence of a decrease in the TAC will not have to be covered if the fishery is closed for the duration of the season.

TRANSPORTING:

Area B and Area H vessels will be permitted to move fish from one licenced vessel to another licenced vessel (Area B and H only) on the grounds.

If a vessel transports and lands fish from other licenced vessels, quota reallocations must be made within 24 hours of landing with the catch assigned to the landing vessel only when the landing vessel has a quota overage.

All vessels are required to document in the Offload Catch Report section of the logbook or E-log, when fish has been pooled (transshipped) onto another vessel or vessels.

Transporting vessels must document in a Transfer Log as required in Part 3 Section 2 of the Conditions of 2024/2025 Salmon Area B or Area H Licence, and provide to the Landing Observer Service Provider, detailed information on the name of the vessel that caught the fish, the date the fish were caught, the location (subarea) in which the fish were caught and the amount of each species retained and landed.

Refer to the Part 3 Section 2 of the Conditions of 2024/2025 Salmon Area B or Area H Licence for all transporting requirements.

Note that as stated in the Conditions of 2024/2025 Salmon Area B and Area H Licence, no salmon of species that are not permitted to be caught and retained in the commercial salmon fishery from which this vessel is receiving fish shall be on board this vessel when commercially caught salmon are on board.

TRANSPORT VESSEL (PACKER)-BASED VALIDATION INFORMATION:

Vessel masters shall deliver only to transport vessels designated for the quota fishery.

To become a transport vessel designated for the Area B and Area H Fraser Sockeye ITQ Demonstration Fishery refer to the Fishery Notice released prior to the opening.

All transport vessels for the quota fishery carrying multiple vessels catch will be required to take onboard an observer to complete validation of catch.

On-board validators will follow the Landing Observer Service Provider's established procedures for verifying catch and performing mandatory hold checks.

Any transport vessels wanting to carry fish without an onboard observer will have to contact the manager identified in the Fishery Notice released prior to the opening to obtain approval.

Transport vessels without an onboard observer will only be able to carry catch from one vessel participating in the ITQ fishery and must not have any salmon of any species caught in another fishery.

Transport vessels without an onboard validator are responsible for recording and providing to the Dockside Monitoring Service Provider the Hail Number verifying the landing vessels contacted the Landing Observer Service Provider prior to delivering to the transport vessels. If the landing vessel does not have a hail number the transport vessel shall instruct the vessel master to call the Landing Observer Service Provider. These transport vessel masters are responsible for assuring that all fish are offloaded and that the

totals are recorded on the transfer log, as required in the Conditions of 2024 Transport Licence.

Refer to the Conditions of 2024 Transport Licence for all transporting requirements.

VESSEL VALIDATION INFORMATION:

To avoid discrepancies in quota and validation records, vessel masters must review and sign the validation slip.

When reporting catch to the service provider, vessel masters must provide an accurate breakdown of daily catch.

SERVICE PROVIDER REQUIREMENTS:

The service provider is to provide DFO with copies of all Validation and Tally forms. Copies of the validations forms must be provided to DFO within 24 hours of completing the validation, and Tally forms must be provided after the fishery closes for the season or upon request by the Department.

The catch (including bycatch species) validation data will be entered into the ITQ database no later than 12 hours after the validation is complete.

The service provider is required to perform quality assurance and quality control checks on all data entered into the ITQ database both in-season and post season. Regular checks must be completed to verify the accuracy of the data entry.

APPENDIX 7A

AREA B SEINE FISHERY AND CATCH REPORTING REQUIREMENTS BY AREA

This document is for information purposes only. Fishers must have a valid 2024/2025 Salmon Area B licence, complete with Conditions of 2024/2025 Salmon Area B Licence. Where there is a discrepancy between this document and the Conditions of 2024/2025 Area B Seine Licence, the Conditions of Licence shall prevail.

Given ongoing declines in Interior Fraser River Steelhead escapement and the designation of the Thompson and Chilcotin River Steelhead as Endangered by COSEWIC, DFO is continuing to implement a rolling window closure throughout Southern BC to protect Interior Fraser River Steelhead in 2024. Areas and dates for the window closure are identified in Appendix 9.

Johnstone Strait Seine	
Opening dates/times	Seines open, as per in-season Fishery Notices, in portions of Areas 12 and 13. Fishery openings and closures will also be announced on the grounds by the Charter Patrol vessel.
Target Species	In Areas 12 and 13, the target species in the fishery is Fraser River Sockeye subject to in-season abundance information. The incidental catch and retention of Pink may be permitted in the areas open to fishing based on in-season information. Due to the absence of scientific information on the impacts of Fraser Sockeye fisheries on summer-timed Chum populations, the Department will follow the precautionary approach and not permit the retention of Chum bycatch during Fraser Sockeye isheries. The use of at-sea observers will be required to gather samples during these fisheries. There will be non-retention of Chum, Coho, Chinook and Steelhead.
Gear specifics	Min Bunt Mesh 70 mm. The use of power skiffs is not permitted. Seine vessel masters are reminded that mandatory brailing and sorting of catch is required, as is the use of revival tanks.
Monitoring	The Department will work with the Area B and H Harvest Committee representatives and the At-Sea Observer Service Provider to determine how best to deploy Observers based on Areas open to fishing, predicted fleet-size and previous Sockeye encounter rate estimates. The final decision for deploying Observers rests with the Department.

Johnstone Strait Seine	
On Ground reporting requirements	Start Fishing Report: Vessel masters must, prior to leaving for the fishing grounds, phone the server provider and provide a start fishing report and announce their intention to fish by providing the following information to the catch reporting service provider: harvest log identification number, a page number from the harvest log, Salmon Licence Area, vessel master's name and Fisher Identification Number, intended fishing start date, time and area fishing will begin. Daily Catch Report: At the end of each fishing day prior to 08:00 hours of the next day and before any fish is landed, the vessel master must, as a condition of licence, record their catch information in their Salmon Logbook and report their catch by calling 1-888-387-0007. End Fishing Report: Within 24 hours of the end of a fishing trip and prior to commencing a subsequent fishing trip, the vessel master shall phone 1-888-387-0007 to provide an End Fishing Report. Cancel Trip Report: Should a vessel master decide not to fish after having obtained a Trip Identification Number (for a Start Fishing Report) the vessel master shall phone 1-888-387-0007 to provide a Trip Cancellation Report not later than 72 hours following the time given on the Start fishing report as the intended time to start fishing. Additional Test Fishing Zone Catch Reports may be required. The Test Fishing Zone Catch Reports are additional catch reporting requirements that may be in effect while fishing in the Test Fishing Zones. Please see Appendix 7B for more information.
Test Fishing	Vessel masters are reminded that test fishing vessels will be operating during the fishery in Areas 12 and 13. Vessels planning to fish near the test fishing locations are not to interfere with test fishing operations. Test fishing information is a key component of the in-season assessment of Fraser River Sockeye returns. If interference with test fishing activities occurs, fishery closures in test fishing locations will be considered. Please see the attached Appendix 7B for more detail pertaining to fishing in the Test Fishing Zones. **When fishing in Subarea 12-3, it is important to differentiate between fishing in Subarea 12-3W (west of Robson Bight) and 12-3E (east of Robson Bight), when submitting daily catch report.**

Johnstone Strait Seine	
Notes	For a complete list of reporting requirements refer to the Conditions of 2024/2025 Salmon Area B Licence. Vessels with operational E-logs are not required to call or record catch reports in a Salmon Logbook; however the data, as outlined in the requirements in items 1-5 in the Catch Reporting Requirements in Appendix 7, must be submitted electronically as per the conditions of licence.
DFO Contacts	Heather Braun (Heather.Braun@dfo-mpo.gc.ca)

Area 20 Seine Fishery and Catch Reporting Requirements	
Opening dates/times	Seines open, as per in-season Fishery Notices, in a portion of Subarea 20-1, in waters deeper than 55 meters (30 fathoms).
Target Species	In Area 20, the target species in this fishery is Fraser River Sockeye Salmon, subject to in-season abundance information. The incidental catch and retention of Pink may be permitted in the areas open to fishing based on in-season information. There will be non-retention of Coho, Chum*, Chinook and Steelhead. *Closed to retention to avoid US bound Chum stocks.
Gear specifics	Min Bunt Mesh 100 mm. Power skiffs are permitted to be used. Seine vessel masters are reminded that mandatory brailing and sorting of catch is required, as is the use of revival tanks.
Monitoring	Increased observer coverage may be required for fisheries in this area.

Area 20 Seine Fishery and Catch Reporting Requirements	
On Ground reporting requirements	Start Fishing Report: Vessel masters must, prior to leaving for the fishing grounds, phone the server provider and provide a start fishing report and announce their intention to fish by providing the following information to the catch reporting service provider: harvest log identification number, a page number from the harvest log, Salmon Licence Area, vessel master's name and Fisher Identification Number, intended fishing start date, time and area fishing will begin. Daily Catch Report: At the end of each fishing day prior to 08:00 hours of the next day and before any fish is landed, the vessel master must, as a condition of licence, record their catch information in their Salmon Logbook and report their catch by calling 1-888-387-0007. End Fishing Report: Within 24 hours of the end of a fishing trip and prior to commencing a subsequent fishing trip, the vessel master shall phone 1-888-387-0007 to provide an End Fishing Report. Cancel Trip Report: Should a vessel master decide not to fish after having obtained a Trip Identification Number (for arou Start Fishing Report) the vessel master shall phone 1-888-387-0007 to provide a Trip Cancellation Report not later than 72 hours following the time given on the Start fishing report as the intended time to start fishing. On-Grounds Reporting: Upon completion of a set (after brailing is completed), the Vessel Master shall report, to the At-Sea Observer, the set number for the current day's fishing, time the set was made, set location (grid area) and the number of all species of fish caught and retained or released. Log sheets for recording and reporting individual set information will be provided by DFO or the At-Sea Observer prior to commencement of the fishery. The Observer will relay the information to the DFO manager upon completion of the set. As communications may be limited, the set by set information may need to be provided to the DFO manager at the end of each fishing day. The Observer or DFO will provide the fishing vessel skippers participating in this fishery a chart prior to the commencement of the fishery. This chart divides the fishing area into grid areas and catches by set will be recorded in correspondence to the grid areas.

Area 20 Seine Fishery and Catch Reporting Requirements	
Test Fishing	Vessel masters are reminded that test fishing vessels will be operating during the fishery in Area 20. Vessels planning to fish near the test fishing locations are not to interfere with test fishing operations. Test fishing information is a key component of the in-season assessment of Fraser River Sockeye returns. If interference with test fishing activities occurs, fishery closures in test fishing locations will be implemented.
Notes	For a complete list of reporting requirements refer to the Conditions of 2024/2025 Salmon Area B Licence. Vessels with operational E-logs are not required to call or record catch reports in a Salmon Logbook; however the data, as outlined in the requirements in items 1-5 in the Catch Reporting Requirements in Appendix 7, must be submitted electronically as per the conditions of licence.
DFO Contacts	Kevin Bruce (Kevin.Bruce@dfo-mpo.gc.ca)

Area 29 Seine Fishery and Catch Reporting Requirements	
Opening dates/times	Seines open, as per in-season Fishery Notices, in portions of Area 29. Typical Subareas that may open include 29-3, 29-4, and 29-6. Options to fish in the latter Subareas, as well as portions of Subareas 29-7, 29-9, and 29-10 will be determined in-season and announced by Fishery Notice. Fishery openings and closures will also be announced by Fishery Notice**. *New for 2024: A review of the Interior River Steelhead Window Closure boundary in portions of Area 29 currently underway and any changes determined in-season will be announced by Fishery Notice or in the final IFMP.**
Target Species	In Area 29, the target species in this fishery is Fraser River Sockeye Salmon, subject to in-season abundance information. The incidental catch of Pink may be retained in the areas open to fishing. Due to the absence of scientific information on the impacts of Fraser Sockeye fisheries on summer-timed Chum populations, the Department will follow the precautionary approach and not permit the retention of Chum bycatch during Fraser Sockeye fisheries. The use of at-sea observers will be required to gather samples during these fisheries. There will be non-retention of Chum, Coho, Chinook and Steelhead.

Area 29 Seine Fishery and Catch Reporting Requirements	
Gear specifics	Min Bunt Mesh 70 mm. Power skiffs are permitted to be used. Seine vessel masters are reminded that mandatory brailing and sorting of catch is required, as is the use of revival tanks.
Monitoring	Increased Observer coverage may be required for fisheries in this area.
On Ground reporting requirements	Start Fishing Report: Vessel masters must, prior to leaving for the fishing grounds, phone the server provider and provide a start fishing report and announce their intention to fish by providing the following information to the catch reporting service provider: harvest log identification number, a page number from the harvest log, Salmon Licence Area, vessel master's name and Fisher Identification Number, intended fishing start date, time and area fishing will begin. Daily Catch Report: At the end of each fishing day prior to 08:00 hours of the next day and before any fish is landed, the vessel master must, as a condition of licence, record their catch information in their Salmon Logbook and report their catch by calling 1-888-387-0007. End Fishing Report: Within 24 hours of the end of a fishing trip and prior to commencing a subsequent fishing trip, the vessel master shall phone 1-888-387-0007 to provide an End Fishing Report. Cancel Trip Report: Should a vessel master decide not to fish after having obtained a Trip Identification Number (for a Start Fishing Report) the vessel master shall phone 1-888-387-0007 to provide a Trip Cancellation Report not later than 72 hours following the time given on the Start fishing report as the intended time to start fishing.
Test Fishing	Vessel masters are reminded that test fishing vessels may be operating during the fishery in Area 29. Vessels planning to fish near the test fishing locations are not to interfere with test fishing operations. Test fishing information is a key component of the in-season assessment of Fraser River Sockeye returns. If interference with test fishing activities occurs, fishery closures in test fishing locations will be implemented.
DFO Contacts	Barbara Mueller (Barbara.Mueller@dfo-mpo.gc.ca)

APPENDIX 7B

2024 FRASER SOCKEYE COMMERCIAL FISHERY RESTRICTIONS IN DESIGNATED SEINE TEST FISHING LOCATIONS

In-season test-fishing assessment information in the marine approach areas is critical in estimating abundances of returning Fraser River Sockeye and identifying available harvest levels.

Commercial fisheries must be structured and scheduled to ensure that test fishing assessment information is not compromised.

This is particularly critical in the Area B Seine Individual Transferable Quota (ITQ) fishery which provides for additional days of fishing than would be permitted under a derby-style fishery.

Given ongoing declines in Interior Fraser River Steelhead escapement and the designation of the Thompson and Chilcotin River Steelhead as Endangered by COSEWIC, DFO is implementing a rolling window closure throughout Southern BC to protect Interior Fraser River Steelhead. Areas and dates for the window closure are identified in Appendix 9.

JOHNSTONE STRAIT:

AREA 12

Area B Seine ITQ Fishery Restrictions:

Subarea 12-3 is a Test Fishing Zone. **Catch reports must differentiate between fish caught in 12-3W (West of Robson Bight) and 12-3E (East of Robson Bight).**

DFO and the PSC will need cooperation from as many ITQ vessels as possible fishing in the Test Fishing Zone to record set-by-set information. All ITQ vessels must have set-by-set data sheets or E-logs onboard while fishing in the Test Fishing Zone. Data sheets will be available for pickup from the test vessel or from the Charter Patrol in that area. **ITQ vessels fishing in the Test Fishing Zone are required to record set-by-set catch and effort information**; this includes the duration of set times from time when the net goes in the water until the time when the rings are up (closed). E-log software has been modified so that vessel masters are able to send individual set-by-set information. Please note: E-log software can handle set-by-set catch information, but at this time, set times and duration of sets cannot be reported by the E-log

software. Vessel masters are requested to record set times and set durations separate from the E-log entries.

Test fishing vessels will announce their fishing pattern on the grounds for each four (4) day test fishing period.

Test fishing vessel will start at the lower areas 1st (Fine Beach or Robson Bight) and work seaward towards Blinkhorn.

Test fishing vessel will start fishing 1 hour earlier each day from the previous years (net in the water by 07:00 hours).

Below Robson Bight will be assessed every 2nd day; Robson Bight will be assessed every day.

Test fishing vessel's first set each day will be 07:00 hours at either Fine Beach or Robson Bight and proceed seaward towards Blinkhorn. During this time no vessel will be permitted to fish in front of the test fishing vessel, within 1 net length of the beach. The test fishing vessel will announce when they have closed their net, after which ITQ vessels can commence fishing in that location. **Please note: Commercial opening times and areas will be announced by Fishery Notice.**

ITQ vessels must hail their intention to fish to the test fishing vessel or to the on-grounds Charter Patrol vessel prior to conducting any fishing in the Test Fishing Zone.

If there is interference with the test fishing vessel additional time and area closures will be implemented during the fishery between Fine Beach and Blinkhorn.

AREA 13

Area B Seine ITQ Fishery Restrictions:

Loggers Point to Little Bear Bight is a Test Fishing Zone.

Regular lower boundary in effect at Loggers Point.

ITQ vessels must hail their intention to fish to the test-fishing vessel or to the on-grounds Charter Patrol vessel prior to conducting any fishing in the Test Fishing Zone.

All ITQ vessels must have set-by-set data sheets or E-logs onboard while fishing in the Test Fishing Zone. Data sheets will be available for pickup from the test vessel or from the charter patrol in that area. **ITQ vessels fishing in the Test Fishing Zone are required to record set-by-set catch and effort information**; this includes the duration

of set times from time when the net goes in the water until the time when the rings are up (closed). E-log software has been modified so that vessel masters are able to send individual set-by-set information. **Please note:** E-log software can handle set-by-set catch information, but at this time, set times and duration of sets cannot be reported by the E-log software. Vessel masters are requested to record set times and set durations separate from the E-log entries.

Priority access for the test vessel is required in all designated test fishing locations.

If there is poor compliance, additional closures will be implemented during the fishery starting with a lower boundary at Bodega Point.

APPENDIX 8: LONGER TERM COMMERCIAL CLOSURES OR MITIGATION

In 2021, as part of immediate conservation measures under the **Pacific Salmon Strategy Initiative (PSSI)**, the Minister announced several new commercial fishery closures to protect stocks of conservation concern. These closures were implemented on an interim basis in 2021 and were reviewed for longer term closures beginning in 2022 after additional consultation with affected groups.

Beginning in 2022, the Department is continuing to take a more precautionary approach to managing fisheries that interact with stocks of conservation concern to help stabilize and support rebuilding of these depressed populations. The Department identified commercial fisheries where there is a high risk of interception of stocks of conservation concern in targeted fisheries and/or by-catch. For these fisheries, the Department has two approaches for managing the identified stocks of concern including:

1. Longer term closure; or,
2. No longer term closure and implementation of additional mitigation measures.

In 2024, the Department will continue to implement longer term closures for fisheries identified in Table 13-. These closures are expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. Where feasible, Table 13- outlines additional mitigation measures that will be implemented in the identified fisheries in lieu of a longer-term closure.

For any commercial fisheries that are closed, the allocations will remain with the original fleet and fish will be allowed to pass to spawning grounds. Opportunities for additional commercial harvest may be considered in locations where stocks of concern will not be encountered.

All other commercial fisheries not identified as longer-term closures will remain closed unless conditions are met for an opening based on harvest decision rules and conservation criteria identified in this Integrated Fisheries Management Plan.

The impacts from the long-term closures will be mitigated by a commercial licence retirement program and a First Nations communal commercial licence alternation program, that are both expected to run from 2022-2025. As well, additional initiatives to support transformation of the fishery will help to mitigate impacts of reduced harvest opportunities.

Table 0-1: Longer Term Commercial Closures

Fishery	Area	Group
Fraser Chinook	29	Area E Gill net
Fraser Chum	29	Musqueam EO (gill net)*
Fraser Chum	29	Tsawwassen EO (gill net)*
Fraser Chum	29	Sto:lo EO*
Fraser Chum	29	Area E Gill net
Nitinat Chum	21	Area B Seine**
Nitinat Chum	21	Area E Gill net**
Johnstone Strait Mixed Stock Chum	11, 12, 13	Area D Gill net
Barkley Wild Chum	23	Area D Gill net
Clayoquot Wild Chum	24	Area D Gill net

*Closed for gill net gear only, use of selective gear may be permitted

**Closed in Area 21, may proceed in Area 22

Table 0-2: Additional Mitigation Measures Beginning in 2022

Fishery	Area	Group	Additional Mitigation Measures
Fraser Chinook (Summer 4$_1$)	29	Secwepemc Demo	Use of large mesh gillnets that reduce impacts on smaller bodied non target salmon. Timed later to target the abundant Summer 4$_1$ Chinook and significantly reduce impacts on Chinook stocks of concern. Conduct in near terminal areas that avoid many of the stocks of concern that would be present in the mainstem Fraser. Low effort 1-3 gillnets and catch.

Fishery	Area	Group	Additional Mitigation Measures
Fraser Sockeye	29	Musqueam EO	Abundance Based Management and a more cautious escapement plan to decrease overall exploitation rates on Sockeye stocks of concern. Support terminal access when possible as well as more selective gear that will allow release of non-target bycatch.
Fraser Sockeye	29	Tsawwassen EO	Abundance Based Management and a more cautious escapement plan to decrease overall exploitation rates on Sockeye stocks of concern. Support terminal access when possible as well as more selective gear that will allow release of non-target bycatch.
Fraser Sockeye	29	Sto:lo EO	Abundance Based Management and a more cautious escapement plan to decrease overall exploitation rates on Sockeye stocks of concern. Support terminal access when possible as well as more selective gear that will allow release of non-target bycatch.
Fraser Sockeye	29	HFA Demo	Abundance Based Management and a more cautious escapement plan to decrease overall exploitation rates on Sockeye stocks of concern. Support terminal access when possible as well as more selective gear that will allow release of non-target bycatch.

Fishery	Area	Group	Additional Mitigation Measures
Fraser Sockeye	29	UFISH Demo	Abundance Based Management and a more cautious escapement plan to decrease overall exploitation rates on Sockeye stocks of concern. Support terminal access when possible as well as more selective gear that will allow release of non-target bycatch.
Fraser Sockeye	29	Secwepemc Demo	Abundance Based Management and a more cautious escapement plan to decrease overall exploitation rates on Sockeye stocks of concern. Support terminal access when possible as well as more selective gear that will allow release of non-target bycatch.
Fraser Sockeye	11-14, 18, 20 29	Area B Seine	Abundance Based Management and a more cautious escapement plan to decrease overall exploitation rates on Sockeye stocks of concern. Avoiding fishing in areas with a known high by-catch encounter rate and/or relocating fishing effort if high amount of by-catch is encountered.
Fraser Sockeye	11-15	Area D Gill net	Abundance Based Management and a more cautious escapement plan to decrease overall exploitation rates on Sockeye stocks of concern. Continue to work with Area D following the 2022 season to review and determine if additional mitigation measures to avoid by-catch encounters and increase release mortality would be effective.

Fishery	Area	Group	Additional Mitigation Measures
Fraser Sockeye	29	Area E Gill net	Abundance Based Management and a more cautious escapement plan to decrease overall exploitation rates on Sockeye stocks of concern. Continue to work with Area E following the 2022 season to review and determine if additional mitigation measures to avoid by-catch encounters and increase release mortality would be effective.
Fraser Sockeye	11, 12, 20, 111, 121- 127	Area G Troll	Abundance Based Management and a more cautious escapement plan to decrease overall exploitation rates on Sockeye stocks of concern. Avoiding fishing in areas with a known high by-catch encounter rate and/or relocating fishing effort if high amount of by-catch is encountered.
Fraser Sockeye	11-14, 29	Area H Troll	Abundance Based Management and a more cautious escapement plan to decrease overall exploitation rates on Sockeye stocks of concern. Avoiding fishing in areas with a known high by-catch encounter rate and/or relocating fishing effort if high amount of by-catch is encountered.

APPENDIX 9: ROLLING WINDOW CLOSURES TO PROTECT INTERIOR FRASER RIVER STEELHEAD

This table outlines Interior Fraser River (IFR) Steelhead window closure dates by area. These are generalized dates that apply to the entire fishing area unless otherwise stated in the species specific fishing plans contained in Section 13. Fishing plans outlined in Section 13 may include slight modifications to these dates that result from applying the closure window to more specific fishing areas. Note that the duration of the closure window will not be shortened in applying these adjustments.

Window closures are INCLUSIVE of both the START and END dates shown in the table below. For any given area, the first day fishing may occur following a closure is the day following the END date in the table.

Also note that all sub-Areas listed in this table under the "Fraser River" section will be included as part of "Fraser River fisheries". For additional clarity, all fisheries occurring in Areas 29-6, 29-7, 29-9, and 29-10 are included within the Fraser River measures.

Finally, please note the term "commercial" in the following tables includes all communally-licenced First Nations fisheries that permit sales, such as Economic Opportunity, Harvest Agreement, and Demonstration fisheries, as well as non-First Nations commercial openings.

Table 0-1: Interior Fraser River Steelhead Rolling Window Closure Dates by Area

Fishery Location		27-day window closure (commercial troll fisheries and FSC fisheries occurring in the Fraser River)		42-day window closure (commercial drift and set gillnet, purse seine, beach seine, and shallow seine fisheries and recreational fisheries occurring in the Fraser River)	
		Start	**End**	**Start**	**End**
Fraser River	Area 29: 29-6, 29-7, 29-9, and 29-10	26-Sep	22-Oct	19-Sep	30-Oct
	Mouth to Port Mann Bridge	26-Sep	22-Oct	19-Sep	30-Oct
	Port Mann Bridge to Mission	28-Sep	24-Oct	21-Sep	1-Nov
	Mission to Hope	29-Sep	25-Oct	22-Sep	2-Nov
	Hope to Sawmill Creek	3-Oct	29-Oct	26-Sep	6-Nov
	Sawmill Creek to Lytton (Thompson Confluence)	5-Oct	31-Oct	28-Sep	8-Nov
	Lytton to Texas Creek	8-Oct	3-Nov	1-Oct	11-Nov
	Texas Creek to Kelly Creek	10-Oct	5-Nov	3-Oct	13-Nov
	Kelly Creek to Deadman Creek	13-Oct	8-Nov	6-Oct	16-Nov
	Deadman Creek to Chilcotin River	16-Oct	11-Nov	9-Oct	19-Nov
	Chilcotin River	19-Oct	14-Nov	12-Oct	22-Nov
	Thompson River – Thompson Confluence to Bonaparte	8-Oct	3-Nov	1-Oct	11-Nov
	Thompson River – Bonaparte River to Kamloops Lake	12-Oct	7-Nov	5-Oct	15-Nov

Fishery Location		27-day window closure (commercial troll fisheries and FSC fisheries occurring in the Fraser River)		42-day window closure (commercial drift and set gillnet, purse seine, beach seine, and shallow seine fisheries and recreational fisheries occurring in the Fraser River)	
		Start	End	Start	End
Strait of Georgia	Area 29: 29-8	28-Sep	24-Oct	21-Sep	1-Nov
	Area 29: 29-1 to 29-5	23-Sep	19-Oct	16-Sep	27-Oct
	Area 28	23-Sep	19-Oct	16-Sep	27-Oct
	Area 18	24-Sep	20-Oct	17-Sep	28-Oct
	Area 17	23-Sep	19-Oct	16-Sep	27-Oct
	Area 16	22-Sep	18-Oct	15-Sep	26-Oct
	Area 15	21-Sep	17-Oct	14-Sep	25-Oct
	Area 14	21-Sep	17-Oct	14-Sep	25-Oct
Johnstone Strait	Area 13	17-Sep	13-Oct	11-Sep	22-Oct
	Area 12	12-Sep	8-Oct	6-Sep	17-Oct
	Area 11	11-Sep	7-Oct	5-Sep	16-Oct
	Area 111	10-Sep	6-Oct	4-Sep	15-Oct
West Coast Vancouver Island	Area 19	22-Sep	18-Oct	15-Sep	26-Oct
	Area 20	19-Sep	15-Oct	12-Sep	23-Oct
	Area 21	18-Sep	14-Oct	11-Sep	22-Oct
	Area 121	18-Sep	14-Oct	11-Sep	22-Oct
	Area 123	16-Sep	12-Oct	9-Sep	20-Oct
	Area 124	13-Sep	9-Oct	6-Sep	17-Oct
	Area 125	11-Sep	7-Oct	4-Sep	15-Oct
	Area 26	8-Sep	4-Oct	1-Sep	12-Oct
	Area 126	8-Sep	4-Oct	1-Sep	12-Oct
	Area 27	6-Sep	2-Oct	30-Aug	10-Oct
	Area 127	6-Sep	2-Oct	30-Aug	10-Oct

Table 0-2: Terminal fishery areas that are excluded from IFR Steelhead window closures.

Table 13.5-23 outlines Pacific Fishery Management Areas that are understood to fall outside of the migratory path of IFR Steelhead and will not be subject to window closures implemented for IFR Steelhead conservation. Additional details for portions of areas listed below will be contained in the species specific fishing plans in Section 13.

Please note that tributaries of the Fraser River are also excluded from IFR Steelhead window closures, but are not listed in this table.

Table 0-3: Terminal fishery areas that are excluded from IFR Steelhead window closures.

Area	Sub Area Description
11	11-3 to 11-10
12	12-22, 12-23, 12-25 to 12-48
13	13-20, 13-21, 13-22, 13-24, 13-37, 13-38, 13-42, 13-43 portions of 13-3, 13-5, 13-19
14	14-1, 14-8, 14-10, 14-11, 14-14, 14-15 portions of 14-4, 14-5, 14-7 and 14-9
15	15-4, 15-6 portions of 15-1, 15-2, 15-5
16	16-3 to 16-16
17	17-2 to 17-9, 17-13 to 17-21 portions of 17-12
18	18-7 and 18-8 portions of 18-6
19	19-7 to 19-12
20	20-2, 20-6, 20-7
22	Entire Area
23	All Sub-Areas
24	All Sub-Areas
25	All Sub-Areas
26	26-1 to 26-10
27	27-3, 27-7 to 27-11 portions of 27-2
28	28-3 to 28-5, 28-11 to 28-14 portions of 28-2

APPENDIX 10: 2023 SALMON OUTLOOK

1.1 PURPOSE

The purpose of this document is to provide an 'Outlook' of expected abundance of salmon in 2024 to inform the harvest planning process.

1.2 THE OUTLOOK PROVIDES EITHER AN EXPECTED ABUNDANCE FOR THOSE STOCKS WITH STATISTICAL FORECASTS OR A CATEGORICAL ABUNDANCE EXPECTATION BASED EXPERT OPINION. OUTLOOK FORMAT

The Outlook document contains:

1. CU groupings with stock management units (SMUs) to better inform decision-making consistent with *Fishery Act* and IFMP requirements.
2. SMUs with statistical forecasts, which are consolidated and reported in the Outlook Document.
3. SMUs without statistical forecasts, have a standardized interpretation of SMU status in relation to outlook categories;
4. Information on SMU biological benchmarks and management references (where defined) for additional context.

1.3 BACKGROUND

STOCK MANAGEMENT UNITS

For the 2024 Outlook, 'Stock Management Units' (SMUs) are used to describe stock aggregates that inform development of Integrated Fisheries Management Plans (IFMPs) for salmon. This is required for implementation of the fisheries-related revisions to the *Fishery Act*.

For salmon, the working definition of a 'stock management unit' (SMU) is a 'group of one or more conservation units (CUs) that are managed together with the objective of achieving a joint status', meaning harvest control rules would apply to the aggregate, at least in a coarse sense. Use of SMUs does not preclude considerations related to conserving CU-level diversity, but

rather is a practical aggregation of CUs for harvest planning and reporting purposes. That is, it is the scale at which harvest management plans, or better, management and assessment procedures, are developed in Integrated Fisheries Management Plans (IFMPs). In many cases, elements of the Precautionary Approach are implemented at finer scales of organization within a SMU.

BIOLOGICAL AND MANAGEMENT REFERENCES

The purpose of a stock forecast or outlook is to provide information to harvest managers to potentially adjust harvest plans according to the expected stock abundance. Ideally in that regard, the status of the stock management unit (or sub-unit) is assessed against specified limits and targets and pre-defined harvest strategies (or harvest control rules) are in place that define the actions required to meet targets and avoid limits.

Therefore, where biological benchmarks and/or limit reference points are defined for CUs or SMUs, respectively, they are noted in the Outlook/Forecast tables below. Similarly, if management targets are in place they are identified. Lack of these references is a gap and work is on-going to develop methods and complete the analyses to define these references. The summary below describes how these biological and management references are applied and interpreted.

WSP LOWER BIOLOGICAL BENCHMARKS AND LIMIT REFERENCE POINTS (LRPS)

For implementation of the Wild Salmon Policy, the status of salmon Conservation Units (CU) is assessed against 'biological benchmarks'. The lower biological benchmark allows for substantial buffer between it and the level of abundance at which the stock would be considered at risk of extinction and is generally estimated as S_{GEN}. The upper biological benchmark delineates the 'amber' from 'green' WSP status zone and is generally estimated as .80 S_{MSY}. For more data-limited systems (i.e. where it is not possible to numerically estimate stock-recruit parameters), proxies for lower and upper biological benchmarks may be applied. For example, the lower and upper biological benchmarks are estimated as .25 and .60 percentiles of the long-term observed spawning abundance.

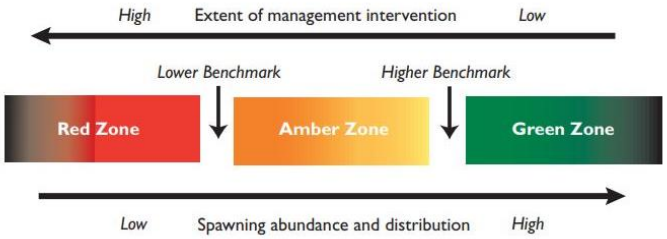

Figure A.10 0-1 Benchmarks and biological status zones for CU assessments.

Under DFO's Precautionary Approach (PA), the stock management unit (SMU) limit reference point (LRP) is a biologically-defined reference that delineates the 'critical zone' from the 'cautious zone' for harvest management. It represents the status below which serious harm is occurring to the stock. There may also be resultant impacts to the ecosystem, associated species and a long-term loss of harvest opportunities.

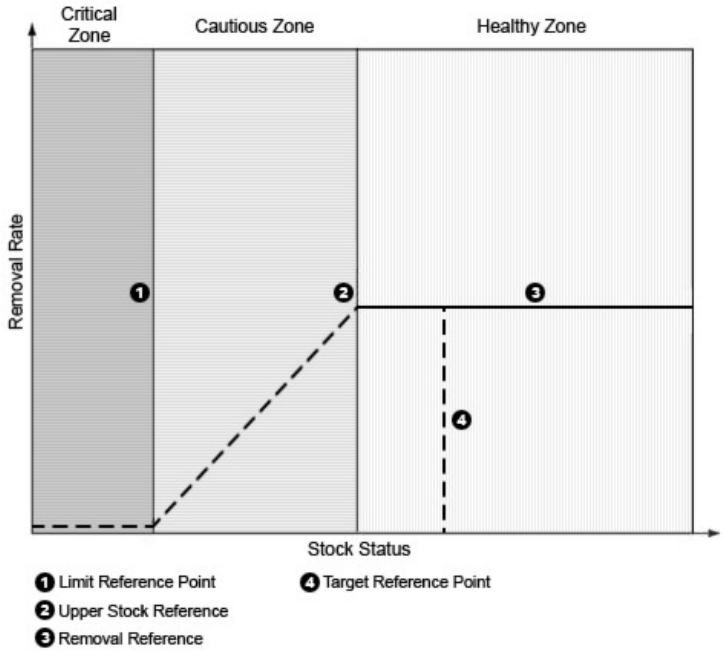

Figure A.10. 0-2. Schematic of a generalized harvest strategy under DFO's PA.

Given the intent is similar between the WSP and DFO's PA, it is practical to equate the SMU LRPs with lower biological benchmarks at the CU level. However, the WSP recognizes that serious harm to species occurs when CUs are depleted or lost. Therefore, to be consistent with the WSP, LRPs at the SMU scale should consider CU-scale biodiversity. Methodological approaches for defining LRPs are being developed to ensure CU-level biodiversity is taken into account and for both data-rich and data-limited assessment systems.

MANAGEMENT TARGETS AND OPERATIONAL CONTROL POINTS

While management targets or operational control points are often informed by biological benchmarks and stock-recruit reference points, they also take into account other objectives such as maximizing sustainable harvest, avoiding over-fishing, maintaining stable access and opportunity, allocation objectives such as how catch is distributed among harvesters, etc. As such, they are tightly linked to the harvest strategy and fishery management measures.

In some cases, the management target may be a simple trigger such as when a 'surplus-to-escapement-target' harvest control rule is in place. In other cases, there may be multiple management targets (or operational control points) used to adjust the harvest control rule at different levels of abundance.

Note that an SMU can be below its management target (and therefore subject to some level of harvest restriction as per the harvest control strategy), but well above levels that represent a serious conservation concern (i.e. the LRP or LBB). In other situations, an SMU may be well above its target but subject to harvest restrictions because the stock rears or co-migrates in mixed-stock fishing areas with other SMUs (or CUs) that are near or below their LRP (or LBB).

1.4 STOCK OUTLOOKS

CATEGORICAL STOCK OUTLOOKS

For the 'Preliminary Outlook' and for those SMUs for which statistical forecasts are not produced, either because the SMU is not intensively managed and/or is more data limited, categorical 'outlooks' are assigned. These outlooks are based on expert opinion qualified with information from monitoring programs. For each stock grouping an outlook of expected spawning abundance is assigned based on a scale of 1 to 4.

For CUs or SMUs with references in place (i.e. either lower (LBB) and upper biological benchmarks (UBB) and/or lower reference points (LRP) and upper stock references (USR) and Target Reference Point (TRP), these references are used to assign Outlook category. For more data-limited CUs or SMUs (i.e. those without defined stock or management references), expected spawning abundance is compared to average or median abundance based on available information.

SMUs for which insufficient data area available to determine an Outlook are noted as 'Data Deficient'.

Outlook Category	CUs or SMUs with references		Data Limited CUs or SMUs	
	Wild Salmon Policy (CU Level)	Precautionary Approach (SMU Level)	Category Definition	Expected spawning abundance
1	Red Zone (i.e. below the LBB)	Critical Zone (i.e. below the LRP)	Well below average	<25th percentile
2	Amber Zone (i.e. below the LBB, below the UBB)	Cautious Zone (i.e. above the LRP below the USR)	Below Average	25 to 40th percentile
3	Green Zone (i.e. above the UBB)	Healthy Zone (i.e. above the USR)	Near Average	40 to 60th percentile
4	Green Zone (i.e. at or above the TRP)	Healthy Zone (at or above the TRP)	Abundant	>60th percentile
Data Deficient			Insufficient information	Unknown

SOUTH COAST AREA

1.4.1.1 WEST COAST VANCOUVER ISLAND

Stock Management Unit	Conservation Unit /Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
WCVI - BARKLEY SOCKEYE	**Somass Aggregate (GCL + SPL)**	**663,000** (Avg. Run Size 1977+)		**170,000** Run Size – lower operational control point	**Outlook Category 3**
	Great Central Lake CU	322,000 (Avg. Run Size 1977+)	29,290 LBB		**Outlook Category 3**
	Sproat Lake CU	235,000 (Avg. Run Size 1977+)	41,350 LBB		**Outlook Category 3**

Stock Management Unit	Conservation Unit /Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
	The two main contributing brood years to the 2024 run are 2019 and 2020 and the two main contributing smolt years are 2021 and 2022. Brood abundances were below average in 2019 and 2020 particularly in Great Central Lake. Smolt abundances were low in both Great Central Lake and Sproat Lake in 2021, and are not yet available for 2022. Based on ocean indicators and returns to date, marine survival rates for the 2021 smolt year are high and are likely above average for 2022. Given the considerations above, expectations are for an average Somass Sockeye return in 2024.				
	Henderson Lake CU	34,000 (Avg. Run Size 1978+)	5000 LBB	9% max. harvest rate at run sizes <15,000	**15,000 - 25,000** Outlook Category 2
	For the 2024 return, the two main contributing brood years are 2019 and 2020 and the two main contributing smolt years are 2021 and 2022. Brood abundance was near average in 2019 but low in 2020. Based on ocean indicators, marine survival rates for the 2021 smolt years are high and have likely to remained above average in 2022. Therefore, expectations are for a near-average Henderson sockeye return in 2024.				
WCVI - OTHER SOCKEYE	22 CUs are associated with this stock management unit.				**Data Deficient**
	Assessment data are not available to forecast others systems. Anecdotal information indicates some populations (e.g. Kennedy Lake) are greatly depressed, while others (e.g. Bedwell) are seeing moderate returns in recent years.				
WCVI PINK	3 CUs are associated with this stock management unit.				**Data Deficient**
	Since the collapse of WCVI pinks in the mid 1960s there has been negligible catch and only opportunistic assessment of returns during assessment of other species. The available data suggest WCVI pink salmon populations continue to persist at very low relative to historic levels with high variability.				
WCVI CHINOOK	Southwest Vancouver Island CU, *CK-31*			10 – 15% maximum exploitation rate in key 'pre-terminal' CDN fisheries	**Outlook Category 1**
	Nootka and Kyuquot CU,*CK-32*				
	Northwest Vancouver Island CU,*CK-33*				
	Escapements of WCVI Chinook natural populations remain low. There has been improvement in Kyuquot (NWVI wild indicators) in recent years. The				

Stock Management Unit	Conservation Unit /Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
	Clayoquot area (SWVI wild indicators) which remains the biggest concern saw a drop in 2023 relative to the slight improvement over the previous two years. It is assumed survival rates of natural-origin Chinook are well below those of hatchery-origin Chinook and this discrepancy may be related to of the much smaller sizes of natural out-migrating smolts; productivity is therefore anticipated to remain low. WCVI wild Chinook remain a stock of concern.				
	Somass/Robertson (Hatchery)	68,000 (Avg terminal run 1995-2020)	n/a	7M eggs to Robertson Creek Hatchery and 14600 spawners to the Stamp River	Outlook Category 4
	Conuma Hatchery	37,000 (Avg terminal run 1995-2020)	n/a	10,000 ESC target but varies to ensure escapement of eggs associated with an average 10,000 escapement.	Outlook Category 4
	Nitinat Hatchery	25,000 (Avg terminal run 1995-2010)	n/a	10,000 ESC including brood stock	Outlook Category 4
	WCVI Other Hatchery Supplemented (e.g. Burman R, Sarita R.)	Varies by individual river; see local plans for details.	Work is underway to develop lower bench marks (C. Holt lead).	Varies by individual river; see local plans for details.	Outlook Category 3-4
	Returns of hatchery Chinook stocks to the WCVI, and particularly to Robertson Creek, were strong in 2023, consistent with the favourable ocean-entry conditions observed in 2020 and 2021. Conditions in the 2022 ocean-entry year appear like those observed in 2020: favourable but a definitive notch below the excellent conditions observed in 2021. Most Chinook returning to the WCVI in 2024 will have entered the ocean in 2021 or 2022; therefore, expectations are for another above average return in 2024.				
WCVI COHO	3 CUs are associated with this stock management unit.				**Outlook Category 3**
	Information to forecast Coho returns is limited. Therefore, there is considerable uncertainty in this assessment. Data suggests average Coho marine survival relative to recent years. Preliminary escapement though Stamp Falls Fishway in 2023 is in line with the 2022 count, which was in 67th percentile of all returns since 2010 and well above the 2018 brood. The 2023 escapement to Carnation Creek wild indicator stock (56 adults and 24 jacks) was below the 12-year average but is a small improvement over the 2019 brood (36 adults and 45 jacks).For 2024~~5~~, most of the return will originate from the 2021 brood year that went to sea in 2023. Final escapement estimates are still being processed, but preliminary observations suggest that Robertson Hatchery Coho jacks in 2023 were similar to 2022 Jacks and remain higher than the 2010-2021 average.				

Stock Management Unit	Conservation Unit /Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
	suggesting improvement in 2024 with average returns expected. Prior to 2021, most WCVI Coho spawning populations had seen declines in productivity.				
WCVI CHUM	Area 23 (Barkley) – Southwest Vancouver Island CU	**59,000** (Avg. Return, 1995+)		48,000 Run size – lower operational control point, 15% max harvest rate	**25,000** (19,000-34,000)
	Area 24 (Clayoquot) – Southwest Vancouver Island CU	**54,000** (Avg. Return, 1995+)		42,000 Run size – lower operational control point, 15% max harvest rate	**TBD**
	Area 25 (Nootka) – Southwest Vancouver Island CU	**39,000** (Avg. Return, 1995+)		26,000 Run size – lower operational control point, 20% max harvest rate	**TBD**
	Area 25 (Esperanza Inlet) – Southwest Vancouver Island Cu	**37,000** (Avg. Return, 1995+)		24,000 Run size – lower operational control point, 15% max harvest rate	**TBD**
	Area 26 (Kyuquot) – Southwest Vancouver Island CU	**38,000** (Avg. Return, 1995+)		25,000 Run size – lower operational control point, 15% max harvest rate	**TBD**
	Area 27 (Quatsino Sound) – Northwest Vancouver Island CU				**TBD**
	Area 25 (Conuma Hatchery) – Southwest Vancouver Island CU	**84,000** (Avg. Return, 1995+)			**TBD**
	Nitinat Hatchery	**464,135** (Avg. Return, 1995+)	n/a	225,000 Run size – lower operational control point	**TBD**
	Preliminary 2023 returns of WCVI Chum to most systems north of Nitinat were improved compared to recent years. However the preliminary Nitinat return is below average. Below average brood years 2019, 2020 and 2021 will contribute to the 2024 return as age 5, 4 and 3, respectively. The 2019-2021 sea entry years resulted in some improvements in survival to other salmon such as Sockeye, Coho and Pinks. These improvements will hopefully help to buffer the production coming from these weak Chum brood years. The recent status of				**Outlook Category 2**

Stock Management Unit	Conservation Unit /Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
	wild WCVI Chum stocks is generally poor with some improvement in 2023. In addition, hatchery production has declined in recent years. 2024 Outlook Category 2				

1.4.1.2 EAST COAST VANCOUVER ISLAND/MAINLAND INLETS

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
ECVI / MAINLAND SOCKEYE	Nimpkish	60,000 median spawners			**Outlook Category 2**
	For the 2024 return, the two main contributing brood years are 2019 (60,418) and 2020 (24,749), which are average and below average respectively. Sockeye returning in 2024 will have entered the ocean in 2021 and 2022. We have seen evidence of improved marine survival for these ocean entry years for Pink and Coho Salmon returning to nearby systems. Nimpkish Sockeye typically return as 4 year old fish (57%), but the 5-year component can also be strong. Given the considerations above, we anticipate that escapement will be below average but improving in 2024				
	Area 16 (Sakinaw)	**119** (Avg. Return, 1995+)	2,440	4,470	**Outlook Category 1**
	Of the 169,190 smolts that left Sakinaw Lake in 2021 a total of 121 adult Sockeye returned in 2023. Marine survival continues to be extremely low; for the 2021 ocean entry year the smolt-to-adult survival was 0.07% for hatchery origin fish while too few natural-origin smolts were present in 2021 to generate an estimate. Returns from an experimental release of Sakinaw smolts at Big Qualicum were approximately 5x higher at 0.42% suggesting a localized survival bottleneck may exist. Smolt production in 2022 was below average at 68,036 with relatively few natural origin fish estimated at 2,280. If marine survival is near the 4-year average, a total of 69 adults are expected in 2024. .				
	Other (Areas 11 to 13)	Heydon: 2,600 median spawners Quaste: 2,200 median spawners			**Outlook Category 2**
	Expectations for other populations such as Quatse, Heydon and Phillips are similar to Nimpkish.				

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
ECVI / MAINLAND PINK	Areas 11 to 13	Reconstructed Median Returns Southern Fjords (Even): 1.6 million Southern Fjords (Odd): 613K Nahwitti (Odd): 12K			**Outlook Category 2/3** (NEVI and Area 12 Mainland Inlets)
	Georgia Strait	Strait of Georgia (Odd): 536K Strait of Georgia (Even): 142K			**Outlook Category 3** (Southern portion of area on ECVI)
	Even Year: 2022 saw improved returns throughout the South Coast with generally improved returns to systems on Vancouver Island and in the Mainland Inlets. Returns were somewhat below the long-term average for the mainland, but most systems exceeded the recent (3 cycle) generational average. Expectations for 2024 are for a stabilization of abundance for Pink Salmon returning to ECVI and the mainland. Pink returns are highly variable, and confidence in the forecasted return in 2024 is low, but average returns to this region are expected in 2024 **Odd Year:** 2023 saw varied returns throughout South Coast, but generally abundance increased over the brood year. Returns to Northern Vancouver Island were below the historical adult abundance, although with clear signs of improvement since escapement hit its lowest point in 2016/2017. The mainland inlets in Area 12 saw continued poor escapement of Pink Salmon, but again with improvements over the brood year. Expectations north of Adam River are for continued improvements in 2025, with potential to approach the long-term average escapement. Particularly strong returns were observed in 2023 to major systems including Adam, Quinsam, Tsolum and Jervis Inlet while unenhanced returns to Big Qualicum continue to grow. Above average escapements to these systems and promising fry counts from the Quinsam River suggest that we will see average to above average escapements for systems south of Adam River in 2025.				
MAINLAND INLET CHINOOK	This aggregate includes 4 CUs				**Data Deficient**
	Includes Homathko and Klinaklini. DFO is working to expand our programs into the Mainland Inlets. Since 2021, a video counter was installed on Devereux Creek and estimates will be available for these years shortly. In 2022 and 2023, an intensive mark-recapture project was undertaken on the Southgate River in Bute Inlet. An estimated 5,175 (95% CI 1,462-8,818) adult Chinook Salmon returned to the Southgate River in 2022. In				

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
	2023 we estimate 832 (95% CI 469-1195), adult Chinook returned to the Southgate River. Stock Assessment also collected additional baseline samples from the Toba River (Toba Inlet). Efforts were again made to collect baseline samples in Jervis Inlet but were unsuccessful. Although still data deficient, efforts are underway to understand population abundance and trends in these areas.				
UPPER GEORGIA STRAIT CHINOOK	Quinsam River Fall Run	**7,072** (AVG. Terminal Run Index, 1979+)			Outlook Category 3-4
	We saw below average escapement in 2023 for the Quinsam/Campbell River, but improved returns elsewhere. Although escapement estimates were lower than average, ancillary information suggests estimates are biased low, due to increased predator (bear) activity that targeted fresh carcasses before they could be recruited into the mark-recapture study. Average to above average returns for the brood years contributing to the return in 2024, continuing restrictions on early timed Fraser Chinook, and relatively stable marine survival in recent years suggests we will see average returns in 2023. Outlook category 3-4.				
MIDDLE GEORGIA STRAIT CHINOOK	Puntledge and Big Qualicum Rivers Fall Run Enhanced	**15,329** (AVG. Terminal Run Index, 1995+)	7,193		Outlook Category 4
	The Puntledge River saw a below long term average return of 5,734 fall Chinook in 2023 while the Big Qualicum River had a record return at 18,425. Stable production levels and modest survivals for several hatchery indicators combined with above average returns of 3-year olds suggests average to above average returns are likely for 2024. 2023 Outlook Category 4.				
	Nanaimo and Puntledge Spring Summer Enhanced CK-83	1,669 AVG. Terminal Run Index, 2004+)			**Nanaimo SP Outlook Category 2** **Puntledge SP Outlook Category 1**
	A combination of additional snorkel surveys and a DIDSON project in the Nanaimo River produced an estimate of 350 fish in 2023 which was down from 417 in 2022 and below the 4 year average of 600. Puntledge summer Chinook were below the 4-year average of 502 fish at 200. Most of the reduction can be attributed to reduced smolt releases in preceding years. Rebuilding efforts for these populations are continuing with recovery potential assessments underway. At these levels, rebuilding will take several generations even with improved survival. 2023 Outlook Category 2-3.				

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
LOWER GEORGIA STRAIT CHINOOK	Cowichan River Fall Run Unenhanced (<20% hatchery origin)	**7,110** (AVG. Terminal Run Index, 1982+)	3,413	**6500 (Cowichan)** Escapement Target (S_{MSY})	Outlook Category 4
	Adult Chinook returns to the Cowichan River in 2023 exceeded the target escapement of 6,500 naturally spawning adults for the eighth consecutive year, recovering from a low of 540 natural spawners in 2009. Preliminary 2023 returns were above the 90th percentile, estimated at 21.0K adults and 11.4K Jacks. Wild production continues to drive escapement with the proportion of hatchery fish in the population estimated at less than 10% for adult age classes in 2023. The 2024 outlook is for average to above average returns. A similar rebuilding trend has not been observed in the Nanaimo River. although 2022 counts were encouraging, 2023 counts were near the 4 year average of 2.9K. Swim counts will be run through an AUC model prior to finalizing the estimate. Expectations for 2024 are for average returns. 2023 Outlook Category 4.				
JOHNSTONE STRAIT / MAINLAND INLET COHO	Area 12	2700 AVG Terminal Run Index (1998+)			Outlook Category 3
	Area 12 Coho returns have improved -substantially against the extremely poor escapement in 2016. Returns are now approaching the long-term average, which is very promising. Throughout the downturn in abundance, smolt production remained consistent but future periods of poor marine survival remain a significant risk. Our estimate of escapement at the Keogh in 2023 is 5,096 adults, which is approximately double the average for this system. Annual smolt production has remained above the long-term average since 2011. The return in 2023 stems from a modest smolt abundance of 75,174, indicating that marine survival has improved. Smolt abundance in 2023 was again strong at 92,907. We expect average to above average returns in 2024 due to the continued high smolt output and slightly improved marine survival conditions.				
	Area 13 - North				Outlook Category 3
	Hatchery indicators for this outlook unit are Quinsam and Big Qualicum. Adult returns to the Quinsam were above average. The wild Coho indicator at Black Creek saw approximately average adult (3,233) and higher jack (4,387) returns than average. Smolt production in 2022 and 2023 was above average, -suggesting somewhat poor marine survival is being buffered by high freshwater productivity. General observations to date suggest the 2023 forecast slightly under-estimated returns. Expectations for 2024 are for average escapement.				

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
STRAIT OF GEORGIA COHO	Quinsam				**Outlook Category 3**
	Big Qualicum	**4,612** (Avg. 1966-present)			
	Black Creek				
	Hatchery indicators for this Outlook Unit are the Quinsam and Big Qualicum rivers. Recreational Coho catches in the Strait of Georgia were the highest in 25 years yet escapements were similar to recent years. 2023 adult returns of 9,676 to the Big Qualicum were below the short and long term averages of 12-14K. Production levels are stable and 2024 returns are expected to be near average. Quinsam River adult returns in 2023 were slightly above the long term average while jack returns were significantly above average. The wild indicator is Black Creek. This year's preliminary estimate of 3,233 adults is near the long-term average. Jack returns were significantly above the long term average with a preliminary estimate of 4,387. The preliminary marine survival estimate for the 2022 ocean entry cohort is slightly above the recent average.				
INNER SOUTH COAST CHUM - Non-Fraser	Johnstone Strait Area and Mainland Inlets (Areas 11 to 13)				**Outlook Category 1-2**
	Summer run Chum Salmon stocks in 2023 appear to have done poorly, but slightly improved relative to recent years. Small improvements in summer Chum abundance are likely in 2023, as marine survival appears to have improved but brood year abundance was generally poor across the South Coast. Fall run Chum returns in 2023 appears to be below average in most systems surveyed. Productivity of these stocks has declined over the last 5 years and has been attributed to poor marine conditions for salmon. There is some indication that survivals have slightly improved in the Southern range of the distribution of Inside Southern Chum down to Puget Sound. Returns in 2023 showed a strong age-3 component, which suggests that ocean conditions are beginning to improve. For the 2024 return, below average parental brood abundances in both 2020 and 2021 -likely mean below average return of fall Chum-, although with potential improvement stemming from improved marine survival. -Recovery initiatives continue for the Nimpkish Chum Stock within this area with low thousands observed in fall 2022 and 2023. Expect continued variability in Chum returns on a north-south gradient favoring higher survival in southern systems.				
	Jervis/Narrows Inlet	**44,638** (Avg. Return, 2004+)		85,000	**14,500** (Like Last Year) (24,800 normal)

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
	(Brittian, Deserted, Skwawka, Tzoonie, Vancouver)				
	Mid-Vancouver Island (Puntledge, Big Qualicum, Little Qualicum)	**65,315** (Avg. Return, 1995+)		230,000	**23,800** (Like Last Year) (48,000 normal)
	Nanaimo River	**58,115** (Avg. Return, 2004+)		40,000	**23,800** (Like Last Year) (48,000 normal)
	Cowichan River	**162,252** (Avg. Return, 2006+)		160,000	**30,700** (Like Last Year) (133,600 normal)
	Goldstream River	**26,453** (Avg. Return, 2000+)		15,000	**2,400** (Like Last Year) (18,400 normal)
	2023 results continue to indicate well below target escapements for systems in mid to northern Georgia Strait and Jervis/Narrows Inlets. Returns to Nanaimo, Cowichan and Goldstream were particularly poor. Productivity for all stocks is still below long term averages. For 2024, mid-Island systems (Puntledge, Little Qualicum, Big Qualicum) are expected to remain well below target levels. Abundance of stocks in the southern Georgia Strait such as Cowichan, Nanaimo, and Goldstream is uncertain: expectations are for well below target returns if low survival persists or near target if survival returns to normal. Jervis/Narrows Inlet stocks are forecast to be below target abundance.				**Outlook Category 1-2**

LOWER AND INTERIOR FRASER AREA

1.4.1.3 FRASER SOCKEYE SALMON

Quantitative forecasts for Fraser Sockeye and Pink salmon are produced annually and biannually (odd years), respectively. The 2024 forecasts will be presented to the Fraser River Panel at the Pacific Salmon Treaty meeting in February. This document provides a precursory look at the upcoming 2024 Fraser River Sockeye forecast. The Pink salmon return in 2024 is expected to be negligible, as Fraser Pinks return on odd years only. The dominant age-of-maturity for most Fraser Sockeye stocks is four years, so Sockeye returning in 2024 as four-year-olds originate from the 2020 brood year, which was the lowest return to the Fraser on record.

Five-year-olds returning in 2024 originate from the 2019 brood year. The Outlook is intended to provide a categorical assessment of brood year escapements relative to Wild Salmon Policy (WSP) benchmarks and historic escapements. Stocks that were affected by the Big Bar landslide in 2019 are denoted by a '*' next to the population/conservation unit name. Categorical Outlook status ranges from poor return (1) to good return (4). Definitions of the technical terms used in this document and descriptions of how each metric is calculated are provided in Appendix 1.

The forecast focuses on the expected total return to the Fraser River. However, the data that are used to determine Outlook status are brood EFS (effective female spawners) and brood ETS (effective total spawners); both of which are derivatives of spawning escapement. Long term mean EFS is calculated across the length of the time series, or the length of the time series on the cycle line for cyclic stocks. Recent mean EFS is calculated as the mean across the last 4 years, or the last 4 cycle line returns for cyclic stocks.

AVERAGE AGGREGATE RETURN (ALL CYCLES, ALL STOCKS): 12,680,008

Stock management Unit: EARLY STUART

Average aggregate return (all cycles): 258,200

<table>
<tr><th>Conservation Unit</th><th>Average Return (all cycles)</th><th>LRP / LBB</th><th>Management Target</th><th>WSP / COSEWIC STATUS</th><th>2023 FORECAST/ OUTLOOK</th></tr>
<tr><td rowspan="2">Early Stuart
(CU: Takla-Trembleur-EStu)
- Cyclical: Yes</td><td>124,217 (cycle-year average; 1952-2020)</td><td></td><td></td><td>WSP – RED
COSEWIC – END</td><td rowspan="2">Outlook Category 1</td></tr>
<tr><td colspan="4">Extremely poor returns are expected in 2024. The 2020 brood year effective total spawners (ETS; 30) and effective female spawners (EFS; 15) were extremely small, and well below all metrics, including the WSP lower benchmark for ETS (86,738), and the long-term and recent cycle line average EFS (17,280 and 6,231,respectively). This stock was heavily impacted by difficult migratory conditions in the Fraser River Canyon in 2020, and experienced a high degree of en-route mortality associated with the additional effort and delay in reaching their spawning grounds. In 2021 119,000 hatchery-produced fry were released in the natal area . These originated from Early Stuart adults captured in the Fraser River below Big Bar slide in 2020. Based on the range of observed Chilko Sockeye marine survival estimates as a proxy, and an assumed fry-smolt survival rate range of 10-30%, the expected return of Early Stuart adults in 2024 from the hatchery release is between 300 and 2000.</td></tr>
</table>

Stock management Unit: EARLY SUMMER

Average aggregate return (all cycles): 485,557

Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST
LOWER FRASER					
Upper Pitt River *(CU: Pitt-ES)* - Cyclical: No	66,253 (1952-2019)			WSP – Green COSEWIC – NAR	Outlook Category 1
	Poor returns are expected in 2024 relative to the long-term average (66,253). Upper Pitt has a higher proportion of five-year-old recruits (~78%) relative to four-year-old recruits. The 2019 brood year ETS (1,248) was well below the WSP lower benchmark (10,627), and EFS (708) was below both the long-term and recent averages (12,982 and 5,204, respectively). The 2020 brood year ETS and EFS were 4,202 and 1,825, respectively, smaller than all the aforementioned metrics. Note: these comparisons include escapements to the Upper Pitt River spawning channel to be consistent with Grant et al (2020).				
Chilliwack *(CU: Chilliwack-ES)* - Cyclical: Yes*	28,861 (cycle-year average 2000-2020			WSP – AM/GR COSEWIC – NAR	Outlook Category 1-4
	While this stock exhibits cyclical returns, limited data preclude cycle-specific benchmarks (Grant et al 2020). The uncertainty in both the age structure and relevant benchmarks for comparison is reflected in the Outlook status. 2024 is on the dominant cycle line for Chilliwack, and an above-average return is expected. The 2020 brood year ETS was 31,677, which was well above the lower bench mark of 8,000. However, the 2020 EFS (19,308) was below the long term and recent averages for this cycle line (33,675 and 36,997 respectively).				
Nahatlatch River *(CU: Nahatlatch-ES)* - Cyclical: No				WSP – Amber COSEWIC – SC	**2,000** Outlook Category 1
	Reliable recruitment data are not available for this CU, thus no WSP benchmarks are available for comparison (see Appendix 1). A below-average return is expected in 2024, as the 2020 brood year EFS was 1,386, which is below the long term average (2,044), but above the recent average (1094).				
SOUTH THOMPSON					
Seymour River and Scotch Creek *(CU: Shuswap-ES)* Two populations represent this CU, but they	Seymour: 22,546 (1952-2020); Scotch: 6,840 (1980-2020; cycle-year average)			WSP – Amber COSEWIC – NAR	Outlook Category 1
	Poor returns are expected for this CU given that the Seymour River and Scotch Creek combined four-year old brood year ETS (2,085) was well below the WSP lower benchmark (39,741). Seymour River brood year EFS (387)				

Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST
share one set of benchmarks. - Cyclical: Yes & Yes	was much smaller than the long-term average (3,524). EFS for Scotch Creek (592) was slightly above the long-term average (482) and recent average (460). [1] *These 2 sites are treated separately in annual forecasts, but they share one set of benchmarks as the dominant components of the Shuswap-ES CU under the WSP.*				
NORTH THOMPSON					
North Barriere (incl. Fennell Creek) *(CU: North Barriere-ES)* Cyclical: No	20,275 (1971-2020)			WSP – Amber COSEWIC – Threat.	Outlook Category 2
	The 2024 return is expected to be well below the historic average (20,275). The 2020 brood year ETS (955) was slightly above the lower WSP benchmark of 640, while the brood year EFS (604) was similar to the average for recent years (652), and much lower than the long-term average (3,662).				
MID AND UPPER FRASER					
Gates *(CU: Anderson-Seton-ES)* - Cyclical: No	49,442 (1972-2020)			WSP – AM/GR COSEWIC – NAR	Outlook Category 2
	Below-average returns are expected for this CU. The 2020 brood year ETS (5,911) was above the WSP lower benchmark (3,662), but below the upper benchmark (22,534). Brood year EFS (3,292) was below the long-term average (4,309) and very close to the recent average (3,259). Note that these comparisons included the Gates River spawning channel, but, as of January 2020, the channel has not been operational, which will influence interpretation of these trends moving forward (Grant et al. 2020)				
Nadina *(CU: Nadina-Francois-ES)* - Cyclical: No	86,151 (1977-2020)			WSP – AM/GR COSEWIC – NAR	Outlook Category 2
	The 2024 return is expected to be well below the historic average of 86,151. Historically, the four-year-old component dominates the escapement (~80%), but five-year olds have contributed 50% or more in some years recently. The 2019 and 2020 ETS (22,198 and 29,128, respectively) were both slightly above the lower WSP benchmark of 21,694. EFS in 2019 and 2020 (8,351 and 15,909, respectively) were near the long term average (10,565), but below the recent average (21,152). This stock experienced substantial en-route loss and migration delays associated with the Big Bar landslide in 2019 and high Fraser River discharge in 2020. Note: These comparisons include the Nadina spawning channel escapement estimates to be consistent with Grant et al (2020).				
Bowron River	33,677 (1952-2020)			WSP – RED COSEWIC – END	**2,000**

Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST
CU: Bowron-ES) - Cyclical: No	The 2024 return is expected to be well below the historic average of 33,677. This stock can have a five-year-old component in some years. The 2020 brood year ETS (344) were well below the WSP lower benchmark of 5,249. The 2019 brood year ETS (20) was the lowest on record. EFS for 2019 (10) and 2020 (172) are well below the long term and recent averages (3,898 and 1,256, respectively). This stock was impacted by the Big Bar landslide in 2019 and high Fraser discharge in 2020**.** Hatchery enhancement was conducted for the 2020 brood year, and a small number (11,614) of fry were released in the spring of 2021.				Outlook Category 1
Taseko *(CU: Taseko-ES)* - Cyclical: No				WSP – RED COSEWIC – END	Outlook Category 1
	Reliable return data are not available for this CU, thus no WSP benchmarks are available (see Appendix 1). Low returns are typically expected for this CU. The 2019 brood year escapement is unavailable due to operational program constraints, but escapement was likely well below average due to the impact of the Big Bar landslide. In 2020, estimated ETS and EFS were 60 and 30, respectively. By comparison, long term and recent average EFS values were 1,179 and 39 respectively. Limited sample size precludes analysis of the age structure of Taseko Sockeye. Escapements to this CU were presumably heavily impacted by the Big Bar landslide in 2019 and high discharge in the Fraser River in 2020. A hatchery enhancement program has been initiated for Taseko, but brood collection was unsuccessful in 2019 and 2020.				

Stock management Unit: SUMMER RUN

Average aggregate return (all cycles): 3,733,000

Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST/ OUTLOOK
Harrison River *(CU: Harrison (River-Type)-S)* - Cyclical: No	117,213 (1952-2021)			WSP – Green COSEWIC – NAR	**51,000** Outlook Category 2-3
	Above-average to average returns are expected for this CU, but this will strongly depend not only on survival, but also the maturation rate for the 2020 and 2021 broods. This stock has an different life history (river-type) and age structure (predominately three- and four-year olds) relative to other Fraser populations. 2020 ETS (75,113) was almost double the WSP lower benchmark (38,928), and 2021 ETS (55,499) was also above the lower benchmark. However, 2020 and 2021 ETS were still below the upper benchmark of 122,165. The long term and recent averages for EFS are 29,534 and 22,491 respectively; both the 2020 and 2021 brood year EFS exceed these values (51,062 and 40,628 respectively).				

Raft River *(CU: Kamloops-ES)* - Cyclical: No	29,145 (1948-2020)			WSP – Amber COSEWIC – SC	Outlook Category 2
	The 2024 return is expected to be below the long-term average(29,145).. The ETS (4,959) was almost equal to the WSP lower benchmark of 4,958. Brood year EFS (2,722) was above the long-term average (4,175) and more than double the recent average (1,777). This stock can have a five-year-old component of up to 30% in some years, but it is variable and inconsistent, thus only four-year-olds were considered.				
Quesnel *(CU: Quesnel-S)* - Cyclical: Yes	13,085 (1952-2020; cycle year average)			WSP – RED/AM COSEWIC – END	Outlook Category 1
	Poor returns are expected for this cyclical CU in 2024. The 2020 brood year ETS of 738 was only about 0.4% of the WSP lower benchmark of 172,260. EFS in the 2020 brood year (508) was well below the long term average (4,313) and slightly below the recent average (822) in this cycle line. Additional caution should be observed for this CU given that there was an unusually low proportion of 4year olds returning for this cycle year (14%). This stock was impacted by the Big Bar landslide in 2019 and high Fraser River discharge in 2020, and experienced en-route mortality associated with the additional effort in reaching their spawning grounds. Note that these comparisons include escapements to the Horsefly River spawning channel to be consistent with Grant et al (2020).				
Stellako River *(CU: Francois-Fraser-S)* - Cyclical: No	426,691 (1952-2020)			WSP – AM/GR COSEWIC – SC	Outlook Category 2
	Below-average returns are expected in 2024. The 2020 brood year ETS (43,798) was above the WSP lower benchmark (24,256), but below the upper benchmark (122,612). Brood year EFS (22,136) was only about half of the long-term (55,143) and recent (48,561) averages. This stock was impacted by the Big Bar landslide in 2019 and high Fraser discharge in 2020.				
Chilko *(CUs: Chilko-S and Chilko-ES)* - Cyclical: No	1,342,487 (1952-2020)			WSP – Green COSEWIC – NAR	Outlook Category 1
	Below-average returns are expected in 2024 relative to the historical average (1,342,487). The 2020 brood year ETS of 51,455 was below both the lower (64,220) and upper (353,863) benchmarks. Brood EFS (27,054) was far below both the long-term (221,417) and recent (175,846) averages. The smolt out-migrating estimate in 2022 was 5.8 million, which is lower than the historic average of 21.8 million. This stock was impacted by the Big Bar landslide in 2019 and high Fraser River discharge in 2020.				
Late Stuart *(CU: Takla-Trembleur-Stuart-S)* - Cyclical: Yes	164,036 (1952-2020; Cyc-year average)			WSP – RED/AM COSEWIC – END	Outlook Category 1
	Poor returns are expected for this CU. The 2020 brood year ETS of 4,684 was only 5% of the WSP lower benchmark (103,286). Brood year EFS (2,487) was below both the long-term (25,090) and recent (24,202) averages for this cycle line. This stock was impacted by the Big Bar landslide in 2019 and high Fraser River discharge in 2020.				

Stock management Unit: LATE RUN

Average aggregate return (all cycles): 2,853,541

Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST/ OUTLOOK
Cultus Lake *(CU: Cultus-L)* - Cyclical: No	31,971 (1952-2020)			WSP – RED COSEWIC – END	Outlook Category 1
	Poor returns are expected for this CU. Brood year effective total spawners was only 55, extremely small relative to the WSP lower benchmark for ETS (15,454). Brood year EFS of 29 was also far below the long-term (809) and recent average (117). The smolt out-migrant estimate in 2021 was 8,049, below the average of 12,491 (2001-2019).				
Portage Creek *(CU: Seton-L)* - Cyclical: No	37,717 (1953-2020)			WSP – RED COSEWIC – END	Outlook Category 1
	Very poor returns are expected for this CU. Brood year ETS of 20 was very small and far below the WSP lower benchmark of 2,193. Brood year EFS of 10 was a fraction of both the long-term (4,211) and recent average (5,777).				
South Thompson *(CU: Shuswap-L)* - Cyclical: Yes	16,799 (1952-2020; Cyc-year average)			WSP – AM/GR COSEWIC – NAR	Outlook Category 1
	Poor returns are expected for this CU. Brood year ETS (24) was far below the cycle-specific WSP lower benchmark (429,435). Brood year EFS (12) was also well below the long-term (2,130) and slightly below the recent average EFS (32).				
Birkenhead River *(CU: Lillooet-Harrison-L)* - Cyclical: No	298,757 (1952-2020)			WSP – Amber COSEWIC – SC	Outlook Category 1
	Low returns are expected for this CU. This stock has a considerable five-year-old component historically (~40%). The 2019 and 2020 brood year ETS were 2,975 and 3,328, respectively, both below the WSP lower benchmark of 15,685. The 2019 and 2020 brood year EFS (1,984 and 1,635, respectively) were also below both the long-term (39,250) and recent average EFS (5,188).				
Weaver Creek *(CU: Harrison (U/S)-L)* - Cyclical: No	299,103 (1966-2020)			WSP – RED COSEWIC – END	Outlook Category 1
	Low returns are expected for this CU. The 2020 brood year ETS (64) was a fraction of the WSP lower benchmark (10,731). Brood year EFS (38) was also far below the long-term (20,105) and recent average EFS (5,995). These comparisons include escapement to the Weaver Creek spawning channel to be consistent with Grant et al (2020).				
				WSP – AM/GR	

Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST/ OUTLOOK
Big Silver Creek *(CU: Harrison (D/S)-L)* - Cyclical: No				COSEWIC – SC	**Outlook Category 1**
	Reliable return data are not available for this CU, thus no WSP benchmarks are available (see Appendix). Poor returns are expected for this stock, since the 2020 brood-year EFS (73) was very small compared to the long-term (1,606) and recent average EFS (917)				
Widgeon Slough *(CU: Widgeon (River-Type))* - Cyclical: No				WSP – RED COSEWIC – Threat.	**Outlook Category 1**
	Reliable return data are not available for this CU, thus no WSP benchmarks are available (see Appendix 1). Poor returns are expected in 2024. This population may have contribution from the 3-year-old component, but this is uncertain due to small population size and resultant small sample sizes for age analysis. The 2020 and 2021 escapement (EFS; 94 and 62) were smaller than the long-term average EFS (314), but similar with the recent average of 83.				

FRASER PINK

Conservation Unit	Average Return	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST/ OUTLOOK
Fraser Pink - Odd year only (CU: Fraser River: *PKO-2*)	11,386,857 (1959-2021)				**N/A**
	No returns are expected as it is an even year.				

1.4.1.4 FRASER CHINOOK

Stock Management Unit	Conservation Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST/ OUTLOOK
SPRING RUN 4_2	**Aggregate SMU**	**10,300** (CTC ESC[1] 1975-2022)	***Critical (one CU CK-16 in RED zone)***	**22,100** Escapement Target (S_{MSY})		

Stock Management Unit	Conservation Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST/ OUTLOOK
CHINOOK SALMON	CK-17 Lower Thompson	**10,000** (ESC 1975-2022) **7,600** (Last Gen)	4000		WSP – Red COSEWIC – END.	Outlook Category 2
	CK-16 South Thompson-Bessette Creek	**120** (ESC 1975-2022) **10** (Last Gen)	1000		WSP – Red	
	The 2022 escapement estimates were near the long-term average and above the 2018 parental brood escapement, however remained well below the management target. The preliminary 2023 escapements are anticipated to remain below the long-term average, however above the parental escapements of 2019. Expectations are for continued low abundance in 2024 due to below-average parental escapements in 2020, the November 2021 flooding impacts on eggs and parr, and uncertainty around marine survival and productivity. (2023 Outlook Category 2)					
SPRING RUN 5_2 CHINOOK SALMON	**Aggregate SMU**	**24,500** (CTC ESC[14] 1975-2022)		**42,200** Escapement Target (S_{MSY})		**23,600** Terminal Run Outlook Category 2
	Aggregate SMU	**24,500** (CTC ESC[1] 1975-2022)	*Critical (multiple CUs in the RED zone)*	**42,200** Escapement Target (S_{MSY})		
	CK-04 Lower Fraser	**400** (ESC 1975-2022) **200** (Last Gen)	1,000		COSEWIC – Special Concern	
	CK-08 Middle Fraser- Fraser Canyon	**60** (ESC 1975-2022) **50** (Last Gen)	1,000		WSP – Data D. COSEWIC – END	
	CK-10 Middle Fraser	**7,700** (ESC 1975-2022) **3,700** (Last Gen)	5,300		WSP – Red COSEWIC – Threat.	
	CK-12 Upper Fraser	**17,700** (ESC 1975-2022) **9,600** (Last Gen	5,300		WSP – Red COSEWIC – END	
	There continues to be considerable escapement variation among and within these conservation units. On average, the 2022 escapement estimates were near the long-term average and above the 2017 parental brood escapement, but still below the escapement target. The preliminary 2023 escapements are anticipated to					

Stock Management Unit	Conservation Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST/ OUTLOOK
	exceed the 2018 parental escapements, however well below the long-term average. Expectations are for continued low abundance compared to the escapement target in 2024. In addition to the lowest average parental escapement on record in 2019 and uncertainty around marine survival and productivity, the 2019 Big Bar landslide resulted in high mortality which will affect the 5 year old component of the 2024 escapement for CK-10 and CK-12. Some stocks are more heavily impacted by Big Bar, causing much lower escapements. The variation among CUs is expected to continue in 2024 (2023 Outlook Category 1)					
SUMMER RUN 5_2 CHINOOK SALMON	**Aggregate SMU**	**19,500** (CTC ESC[14] 1975-2022)		**23,600** Escapement Target (S_{MSY})		Outlook Category 2
	CK-05 Lower Fraser – Upper Pitt	**200** (ESC 1975-2022) **70** (Last Gen)	1,000		WSP – Data D. COSEWIC – END	
	CK-06 Lower Fraser	**60** (ESC 1975-2022) **40** (Last Gen)	1,000		WSP – Data D. COSEWIC – Threat.	
	CK-09 Middle Fraser - Portage	**100** (ESC 1975-2022) **60** (Last Gen)	1,000		WSP – Red COSEWIC – END	
	CK-11 Middle Fraser	**14,900** (ESC 1975-2022) **9,400** (Last Gen)	5,800		WSP – Amber COSEWIC – Threat.	
	CK-14 South Thompson	**1,300** (ESC 1975-2022) **1,400** (Last Gen)	1,000		WSP – Amber COSEWIC – END	
	CK-19 North Thompson	**4,300**(ESC 1975-2022) **3,100** (Last Gen)	1,800		WSP – Red COSEWIC – END	
	There continues to be considerable escapement variation among and within these conservation units. On average, the 2022 escapement estimates were above the long-term average and the 2017 parental brood; and near the Smsy escapement target. Preliminary escapement estimates from 2023 are anticipated to be well above the 2018 parental escapements, however well below the long-term average and SMU escapement target. For the 2024 return, expectations are for continued low abundances due to i) one of the lowest parental escapements on record in 2019; ii) uncertainty around marine survival and productivity; and iii) high mortality associated with the 2019 Big Bar landslide resulted in high mortality that will affect					

Stock Management Unit	Conservation Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST/ OUTLOOK
	the 5 year-old return of the Middle Fraser CU (CK-11), which makes up a large component of the SMU. (2023 Outlook Category 1)					
SUMMER RUN 4_1 CHINOOK SALMON		**67,900** (CTC ESC[1] 1975-2022)	***Critical (one CU in the RED zone)***	**120,300** Escapement Target (S_{MSY})		Outlook Category 4
	CK-13 South Thompson	**44,900** (ESC 1975-2022) **120,000** (Last Gen)	23,600		WSP – Green COSEWIC – Not at Risk	
	CK-15 Shuswap River	**26,100** (ESC 1975-2022) **31,600** (Last Gen)	2,100		COSEWIC – Not at Risk	
	CK-07 Maria Slough	**300** (ESC 1975-2022) **100** (Last Gen)	1,000		WSP-Not assessed COSEWIC – END.	**Outlook Category 1**
	The 2022 escapement estimate for the aggregate exceeded both the long-term average and the parental brood escapement (with the exception of Maria Slough). Similar trends were observed in 2023 with preliminary escapement estimates for CK-13 and CK-15 anticipated to be above the long-term average and parental brood escapements, while CK-07 returns remained below the long-term average and 2019 parental brood escapement. Overall, the aggregate met the management target in 2023. The Lower Shuswap indicator is well above the PST management objective of 12,300 spawners, making 2023 the 7th consecutive year the target has been met. Expectations are for continued high abundance for CUs (except for Maria Slough) in 2024 given high parental escapements in 2020 and recent trends in abundance. (2023 Outlook Category 1 (Maria) / 4)					
FALL RUN 4_1 CHINOOK SALMON	**Aggregate**	**125,000** (ESC 1984-2022)	Cautious			**Outlook Category 2**
	(P) Chilliwack Hatchery Exclusion	**35,800** (ESC 1984-2022) **53,800** (Last Gen)	n/a (hatchery stock)		Not assessed.	Outlook Category 4
	CK-03 Lower Fraser River-fall timing (white) - Harrison	**89,300** (ESC 1984-2022) **51,600** (Last Gen)	**15,300**	**75,100** Escapement Target (S_{MSY})	WSP – Green COSEWIC – Threat.	Outlook Category 2

Stock Management Unit	Conservation Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST/ OUTLOOK
	The 2022 Harrison escapement estimate was near the long-term average, above the 2018 parental brood escapement, and it is only the second time in the last 11 years that the PST escapement goal of 75,100 was met. The 2023 Harrison escapement estimate will be above the parental brood escapement, long-term average, and escapement target. Expectations for 2024 are for moderate abundance based on brood year escapement and recent returns. Chilliwack hatchery production, marine survival, and fishery exploitation are expected to return sufficient abundance to achieve hatchery production objectives. (2023 Outlook Category 2 (Harrison) / 4 (Chilliwack))					

1.4.1.5 FRASER COHO

STOCK MANAGEMENT UNIT	Conservation Unit / Sub Unit	Average Return	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST /OUTLOOK
Interior Fraser Coho	**Aggregate**	**37,300 (ESC 1998 – 2022)**		**34,100 + 3 years of survival ≥3%**	COSEWIC - Threat	**87,079** **(Prefisheries Abundance)** Outlook Category 2
	Fraser Canyon	**3,400** (ESC 1998 – 2022)	**1,000**			
	Interior Fraser	**5,600** (ESC 1998 – 2022)	**1,800**			
	North Thompson	**13,300** (ESC 1998 – 2022)	**2,600**			
	Lower Thompson	**7,300** (ESC 1998 – 2022)	**1,400**			
	South Thompson	**7,700** (ESC 1998 – 2022)	**2,300**			
		The SMU status will remain cautious but above its interim LRP. The PST MU survival target of 3% was met in 2021 for the first time since 1999; however, three successive years of survival over 3% are required to change to the “Moderate” PST MU				

		status. The survival estimate for 2022 was below 3%, currently estimated at 1.7%. Outlook Category is a 2 due to recent escapements exceeding the interim limit reference point, but survival and total pre-fisheries abundance remains below the moderate MU management reference point and the SMU upper stock reference is yet to be defined.				
Lower Fraser Coho	**Aggregate – includes 3 CUs**	Not Available				**Data Deficient**
		Inch Creek hatchery smolt-adult survival is a proxy for changes in the relative abundance for the SMU. The 2023 forecast for marine survival for this indicator is 5.5%, a decrease (-34%) from the observed level in 2022 An outlook category cannot be determined as there is no limit reference point or escapement time series.				

1.4.1.6 FRASER CHUM

Stock Management Unit	Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
Inner South Coast Chum - Fraser	Lower Fraser CU			There is a management goal of 800,000 wild spawners.		**Outlook Category 2**
		Fraser River Chum Salmon spawning escapement has failed to reach the management goal in six of the last seven years (2017-2021, 2023). The October 24, 2023 in-season terminal run estimate was 470,000 fish (80% probability interval of 326,000 to 677,000 Chum), and the 2023 spawning escapement estimate (including age data) will be available by April 2024. Returns in 2024 will be dominated by 4-year-old brood from the 2020 escapement of 610,000 spawners (contribution of 3-year-old fish is expected to be minimal due to extreme flooding during the 2021 spawning season. Spawning escapements have failed to outperform brood in five of the past seven years (2017-2021), with 2022 and 2023 returns outperforming brood. (2023 Outlook Category was 2)				

1.4.1.7 HOWE SOUND / BURRARD INLET

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
PINK	Part of the Southern				

	Fjords odd and even CUs				**Data Deficient**
CHINOOK	Part of the South Coast – Southern Fjords CU				**Data Deficient**
	Some years with good information for the Indian River.				
Strait of Georgia Coho	Howe Sound – Burrard Inlet CU				**Data Deficient**
INNER SOUTH COAST CHUM – Non-Fraser	Howe Sound – Burrard Inlet CU				**Data Deficient**

1.4.1.8 BOUNDARY BAY

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
CHINOOK	CK-01 Boundary Bay	**240** (Little Campbell ESC 1980-2022)	1,000	2,100	**Outlook Category 1**
	In the last five years, escapements have been above the long-term average, but below the SMU target. Returns in 2024 are expected to follow the same trend given the second highest escapement on record for the 2020 parental brood year (1,088 adult spawners). CK-01 is currently undergoing review for listing under the *Species at Risk Act*.				
COHO	Boundary Bay CU				**Data Deficient**
INNER SOUTH COAST CHUM – Non-Fraser	Boundary Bay CU				**Data Deficient**

1.4.1.9 OKANAGAN SOCKEYE

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	WSP / COSEWIC STATUS	2023 FORECAST/ OUTLOOK
OKANAGAN SOCKEYE	Osoyoos			58,730 adults at Wells Dam or 29,365 as peak counts in the terminal index area		Outlook Category 3
	The current estimate for Ok Sox returning this year is 284,000. The average (2008-2023) is 266,000 (SD 40,000), so the estimate is for slightly above average returns.					
OKANAGAN CHINOOK	Okanagan Summer	**30** (ESC 2006- 2022)	1,000	**4,600**	COSEWIC - END	**Outlook Category 1**
	The escapement estimate for 2022 was 23. Preliminary estimate for 2023 escapement is 90 using the PIT tag mark-recapture. Expectations for 2024 are for continued depressed abundance related to low parental escapements, low marine and freshwater survival, low productivity, and low hatchery production.(2023 Outlook Category was 1)					

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Fraser	Chuck Parken, Nicole Trouton, Lauren Weir, Joe Tadey, Matthew Townsend, Scott Decker, Yi Xu, Kory Ryde	Mike Hawkshaw, Chuck Parken

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1.6 Appendix - Sockeye

When considering the term "target" used for defining outlook categories, we considered upper WSP benchmarks to be the target (not the lower benchmark).

- Outlook status 1: population/CU is below the lower WSP benchmark
- Outlook status 2: population/CU is above the lower benchmark, but less than 50% of the upper benchmark
- Outlook status 3: population/CU is between 50-75% of the upper benchmark
- Outlook status 4: population/CU is over 75% of the upper benchmark

Details on how each metric was calculated or obtained for comparison.

- Long-term average EFS was calculated from the start date identified in Grant et al (2020) up to and including the brood year of interest (for the 2022 outlook, that would be 2018). This obviously may not hold true for stocks with predominantly 3- or 5-year old cohorts, but it is not expected to change the outcome drastically.
    - For cyclical stocks, long-term average EFS was calculated based on the cycle line average EFS. For example, for Seymour River, the long-term average EFS is the average of the 2022 cycle line escapements from 1950-2018.
    - For non-cyclical stocks, long-term average EFS was calculated across all years in the time series. For example, Harrison River long term average EFS is the average of each year's EFS from 1948-2018.
- Short term average EFS is calculated from the most recent 4 years of escapements. The purpose is to capture brood year relative to recent trends in escapement.
    - For cyclical stocks, this is the most recent 4 years in that cycle line (e.g., for the 2022 outlook, the average is calculated from 2018, 2014, 2010 and 2006 EFS).

    - For non-cyclical stocks, this is the most recent 4 years available up to the brood year of interest (e.g., for the 2022 outlook, it is calculated from 2015-2018, inclusive. Note the most recent year, in this case 2021, is not available at the time the Outlook is calculated).

- Most systems compare the average EFS of the 4 year old component (2018) to the long term average EFS and benchmarks. However, it is prudent to consider 3- and 5-year old components for some stocks. These stocks were identified visually using the PSC Age Composition Comparison App online (Brkic 2020). Note that for some cyclical stocks, this will have to be revisited in future years depending on the cycle line. For example, Mitchell and Horsefly Rivers (Quesnel-Summer) have much lower 4 year old contribution on the 2019 cycle line.
- Escapement benchmarks were manually compiled from Grant et al 2020. Note that this deals with CUs; while Scotch and Seymour are reported separately here, they are part of the same CU and so have the same 4-year median and benchmarks. These need to be updated annually for cyclical stocks as each cycle line has its own benchmarks.
- Effective total spawners (ETS) was calculated to compare to the Wild Salmon Policy (WSP) benchmarks as those are calculated in terms of ETS (apples to apples). Grant et al 2020 outlines how ETS is calculated; briefly, ETS=(annual_male_escapement + annual_female_escapement)*annual_spawn_success, where spawn success is the spawn success of the females (based on egg retention in carcasses).
- Outlook status ranges from 1-4, with 1 being the poorest outlook/lowest return, and 4 being the highest. They are informed by the status definitions in FRAFS (2018) with slight modifications to this specific document. Note some populations/CUs may receive dual statuses to represent uncertainty in data and/or evidence for multiple status categories (including the potential for multiple age classes). Status designation is determined by comparing brood-year effective total spawners (ETS) to the WSP benchmarks for ETS. If no benchmarks are available, it is manually/qualitatively assigned by comparing brood-year effective female spawners (EFS) to long-term and recent average EFS. In a case where benchmark rule is not consistent with brood-year EFS relative to the historical data, the outlook status conforms to the former one.

APPENDIX 11: INTERIOR FRASER RIVER (IFR) COHO RECORD OF EVIDENCE (ROE)

Under recent amendments to Canada's *Fisheries Act*, Limit Reference Points (LRPs) are required for all fish stocks prescribed under Section IX of the Fishery (General) Regulations. Stocks that are below their LRP will trigger the development of a rebuilding plan (regulatory) whereas stocks above their LRP require a Record of Evidence (ROE) to be completed (non-regulatory). A ROE records the location of all documents that provide evidence of how DFO met the requirements of the Fish Stocks provisions (section 6.1 of the Fisheries Act which states the stock must be managed at levels necessary to promote sustainability) and functions as a high-level overview of the current status with information on where to find more detailed information if desired.

Interior Fraser River (IFR) Coho Salmon (*Oncorhynchus kisutch*) was initially assessed as endangered by COSEWIC in 2002 and was revised to threatened in 2016 (COSEWIC, 2016). The stock was later prescribed under Section IX of the Fishery (General) Regulations in April 2022 and has been assessed to be above its anticipated LRP based on current observations, initiating the commencement of a ROE report. Each salmon stock comprises a Stock Management Unit (SMU) made of one or more Conservation Units (CUs) managed together with the goal of achieving a joint status. The IFR Coho stock management unit (SMU) consists of five CUs (Figure 1). Operationally, CUs are used for assessment of biological status under the Wild Salmon Policy (WSP) and each CU represents a fundamental unit of salmon biodiversity. Under the Precautionary Approach (PA) framework, the IFR Coho stock has been assessed as above its anticipated LRP based on both a CU based approach and aggregate abundance approach (Holt et al., 2023a,b. Pestal et al. 2023). A peer reviewed Fisheries Science Advice Report (FSAR) will be completed in late April 2024 to capture these findings for Interior Fraser Coho. In the meantime, there is high confidence that the stock is above its anticipated LRP and a rebuilding plan is not required as per Section IX of the FGR.

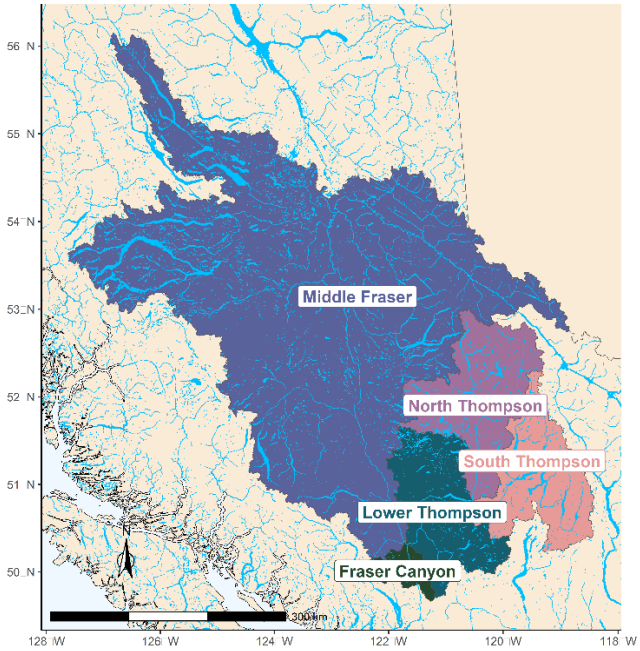

Figure 1. Map of the Interior Fraser Coho Stock Management Unit (SMU) and associated Conservation Units (CU) that make up the SMU and are represented in colour.

Through earlier recovery planning processes, various interim objectives and targets have been established for the IFR Coho stock. The Interior Fraser Coho Recovery team (2006) identified a series of long-term recovery objectives for the IFR Coho stock which include the following:

Recover the stock to a level where all subpopulations within each of the five CUs have a three-year geometric average escapement exceeding 1000 natural-origin Coho Salmon, i.e. excluding hatchery fish spawning in the wild;

Recover all five CUs to "Green" WSP status;

Recover all five CUs to their maximum historic abundance levels;

Recover to a level where the freshwater productive capacity within each of the five CUs is optimized;

Increase adult returns so that sufficient marine origin nutrients enter each population to optimize ecosystem function; and

Recover to a level that will allow harvest at greater levels than those currently permitted.

Additionally, through the Recovery Potential Assessment (Arbeider et al., 2020), a quantitative analysis of a dataset including natural-origin escapements from 1998-2016

was used to recommend a recovery target consisting of a 3-year geometric mean abundance of 35,935 natural-origin spawners within a 10-year timeframe for the Designatable Unit (a measurable unit similar to a CU as defined by COSEWIC). Although the recovery target has been met since 2020, ongoing low productivity has hindered the stock from returning to historic levels of prefishery abundance (Figure 2).

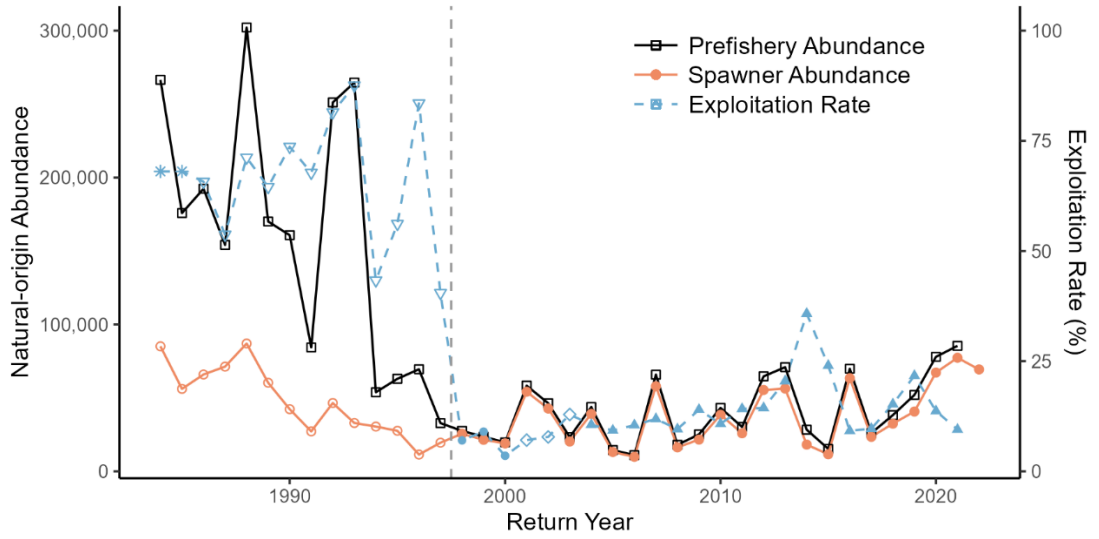

Figure 2. Interior Fraser Coho natural-origin spawner abundance (red line series, 1984-2022) and prefishery abundance (black line series, 1984-2021) uses the left axis and total Canadian and US exploitation rate (blue dashed line series, 1984-2021) uses the right axis. . The quality of the methodology used to assess spawning escapement changed starting in 1998 (dashed vertical line), which resulted in an increase in the number of systems being surveyed and a more rigorous methodology since 1998. Recent exploitation rate estimates have been made using the Fisheries Regulatory Assessment Model (FRAM 2004-2021, filled triangles), while historic estimates have varied between the Canadian Spreadsheet Model (CSM 2001-2003, open diamonds), Canadian genetic samples and US coded-wire-tag samples (GSI + CWT direct 1998-2000, filled circles), CWT direct for both countries (CWT direct 1986-1997), and two years of infilled estimates (average of 1986-1987, 1984-1985, asterisks). Note that 2022 does not have a harvest estimate available at the time the figure was made; the harvest estimate is not 0. Pre-fishery abundance (open squares) quality and consistency is dependent on both spawner abundance and exploitation rate methodology per year.

Canadian fishing mortality has been capped at 10% under the low status regime in the Pacific Salmon Treaty. However, Canada has managed domestic fisheries to a lower limit of 3-5% for most years (with some exceptions) for over two decades, since 1998 when the Minister initially responded to IFR Coho declines with widespread fishery closures. Management measures to restrict fishing mortality on IFR Coho are applied to fisheries where bycatch of this stock is possible (i.e. from May to October when these populations are expected to be encountered in Southern BC waters). These management actions include non-retention of wild Coho, time and area closures, and gear restrictions and requirements (e.g. mandatory release and "revival tanks" on commercial vessels). Further

details on these area and time closures can be found in the applicable IFMP (DFO, 2023). As a result, current management measures have maintained the stock above its anticipated LRP, aligning with the IFMP annual fisheries objectives.

Further details can be found from these sources:

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APPENDIX 12: AN IMPLEMENTATION FRAMEWORK FOR MARK-SELECTIVE FISHERIES FOR SOUTHERN BRITISH COLUMBIA CHINOOK SALMON

Preface: This framework is not a legally binding instrument and does not fetter the Minister's authorities set out in the Fisheries Act. It is an evergreen document intended to be used by Fisheries and Oceans Canada (DFO) to guide decision making on mark-selective fisheries. It may be updated based on new information from on-going studies and/or post-season review information.

Version: February 13, 2024, V5

A. Introduction

The Pacific Salmon Strategy Initiative (PSSI) launched in June 2021 and is the largest, most transformative investment Canada has made in salmon. The PSSI aims to stem the steep decline of many Pacific salmon populations and to protect and rebuild stocks where possible by implementing a series of immediate and long-term solutions that focus on 4 key areas: Conservation and Stewardship; Salmon Enhancement; Harvest Transformation; and Integration and Collaboration.

Hatchery mass marking (MM) and mark-selective fisheries (MSF) are tools that can be used to help achieve Fisheries and Oceans Canada conservation and sustainable use objectives for Pacific salmon while advancing reconciliation objectives. While this framework is intended to inform implementation of MSFs for southern British Columbia Chinook salmon, the Department will also rely on Fisheries and Oceans Canada's *Mass Marking for Hatchery Management: Decision Criteria (January 2024)*, which will be used to guide new mass marking pilot projects.

B. Definition – Mark-Selective Fishery

A Mark-Selective Fishery, or MSF, is a fishery in which regulations permit retention of adipose fin-clipped marked hatchery-origin fish and requires the full or partial release of unmarked fish (SFEC (22)-1). The intention is to create a selective fishing opportunity that imparts a conservation benefit to unmarked, often wild, fish while providing fishery benefits on marked hatchery fish. As with any fishery, MSFs may be one of many tools used on their own or together with other measures, such as size or retention limits and time and area closures, to manage harvest impacts on target stocks and bycatch/incidental mortality of non-target stocks.

C. Purpose of the Implementation Framework

The purpose of this framework is to outline a risk-based, transparent and collaborative process for the evaluation, decision making, mitigation measures, implementation, review and improvements of MSFs targeting adipose fin-clipped hatchery Chinook Salmon in a manner consistent with the regulatory and policy requirements for Pacific salmon management (see Section F). An adaptive management approach has been adopted that makes use of pilot MSFs that address key considerations in a constructive manner and supports learning to inform decision making around potential future MSFs. This framework is intended to be applied in conjunction with *Mass Marking for Hatchery Management: Decision Criteria (January 2024)*.

D. MSF Objectives

1. **Conservation** – Support the sustainability of fish stocks, particularly those of conservation concern, by limiting and quantifying fishery impacts from all sources relative to conservation objectives. Projected harvest and fishery mortality cumulative impacts must be consistent with conservation and rebuilding objectives for stocks of conservation concern. Salmon stocks of concern are listed in the Southern BC Salmon Integrated Fisheries Management Plan (IFMP).

2. **Sustainable use** – Provide harvest opportunities consistent with salmon allocation priorities, including the provision of priority to First Nations Food, Social, and Ceremonial (FSC) fisheries as well as Treaty and rights-based fisheries after conservation.

3. **Hatchery genetic management** – Hatcheries have provided harvest benefits to all harvest sectors and in some cases have supported the maintenance and rebuilding of wild populations. While hatchery benefits can be significant, it is essential that to the extent practicable hatchery produced fish do not adversely impact the genetic make-up or biodiversity of wild origin stocks in natural spawning environments, or in some cases when fish are selected for hatchery brood stock. Mass marking of hatchery production enables the use of MSFs to selectively remove marked hatchery fish, before they return to their hatcheries of origin or adjacent natural spawning locations thereby mitigating the genetic impacts of hatchery fish on wild spawners.

E. Reconciliation with Indigenous Peoples

Fisheries and Oceans Canada has a lead role in the transformation of Canada's relationship with Indigenous peoples. Canada recognizes that fisheries, oceans, aquatic habitat and marine waterways are of great social, cultural, spiritual and economic importance to many Indigenous peoples. Canada is therefore committed to building renewed nation-to-nation, Inuit-Crown and government-to-government

relationships with First Nations, Inuit and Métis peoples. As part of this commitment, Canada has developed the Fisheries and Oceans Canada and the Canadian Coast Guard Reconciliation Strategy (40947208.pdf (dfo-mpo.gc.ca)). This strategy will provide guidance in the engagement and collaboration with Indigenous peoples in the management of fisheries, including MSFs for Chinook Salmon through this framework. The Department is also supporting the implementation of the United Nations Declaration Action Plan (UNDA), and is leading on a number of measures related to fisheries, habitat, and aquatic resources.

Measure 37 of the UNDA speaks to DFO's commitment to "enhance collaborative tools, agreements, and transparent approaches to better deliver on the collaborative design, development, delivery and management of fisheries, as well as conservation and protection of fish habitat. It also speaks to DFO and Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) continuing to pursue fisheries-related collaborative governance opportunities through nation-to-nation, Inuit-Crown and government-to-government negotiations. The Department is negotiating and implementing collaborative management processes with a number of First Nations through Treaties, reconciliation agreements, and other collaborative processes.

This framework is intended to help guide discussions with First Nations where MSFs are under consideration and in support of these Departmental commitments to reconciliation.

Box 1: Example of a Collaborative Management Agreement

Fraser Salmon Collaborative Management Agreement (FSCMA): The Fraser Salmon Management Council (FSMC) is a mandated Indigenous organization with First Nations membership from throughout the Fraser River watershed and approach waters. The FSCMA establishes a Tier 2 governance framework between the FSMC and the Department, including the joint Fraser Salmon Management Board (FSMB) and Joint Technical Committee (JTC), that supports engagement, decision making, and recommendations relating to management of Fraser River salmon. The FSMB and JTC are guided by their annual work plan which sets shared priorities for the year ahead, including some of the issues identified in this letter (e.g., management approaches for Fraser River Chinook salmon).

F. Regulatory and Policy Context

Regulatory and policy frameworks that support conservation and sustainable use of resources and provide important guidance to the implementation of MM and MSFs, include:

1. **Fish Stocks Provisions (FSP) under the amended Fisheries Act -** Fisheries Act (justice.gc.ca)
   The FSP establishes binding obligations on the Minister to 1) maintain major fish stocks at levels necessary to promote sustainability, 2) develop and implement rebuilding plans on fish stocks that have declined to or below their Limit Reference Point (LRP). The LRP is the level below which serious harm to the stock would occur. These obligations apply to stocks that have been prescribed in regulation.

2. **Species at Risk Act (SARA) -** Species at Risk Act (justice.gc.ca)
   a. Committee on the Status of Endangered Wildlife in Canada (COSEWIC) - Cosewic / Cosepac - Home

   The purpose of SARA is to protect wildlife species, including Pacific salmon, from becoming extinct, endangered or threatened and to provide for their recovery should they reach those levels of special concern.

3. **Sustainable Fisheries Framework -** Sustainable fisheries framework (dfo-mpo.gc.ca)
   The Sustainable Fisheries Framework provides the basis for ensuring that Canadian fisheries support conservation and sustainable use of resources by using precautionary and ecosystem-based approaches.

4. **Wild Salmon Policy -** Canada's Policy for Conservation of Wild Pacific Salmon | Pacific Region | Fisheries and Oceans Canada (dfo-mpo.gc.ca)

   The Wild Salmon Policy (WSP) provides a framework of guiding principles and strategies to meet the following objectives that are crucial in considering where MSFs might be effectively implemented;
   i. Safeguard the genetic diversity of wild Pacific salmon
   ii. Maintain habitat and ecosystem integrity, and
   iii. Manage fisheries for sustainable benefits.

5. **Policy for Selective Fishing -** https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/252358.pdf

   Selective fishing strategies, like MSFs, can reduce fishing mortality on non-target stocks and species through avoidance or release. The objective of DFO's Policy for Selective Fishing (2001) "is to ensure that selective fishing techniques and practices are adopted where appropriate in all fisheries in the Pacific Region, and that there are continuing improvements in harvesting gear and related practices".

6. **Salmon Allocation Policy -** https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/240366.pdf

   After conservation needs are addressed, the Salmon Allocation Policy (SAP) provides important guidance on how any sustainable harvest opportunities should be shared among First Nations, recreational and commercial harvesters. The Salmon Allocation Policy (SAP) is currently under review and considerations around allocation priorities related to bycatch, incidental mortality, and terminal fisheries or other approved updates to the policy will inform implementation of this framework.

7. **Pacific Salmon Treaty -** The Pacific Salmon Treaty - Pacific Salmon Commission (psc.org)

   The significant cross-border migration and harvest of US-origin and Canadian-origin Coho and Chinook salmon stocks coupled with associated inter-dependencies between international monitoring and assessment programs, result in significant international (U.S. / Canada) relevance of MM and MSF to the signatories to the Pacific Salmon Treaty. Beginning in the mid-1990's, the US initiated Coho MM and MSFs with Canada initiating similar programs shortly after. MM of hatchery Chinook and associated MSFs have been administered as a fishery conservation measure by the U.S. since the early 2000's and more recently have been implemented on a limited basis by Canada.

   The 2019 amendments to the Pacific Salmon Treaty outlined a number of conditions or understandings related to the conduct of MSFs relevant to the Treaty. These include employing MSFs to conserve naturally spawning fish and ensuring adequate monitoring and sampling programs to document interception and harvest. In addition, Canada and the US are required to report through the Pacific Salmon Commission (PSC) on each party's proposed and implemented MM and MSF activities and supporting data (which are reviewed by the bilateral Selective Fisheries Evaluation Committee (SFEC)). The 2019 Pacific Salmon Treaty renewal also resulted in the creation of a MSF Fund intended to provide resources to support MM and hatchery sampling, estimating incidental mortality rates, and estimating exploitation rates of indicator stocks encountered in MSFs.

G. Operational Context

1. Collaboration and Integrated Planning

Fisheries and Oceans Canada will consult with affected First Nations while using stakeholder advisory processes to engage others who are interested throughout the process of developing and implementing MM and MSF. Fisheries and Oceans Canada is leading a technical workshop process to work collaboratively with the Department and each other to address implementation opportunities and challenges. These opportunities include, but are not limited to, development and implementation of improved monitoring programs (e.g., standards, methods, and collaborative projects) and participation in an open and transparent process to consider MSF decisions using this framework to refine hatchery production and fishery management strategies. It is expected that the approach to implementation will be adaptive and will be informed by annual review and adjustments to programs to support implementation.

Through improved integrated planning processes and use of decision-support tools such as risk assessment, the Department aims to advance adaptive and integrated salmon management through activities such as setting biological targets for populations and explicit implementation of the Precautionary Approach (PA), i.e., removal rates, rebuilding targets, rebuilding exploitation rates (ERs), and incorporating habitat and ecosystem assessments to inform decision-making, particularly with respect to rebuilding stocks.

Additional work will also be done to update heat maps (See Appendix A for example) using temporal and spatial data of coded-wire tag (CWT) population encounter rates in fisheries with pertinent information on which populations get caught where and when. This work will provide additional information to determine MSF locations and associated hatchery MM to support them. Adapting marking plans and/or MSF strategies will also need to be considered where a MSF is likely to intercept non-target populations of conservation concern.

a. Fisheries Management Toolbox

Sustainable harvest management can be achieved through a number of strategies depending on the status of the targeted stock and any co-migrating stocks as well as characteristics of the fishery in question (e.g., by regulating time, area, gear type, expected effort, etc.). MSF rules on their own or combined with other measures are an example of a harvest management approach that integrates one or more selective fishing strategies and provides an additional tool in the fisheries management toolbox.

2. Stock and fishery assessment considerations

This section outlines some of the history of stock assessment programs and more recent updates that will better inform assessment of mark-selective fisheries.

a. Estimation of Exploitation Rate, Stock Composition and Marine Survival Rate

The adipose fin clip is used as a visible external mark to indicate that a Chinook or Coho Salmon is of hatchery origin and is required to support a MSF opportunity. It has also long been used to indicate the presence of a coded-wire tag (CWT). Since the early 1970s in both the US and Canada, CWTs in hatchery stocks and some wild stocks recovered in fisheries, hatcheries, and spawning grounds have been used to assess the catch distribution, exploitation rate, and marine survival rate of the coded-wire tagged stocks. The ability to visually identify the presence of a CWT by the absence of the adipose fin in fishery and escapement sampling was a key contributor to the effectiveness of the CWT program and sampling design over several decades. Furthermore, these marked and tagged stocks often served as indicators of co-migrating unmarked stocks for the purposes of stock and fisheries assessments. For stocks impacted by mark selective fisheries, this assumption no longer holds since fishers differentially retain marked fish in MSFs.

However, with the application of the adipose fin clip for MM and MSF purposes on Coho Salmon in the mid-90's, not all clipped fish contained a coded-wire tag, and an alternative means of detecting CWTs was therefore required. This is when electronic tag detection was introduced with the use of magnetic wands to detect the presence of a CWT. On the marking end, CWTs were applied to both clipped and unclipped fish to allow for the assessment of marine survival and exploitation rate in fish that were exposed to MSFs and those that were released if captured. This assessment procedure was termed double index tagging, or DIT, and was evaluated by the PSC Selective Fisheries Evaluation Committee (SFEC (21)-1).

In recent years, increased mark-rates for Chinook and Coho has decreased voluntary head submission in the recreational fishery due to sampling fatigue. Due to this and other factors, recoveries of Coho coded-wire tags have become insufficient for exploitation rate analyses, and current Coho exploitation rates are based on a modeled approach. However, the PSC Chinook Technical Committee (CTC) does still rely on the recoveries for Chinook. Reduced recoveries of coded-wire tags has increased the uncertainty of fishery impacts on unmarked/wild stocks that may be intercepted in MSFs. To address this issue the

PSC Calendar Year Exploitation Rate Working Group (CYER WG) developed and evaluated alternative methods to assess exploitation rates for unmarked stocks impacted by MSFs. The recommended method, which performed very well under extensive testing, addresses several outstanding challenges as outlined in Box 2 below.

Additionally, in order to improve coded-wire tag recoveries and assessments, plans to purchase additional electronic tag detection equipment to facilitate continued double index tag (DIT) sampling of marked and unmarked Chinook are included in the Pacific Salmon Strategy Initiative.

Given the more varied life history and migratory characteristics of Chinook Salmon compared to Coho Salmon, there are added complexities for stock and fishery assessment purposes that are being investigated in on-going studies as part of the adaptive and phased approach to MSF implementation. Parentage based tagging, otolith thermal marking, and genetic stock identification are alternative assessment approaches that are showing some promise at this time.

Box 2: Problems and Mitigation Measures Associated With MSF Impacts on CWT Sampling and Analysis

Problem 1: Canada is not recovering double index tag (DIT) in all fisheries (mainly recreational).

> Mitigation 1: Lack of unmarked CWT recoveries of DIT pair no longer an issue with use of single index tag (SIT). SIT analytical methods are exploitation rate (ER) estimation methods that use cohort analysis models that rely only on recovery of CWT from marked fish (PSC Technical Report No. 50).

Problem 2: Canada's regulations are often poorly aligned with spatial/temporal scales of CWT recoveries and catch monitoring programs.

> Mitigation 2: The Mixed Fishery Adjustment (MFA) developed by CYER deals with unaligned fisheries (PSC Technical Report (2024) [In preparation]).

Problem 3: Canada has implemented several mixed-bag MSF regulations for Chinook and Coho and no previous analytical methods were able to accurately estimate ER of unmarked fish affected by these mixed-bag regulations.

> Mitigation 3: The MFA accurately estimates unmarked ERs for mark-selective fisheries with mixed-bag regulations (PSC Technical Report (2024) [In preparation]).

i. Fisheries Related Incidental Mortality (FRIM)

Further investigation of Fisheries Related Incidental Mortality rates and description of uncertainties across different gear types is underway. The B.C. Salmon Restoration and Innovation Fund (BCSRIF), a contribution program funded jointly by the federal and provincial government that supports protection and restoration activities for Pacific salmon and other priority wild fish, invested in University of British Columbia - Sport Fishing Institute of B.C.(UBC-SFI) studies of short and long-term mortality rates associated with catch and release fisheries. Next steps include reviewing catch monitoring programs and identifying areas and opportunities for improvement (catch reporting and sampling programs including estimation of FRIM), and additional biological sampling.

ii. Parentage Based Tagging (PBT) and Genetic Stock Identification (GSI)

Parentage Based Tagging (PBT) is a genetic method of assigning individual fish back to the hatchery and brood year of their parents. A preliminary investigation of the use of PBT as a potential alternative 'tag' to monitor stock-specific fishery mortality using molecular genetics techniques is complete (Beacham et al. 2021). To continue to vet this method, Canada continues to PBT the majority of hatchery Chinook Salmon and evaluate analytical methods used to derive ER from PBT data. Next steps will be to evaluate the effectiveness of broad-scale use of genetic methods to identify the age and hatchery of origin of individual Canadian Chinook Salmon with PBT and the use of GSI to enable identification of mixed-stock fishery samples to Conservation Unit. Note that any widespread dependence on PBT would require sampling from all Canadian and US fisheries management agencies coast-wide. Alternatives to the CWT program could be important if future expansion of MSF requires new or modified assessment programs.

iii. Proportionate Natural Influence (PNI)

Preliminary investigation of hatchery straying rates and PNI metrics using all sources of data, including CWT, thermally-marked otoliths, and genetic stock identification (GSI) is underway. Reviewing and refining genetic monitoring and reporting programs using the PNI metric, including developing population designations based on Withler et al. (2018) is planned along with developing methodology to consistently and repeatably calculate the PNI metric for hatchery genetic influence. PNI information will help to inform decisions on MSF implementation in times

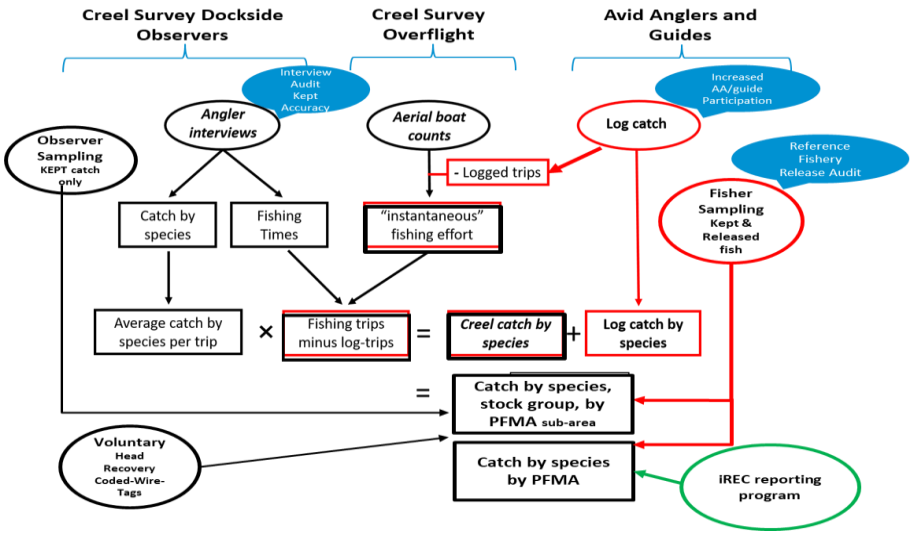
and areas where one objective could be to increase PNI (i.e., by selectively removing hatchery origin marked fish on spawning grounds).

b. Monitoring and Enforcement

Regardless of the harvest management approach taken, population and fishery monitoring, including fishery enforcement, catch monitoring, and escapement estimation programs are required to evaluate fishery outcomes and adaptively manage MSFs. To this end a risk-based monitoring strategy based on the significance and uncertainty of a particular fishery or stock status parameter should be adopted as per the Fishery Monitoring Policy under the Sustainable Fisheries Framework.

i. Enhanced fishery monitoring activities

Through a series of investments, including PST Renewal funding, BCSRIF, and more recently PSSI, improvements have been and continue to be made to catch monitoring and sampling programs. These include: expanded creel survey coverage to areas where Chinook MSF are occurring (overflights, dockside interviews, biological sampling of retained catch, creel survey audits); a DFO-led Reference fishery (trial) to independently conduct biological sampling and data collection for at-sea releases; and supplemental sampling by First Nations and the Avid Angler Program. Future implementation of MSF will need to consider fishery monitoring requirements and availability of resources to implement any enhanced monitoring activities.



<u>Figure 1:</u> Overview of Monitoring Plan including Enhanced Monitoring Activities

a. Reference Fishery

The goal of the Reference fishery is to address concerns that release estimates are from fisher-dependent data (e.g., fisher recall during creel survey interviews). The Reference fishery independently verifies hatchery and wild fish encounter rates and is intended to increase the accuracy and dependability of fishery monitoring data. Biological sampling will be used to compare mark-to-unmark ratios and legal-to-sublegal size ratios of releases and to understand the stock composition of the releases. This will also allow for MSF impacts by stock to be determined for retained and released fish.

b. Creel Audit

Reference fishery data collected will also be used to compare (audit) against official estimates generated by Creel and/or iREC programs.

3. An Adaptive and Phased Approach to MSF Implementation

Application of MM and MSF is expected to adapt as work is completed and reviewed. Section H below is meant to provide some interim guidance on how MSFs might be implemented in the near term based on work that has already been done and lessons learned to date from that work. Given the adaptive strategy for MSF implementation, this interim guidance for MSF implementation will be reviewed periodically and updated based on the results of on-going and future work.

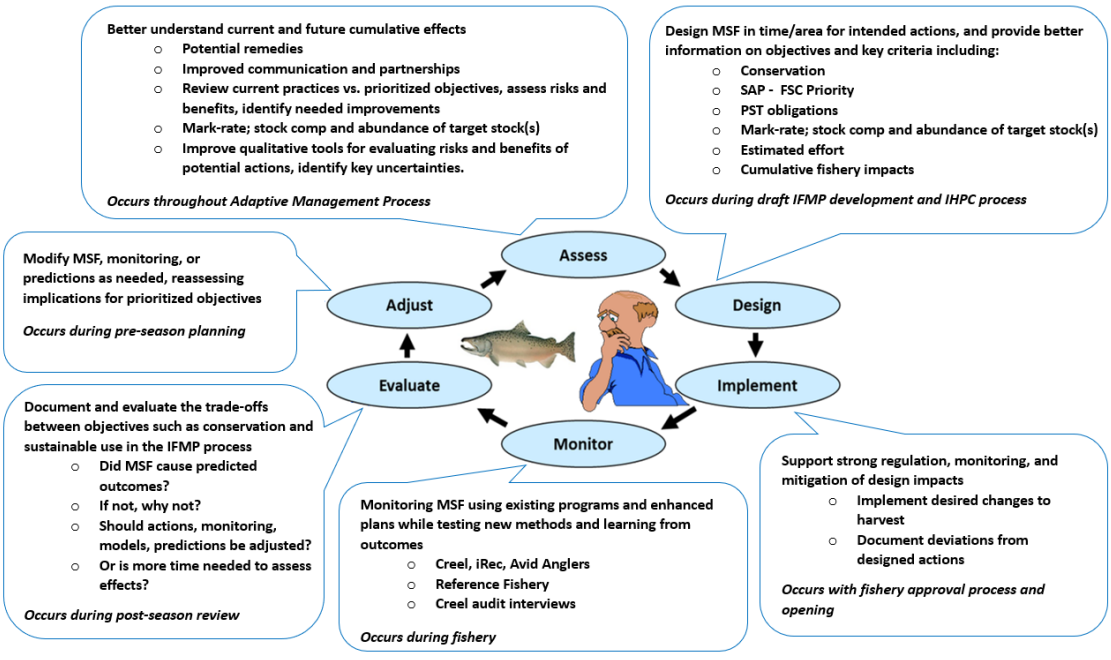


Figure 2: Illustration of considerations in an Adaptive Management Process

H. MSF Implementation Framework – Key Criteria for Decision Making

The implementation approach to MSFs and MM is expected to be collaborative and modified over time as part of an adaptive strategy based on lessons learned. A set of key criteria based on the MSF objectives and context have been developed to assist in MSF decision making during this process. A template to address these key criteria will be developed to support evaluation. Summaries of the degree and manner in which a MSF proposal* meets the requirements of the objectives in the framework will be used to support consultation and engagement where possible and to inform final decisions. Different groups may have different views on the responses to these objectives for the same MSF. Gathering of those diverse views will be an important part of the engagement on MSF planning that will occur during the existing IFMP development process before final decisions are made.

*note - MSF may be proposed by any First Nation, stakeholder advisory process, or DFO.

1. **Conservation:** The proposed MSF limits impacts on stocks of conservation concern to acceptable risk levels. Factors contributing to this assessment include;

    a. Expected composition of any stocks of concern in the MSF fishing time/area.
        - This will be a major factor in determining the vulnerability of stocks of conservation concern to all fisheries, including MSFs. It is also expected that which stocks are of conservation concern may change over time.

    b. Expected fishing effort compared to expected fishing effort response.
        - This is a key factor in estimating the impact of an MSF on stocks of concern compared to management measures like complete closures or full retention regulations.

    c. Expected mark rate during the time/area of the MSF.
        - This will provide important information on the portion of total catch to be affected by release regulations in MSFs and subsequently the degree of effort response compared to complete closure regulations.

    d. Expected release and drop-off mortality of the fishing gear used in the MSF.
        - In combination with factors a to c above, the expected release and drop-off mortality will help to determine the degree of impact (qualitatively or quantitatively) that a particular MSF might have on stocks of conservation concern.

    e. Fishery cumulative impacts
        - The cumulative incremental impacts on stocks from all fishery sources / proposals will be considered relative to the current level of impacts and total allowable harm permitted.

Note that the quality and adequacy of the above data will inform the certainty level in the following risk based impact analysis on stocks of conservation concern.

The following approach to evaluating the conservation performance of proposed MSFs is risk based and adapted from the *DFO Draft Chinook Evaluation Framework, February/2021 version.*

Table 1: Percentage Increase in Total Mortalities – use the table below to describe the expected (if any) increase in fishing mortality on any identified stocks of concern:

Category*	Percentage Increase in Total Mortalities
Low	<5%
Moderate	Between 5% and 10%
High	>10%

*These category classifications are modified from the *DFO Draft Chinook Evaluation Framework, February/2021 version* to better reflect the Department's assessment of cumulative fishery mortalities and total allowable harm. These values are intended to be a general guide and where possible evaluations will quantitatively assess the relative change in total mortalities expected relative to quantitative conservation objectives / mortality limits. (E.g., a stock of concern being managed to less than 5% total mortality may still not support increased impacts in the "Low, <5%" category.

Table 2: Certainty

Category	Expected Level	Qualitative Description
Likely	Greater than or equal to the 70th percentile	There is some evidence to suggest the expected fishery impact is within the range noted in the previous table.
Low degree of certainty	Less than the 70th percentile	There is little evidence to support the range of expected fishery impacts noted in the previous table
Unknown	No measure of uncertainty	There is no evidence to inform the certainty of the expected fishery impact.

Table 3: Risk

Category	Expected Level
Low	Low percentage increase in total mortalities with likely uncertainty
Moderate	Moderate percentage increase in total mortalities with likely certainty, or low percentage increase in total mortalities with low certainty
High	High percentage increase in total mortalities with any level of certainty, or moderate percentage increase in total mortalities with low or unknown certainty

2. **Consistency with legal obligations to First Nations and salmon regulatory and policy frameworks:** Following the provision of priority to First Nations Food, Social, and Ceremonial (FSC) fisheries, Treaty and rights based fisheries, MSF implementation is consistent with the regulatory/policy framework for Pacific salmon fisheries management. Key elements of this framework include;

    a. Fish Stocks Provisions under the *Fisheries Act*
    b. *Species at Risk Act*
    c. Sustainable Fisheries Framework (including national Fishery Monitoring Policy)
    d. Wild Salmon Policy
    e. Salmon Allocation Policy (including priority of Aboriginal and Treaty rights)
    f. Selective Fishing Policy
    g. Pacific Salmon Treaty
    h. Indigenous Reconciliation
    i. Licensing regulations

3. **Reconciliation with Indigenous Peoples:** The Department meaningfully engages with Indigenous Peoples and addresses obligations in agreements to inform evaluation of MSFs including the development process, planned implementation and evaluation, as well as the expected distribution of benefits.

4. **Target Stocks:** Proposed MSF harvests target stocks at sustainable levels. This requirement applies to both marked and unmarked stocks with harvestable surpluses. Where sufficient data are not available to identify stock status relative to quantitative sustainable harvest limits, such as Limit Reference or Target Points, the precautionary approach will apply.

5. **Fishery Monitoring:** Proposed MSF has an accompanying monitoring plan to address identified risks in a manner that maintains or improves the certainty of fishery data. Marked and unmarked encounter rates, retained and released catch, and fishing effort levels are key parameters to be monitored. Guidance on the scope and intensity of fishery monitoring in a risk based manner is provided in the Fishery Monitoring Policy under the Sustainable Fisheries Framework (Fishery Monitoring Policy (dfo-mpo.gc.ca)).

6. **Hatchery Genetic Management**: Proposed MSF provides support to Canadian hatchery genetic management by selectively removing marked hatchery origin spawners from potentially occupying limited natural spawning habitats and allowing unmarked wild fish to predominate in those locations. This will be particularly important for stocks of concern where wild stock biodiversity is a key requirement to support rebuilding efforts.

7. **Socio-economic Benefits:** Proposed MSF provides social and economic benefits to potential harvesters consistent with the previously described policy and regulatory framework for salmon management. These benefits may be in the form of actual retained catch or in the form of the opportunity to harvest and retain catch where closures might previously have been in effect.

Appendix A – **(EXAMPLE ONLY)** Chinook Adipose Clip Mark rate by PFMA and month. Black numbers are average of mark rate from 2018-2022 creel catch estimate (retained and released data) and biological sample data expanded to catch. Cells outlined in blue with blue numbers are iREC (retained and released data) from 2015-18, will be updated. Red outlined cells are data from WCVI troll fishery 2013-18 (release sample data). White outlined cells were interpolated from surrounding time or area. Blank areas will be filled in with more recent iREC.

PFMA	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ave
111						8%	9%	11%					9.0%
11						11%	10%	10%					11.0%
12						20%	17%	11%	13%				15%
13	32%	22%	21%	23%	27%	14%	12%	9%	10%	26%	24%	29%	21%
14	21%	29%	28%	17%	20%	17%	14%	12%	11%	13%		17%	18%
15			14%	11%	18%	18%	19%	20%	18%				17%
16					40%	38%	30%	24%	6%				28%
17	61%	52%	62%	23%	46%	42%	37%	30%	27%	58%	44%	50%	44%
18	67%	64%	59%	50%	70%	50%	53%	42%	50%	59%	47%	63%	56%
28	55%	47%	45%	38%	44%	57%	48%	10%	32%	60%	56%	55%	46%
29	43%	44%	46%	32%	34%	34%	26%	3%	8%	10%	24%	38%	28%
19	55%	67%	62%	79%	76%	62%	68%	31%	37%	59%	50%	52%	58%
20	71%	71%	76%	80%	92%	69%	40%	21%	30%	76%	83%	67%	65%
21			66%	58%	65%	57%	50%	13%	10%				45%
23			51%	46%	56%	55%	47%	14%	10%				40%
24				88%	49%	48%	38%	11%	8%				40%
25					30%	25%	13%	8%	27%				21%
26					26%	18%	9%	11%	23%				18%
27					33%	13%	12%	11%	22%				18%
121			62%	55%	78%	69%	60%	47%	50%				60%
123			62%	55%	78%	50%	42%	22%	22%				47%
124			62%	55%	78%	49%	38%	19%	24%				46%
125				60%	46%	24%	15%	12%					31%
126				60%	46%	17%	21%	17%					32%
127				60%	46%	10%	14%	18%					29%

Appendix B – Fisheries Related Incidental Mortality (FRIM)

a. Catch and Release Estimation

The creel program, in conjunction with logbooks and the Avid Angler program, will be used to estimate total catch and releases as in previous years. An estimate of 20% mortality is currently applied to all releases when evaluating the current mark-selective fisheries (IFMP currently notes 15% for recreational Chinook trolling and mooching). Post-release mortality studies are proposed/underway in order to provide a more accurate estimate reflective of the current fishery. Results will be integrated into future mortality estimates when they become available.

b. Incidental Mortality Rates (Appendix D, TCCHINOOK (2023)-04):

Incidental mortality rates applied in the Phase II PSC Chinook Model. Rates in original Model were applied to all years. In the current Model, rates in some fisheries vary in accordance to changes in management regulations.

Fishery Number	Fishery	Rates applied in Model CLB 2203			Applicable Years
		Sublegal Rate	Legal Rate	Dropoff	
27	Alaska Sport	0.123	0.123	0.036	All
28	Central B.C. Sport	0.123	0.123	0.036	All
29	North B.C. AABM Sport	0.123	0.123	0.036	All
30	North B.C. ISBM Sport	0.123	0.123	0.036	All
31	West Coast Vancouver Island AABM Sport	0.123	0.123	0.069	All
32	West Coast Vancouver Island ISBM Sport	0.123	0.123	0.069	All
33	North of Falcon Sport	0.123	0.123	0.069	All
34	South of Falcon Sport	0.123	0.123	0.069	All
35	Puget Sound North Sport	0.123	0.123	0.145	All
36	Puget Sound Other Sport	0.123	0.123	0.145	All
37	Canada Yakutat Freshwater Net	0.9	0.9	0	All
38	Strait of Georgia Sport	0.322	0.322	0.069	1979–1981
38	Strait of Georgia Sport	0.123	0.123	0.069	1982–Current
39	B.C. Juan de Fuca Sport	0.322	0.322	0.069	All
40	Columbia River Sport	0.123	0.123	0.069	All
41	Alaska Transboundary River Terminal Sport	0.123	0.123	0.069	All
42	North B.C. Freshwater Sport	0.123	0.123	0.069	All
43	Central B.C. Freshwater Sport	0.123	0.123	0.069	All
44	West Coast Vancouver Island Freshwater Sport	0.123	0.123	0.069	All
45	Fraser River Freshwater Sport	0.123	0.123	0.069	All
46	Strait of Georgia Freshwater Sport	0.123	0.123	0.069	All
47	Puget Sound Freshwater Sport	0.123	0.123	0.069	All
48	South of Falcon Freshwater Sport	0.123	0.123	0.069	All