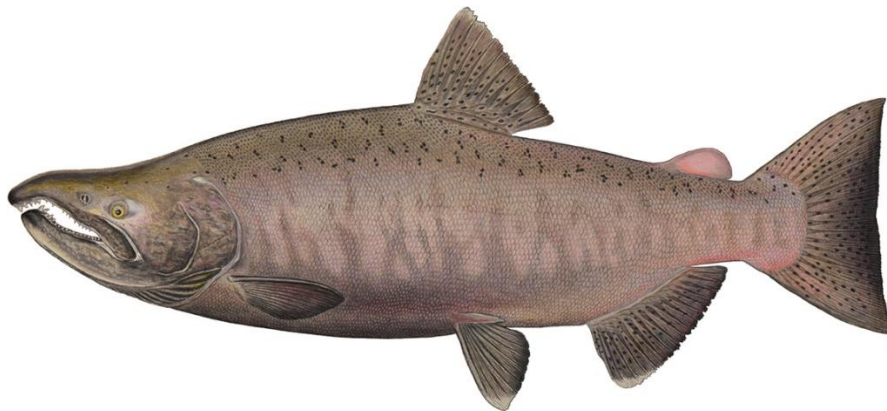


PACIFIC REGION

**INTEGRATED FISHERIES
MANAGEMENT PLAN**
APRIL 1, 2024 - MARCH 31, 2025

SALMON
TRANSBOUNDARY RIVERS



Oncorhynchus tshawytscha

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Department of Fisheries and Oceans 2024.

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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>

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24 Hour Recorded Information (Salmon Hot Line-Yukon) .. Whitehorse (867) 393-3133

..... Toll Free (877) 725-6662

Turn In Poachers (TIPP) Toll Free (800) 661-0525

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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INDEX OF WEB-BASED INFORMATION

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

Our Vision, Latest News, Current Topics

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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

MAIN PAGE

<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*

PACIFIC REGION FISHERIES MANAGEMENT

MAIN PAGE

<http://www.dfo-mpo.gc.ca/fm-gp/index-eng.htm>

Commercial Fisheries, Aboriginal Fisheries, Recreational Fisheries, Maps, Notices and Plans, International Management, Enforcement

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 new 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 ON-LINE LICENSING SYSTEM (NOLS)

<https://fishing-peche.dfo-mpo.gc.ca>

E-mail: fishing-peche@dfo-mpo.gc.ca

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Telephone: 1-877-535-7307

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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 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 Tye test fishery; Counting facilities; Post-season Review; Contacts

YUKON TRANSBOUNDARY RIVERS AREA

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

Fisheries Management; Recreational fisheries; Habitat; Licencing; Contacts

PACIFIC REGION SALMONID ENHANCEMENT PROGRAM

MAIN PAGE

<http://www.pac.dfo-mpo.gc.ca/sep-pmvs/index-eng.html>

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).

PACIFIC REGION POLICY AND COMMUNICATIONS

MAIN PAGE

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

Media Releases; Salmon Updates, Backgrounders, Ministers Statements, Publications; Contacts

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-especies/sara-lep/index-eng.html>

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

PACIFIC REGION SCIENCE

MAIN PAGE

<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
AC	Allowable Catch
ACCASP	Aquatic Climate Change Adaptation Services Program
ADFG	Alaska Department of Fish and Game
AHC	Area Harvest Committee
AFS	Aboriginal Fisheries Strategy
ATP	Allocation Transfer Program
BLC	Base-Level Catch
B _{MSY}	Biomass at Maximum Sustainable Yield
BNA	Basic Needs Allocations
BTR	Base Terminal Run
CAFN	Champagne and Aishihik First Nations
C&P	Conservation and Protection Unit of DFO
CCTAC	Canadian Commercial Total Allowable Catch
CTAC	Canadian Total Allowable Catch
CEDP	Community Economic Development Program
CN	Chinook Salmon
CO	Coho Salmon
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
CTC	Chinook Technical Committee
CU	Conservation Unit
CWT	Coded Wire Tag
CYFN	Council of Yukon First Nations

GLOSSARY AND LIST OF ACRONYMS

ACRONYM	PHRASE
DPI	Dedicated Public Involvement
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
FRP	Fraser River Panel
FSC	Food, Social and Ceremonial
FSMB	Fraser Salmon Management Board
FSMC	Fraser Salmon Management Council
GN	Gill Net
GSI	Genetic Stock Identification
HA	Harvest Agreement
HG	Haida Gwaii
iARC	Internet Annual Recreational Catch survey
ITQ	Individual Transfer Quota
IHPC	Integrated Harvest Planning Committee
IFR	Interior Fraser River
iREC	Internet Recreational Effort and Catch survey
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
NMCA	National Marine Conservation Area Reserve
NOLS	National On-line Licensing System
NWA	National Wildlife Area
PA	Precautionary Approach
pDBE	Proportional Difference Between Estimates

ACRONYM	PHRASE
PICFI	Pacific Integrated Commercial Fisheries Initiative
PFMA	Pacific Fisheries Management Areas
pMA	Proportional Management Adjustment
PSC	Pacific Salmon Commission
PSM	Pre-Spawn Mortality
PSSI	Pacific Salmon Strategy Initiative
PST	Pacific Salmon Treaty
RCA	Rockfish Conservation Area
SARA	<i>Species at Risk Act</i>
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
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 northwestern British Columbia and southwestern Yukon 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.

The document is organized so that the over-arching regional considerations are presented first, followed by specific details pertaining to the salmon management, enhancement, stock assessment and compliance plans for each of the Transboundary rivers. Since the detailed watershed-specific plans tend to change frequently, they are included within Section [13](#) to facilitate prompt updating when necessary.

NEW FOR 2024/2025

Highlights/Key Changes for the 2024/25 Transboundary IFMP

a) Alsek River:

- Angling for salmon (including catch and release) prohibited effective April 1 to August 14.
- Retention of Chinook and Sockeye salmon in the recreational fishery is prohibited until in-season abundance confirms allowable catch is available.

b) Stikine River:

- No directed commercial fishery for Chinook salmon in 2024. Retention of Chinook salmon incidentally caught in commercial Sockeye or Coho fishery is prohibited.
- Consistent with the Pacific Salmon Strategy, the management strategies outlined within the IFMP for Stikine River Chinook salmon include the continuation of longer-term commercial fishery closures for stocks of conservation concern.
- Directed commercial fishery opportunity for Sockeye salmon anticipated in 2024 contingent on in-season abundance.
- Directed commercial fishery opportunity for Coho salmon planned - harvest limited to 5,000 fish (*Pacific Salmon Treaty – Chapter 1*).
- Angling for salmon (including catch and release) is prohibited in the Tahltan River June 1 to August 31.
- Retention of Chinook salmon in the recreational fishery prohibited.

c) Taku River:

- No directed commercial fishery for Chinook salmon in 2024. Retention of Chinook salmon incidentally caught in commercial Sockeye or Coho fishery is prohibited.
- Consistent with the Pacific Salmon Strategy, the management strategies outlined within the IFMP for Taku River Chinook salmon include the continuation of longer-term commercial fishery closures for stocks of conservation concern.
- Directed commercial fishery opportunities for Sockeye and Coho salmon planned.
- Retention of Chinook salmon in the recreational fishery prohibited.

d) General:

- The *National Online Licensing System* must be used to purchase commercial fishing licences. Commercial fishing licence fees include service fees set annually in accordance with the *Service Fees Act*.
- Recreational fishing licences for salmon must be purchased online.
www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/index-eng.html#recreational

KEY CHANGES FOR THE 2024 TRANBOUNDARY 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 **Error! Reference source not found.** while longer term comprehensive monitoring plans will be developed through consultation in subsequent years.

Further details can be found here: [Pacific Salmon Strategy Initiative \(dfo-mpo.gc.ca\)](https://dfo-mpo.gc.ca/pacific-salmon-strategy-initiative)

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](https://www.dfo-mpo.gc.ca/consultation/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 **Error! Reference source not found.**

I OVERVIEW

I.1 INTRODUCTION

The Transboundary Rivers Salmon Integrated Fisheries Management Plan (IFMP) covers the period of April 1, 2024 to March 31, 2025 for stocks originating in the Alsek, Stikine and Taku rivers in southwestern Yukon and northwestern British Columbia.

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 1 provides a general overview of the fisheries, governance and overarching policies, frameworks and practices that guide fisheries management. Section 2 considers stock assessment, science and traditional knowledge. Section 3 summarizes shared stewardship arrangements to ensure long term sustainability. Section 4 reviews the economic, social and cultural importance of salmon to various sectors. Section 5 provides an overview of regional management issues and significant initiatives to address them. Broader objectives for fisheries management are outlined in Section 6 including conservation, international and domestic allocation objectives. Section 7 outlines the components of decision guidelines and how they are established through preseason planning. Section 8 summarizes the compliance plan of the Conservation and Protection program. Section 9 provides some insight into performance and evaluation criteria used in the eventual review of the effectiveness of this plan.

Section 13 of this IFMP provides the specific integrated fishing plans for each of the Transboundary River systems in addition to providing other information such as run outlooks, spawning escapement goals, decision guidelines and a post season review.

I.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 communities. Salmon, particularly Chinook and Coho, also play a key role in the recreational fishery.

I.3 TYPE OF FISHERY AND PARTICIPANTS

This plan describes the management of First Nations, recreational and commercial fisheries for Pacific salmon that inhabit watersheds that originate in north-western B.C. and flow into south-

eastern Alaska. Salmon fisheries are coordinated regionally with many management decisions occurring in area, management of fisheries in this area is guided by the Transboundary Rivers Chapter 1 of Annex IV of the Canada-U.S. Pacific Salmon Treaty (PST).

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. The transboundary (international) distribution of salmon stocks in this area requires that a cooperative approach to management is employed by Canada and the U.S. This document is intended to facilitate cooperative management, stock assessment, research and enhancement of Transboundary salmon stocks in the Alsek, Stikine and Taku rivers conducted by Fisheries and Oceans Canada (DFO), the Tahltan Central Government (TCG), the Taku River Tlingit First Nation (TRTFN), the Champagne and Aishihik First Nations (CAFN), Alaska Department of Fish and Game (ADFG) and the United States Department of Agriculture – Forest Service.

I.4 LOCATION OF FISHERY

This IFMP covers fisheries in the Alsek, Stikine and Taku River watersheds (Transboundary Rivers). Locations of respective watersheds and fisheries are described in the introductory sections of Sections 13 of this document.

I.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 recreational and commercial fisheries.

In the 1990 Sparrow decision, the Supreme Court of Canada found that where an Aboriginal 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.

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 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 commercial 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 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 **Error! Reference source not found.**

Commercial fisheries access through communal commercial licences obtained via voluntary licence relinquishments through DFO programs (e.g., Pacific Integrated Commercial Fisheries Initiative – PICFI, or Allocation Transfer Program – ATP). These licences are fished in a manner that is comparable to the general commercial fishery.

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.

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

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.

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, non-tidal licences are issued by the Province of BC and the Yukon. Anglers wishing to retain salmon taken from either tidal or non-tidal waters must have a valid salmon conservation stamp affixed to their licence and a Salmon conservation Catch Card for the Yukon. 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 in tidal water, but anglers also fish from piers, shores, or beaches. Only barbless hooks may be used when fishing for salmon in British Columbia and restrictions are in place in specific waterbodies in the Yukon.

Commercial salmon licences in the Transboundary rivers have been issued for two gear types: gill nets and fish wheels. Salmon gill nets are rectangular nets that hang in the water and are set from shore, or drifted in the current still attached to either the stern or bow of the vessel. Fish swim headfirst into the net, entangling their gills in the mesh. Altering mesh size and the way in which nets are suspended in the water affects efficiency and is sometimes used to reduce impacts on non-target species. Fish wheels are an active fish-capture device powered by the flow of water (current) past the wheel. The wheel mechanism is outfitted with large baskets and paddles attached to a frame that rotates on an axis mounted on a floating platform. As the wheel rotates, the baskets are successively dipped into the water and capture fish traveling upstream. The fish caught in the baskets fall into a holding tank where they are usually held live until removed.

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*, *Pacific Fisheries Reform*, *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/policy-politique/index-eng.html>

The 1999 *An Allocation Policy for Pacific Salmon*, announced in 1999, 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 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 a 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.

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
- b) *Fishery Monitoring Policy*
 - Introduction to the procedural steps for implementing the Fishery Monitoring Policy
- c) *Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas*
 - Ecological Risk Assessment Framework (ERAF) for Coldwater Corals and Sponge Dominated Communities
- d) *Policy on Managing Bycatch*
- e) *Policy on New Fisheries for Forage Species*
- f) *Canada's Policy for Conservation of Pacific Salmon (Wild Salmon Policy)*

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

Sustainability Surveys are available at: <http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/index-en.html>

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>.

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 fish stocks or their ecosystem.

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>

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>

The associated regulatory amendment to prescribe 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>

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>

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-ppm-mise-en-oeuvre-eng.htm>

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>

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>

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>

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*, recognizes and affirms the existing Aboriginal and treaty rights of the Aboriginal 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 Indigenous 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, and the federal Principles Respecting the Government of Canada's Relationship with Indigenous peoples. 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 United Nations Declaration on the Rights of Indigenous peoples see <https://www.justice.gc.ca/eng/declaration/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>

1.7 CONSULTATION PROCESS

This plan considers the results of consultations and input from First Nations, recreational and commercial harvesters, Territorial (e.g. Yukon Salmon Sub-committee) 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>.

Consultation processes for Alsek, Stikine and Taku salmon fisheries are described in respective Sections [13.1.4](#), [13.2.4](#) and [13.3.4](#) of this document.

1.8 APPROVAL PROCESS

This plan is 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 2-1 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 <i>O. kisutch</i>	Sockeye <i>O. nerka</i>	Pink <i>O. gorbuscha</i>	Chum <i>O. keta</i>	Chinook <i>O. tsawytscha</i>
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 (**Error! Reference source not found.**).

(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).

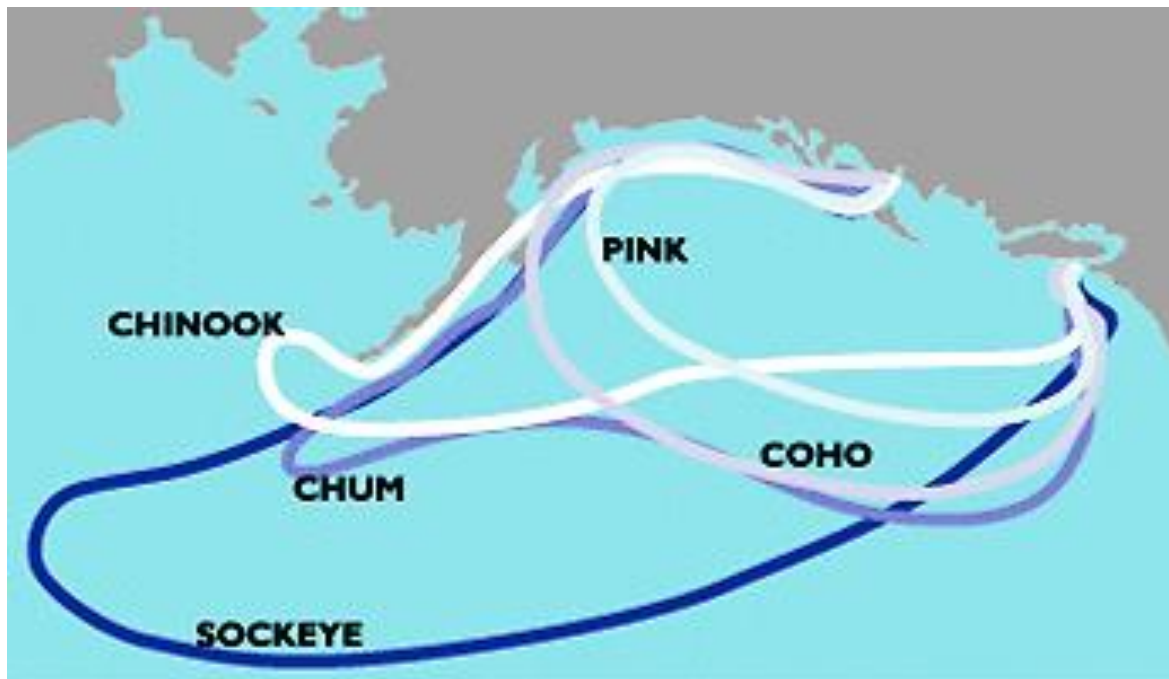


Figure 2.1-1: Generalized habitat of British Columbia Pacific salmon species in the North Pacific Ocean

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:

- a. The Strait of Georgia Ecosystem Research Initiative
- b. Fraser River Environmental Watch
- c. Monitoring of physical, biological, and chemical freshwater and marine conditions
- d. 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 2024 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.

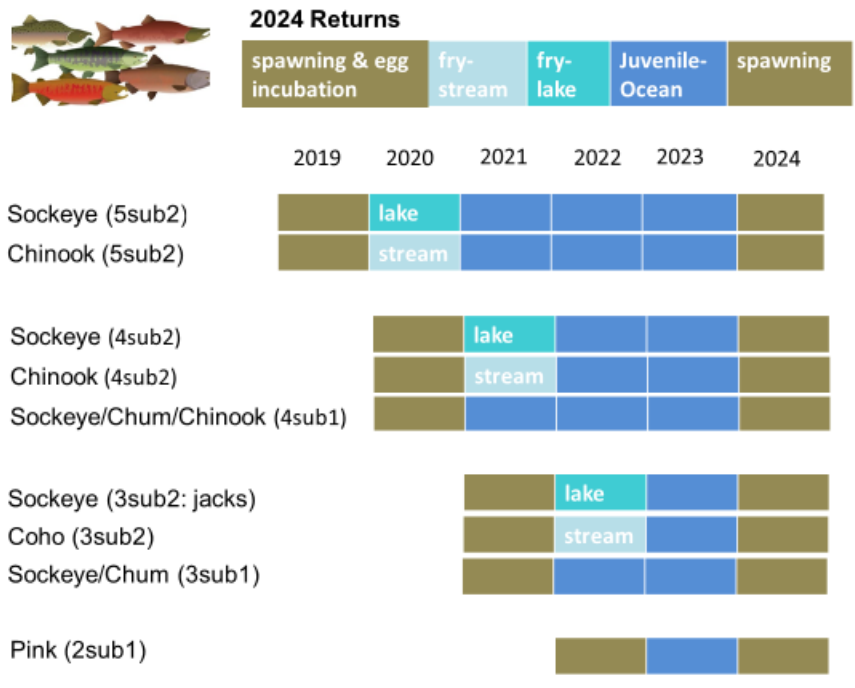
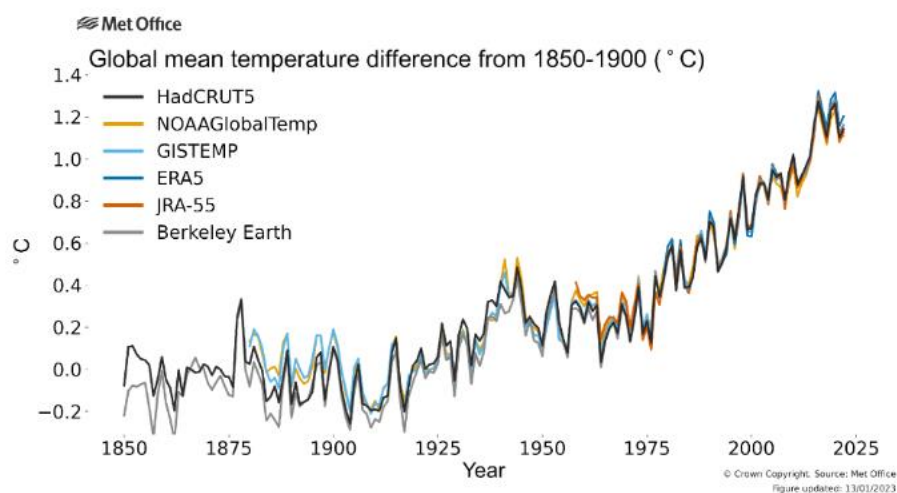


Figure 2.2-1: Timing of common age classes of Pacific salmon returning in 2024 in each habitat they occupy. For each species, the most common life-history types are presented using the Gilbert-Rich age designation system (in brackets); the number on the left indicates the total age at return, while the 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).



This plot shows the global temperature change from 1850 to 2022, compared to an estimated 1850-1900 baseline average temperature.

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; NOAA GlobalTemp; 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=838d533d806241c820eef50b08f7ebc>

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; Ghossoub 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).

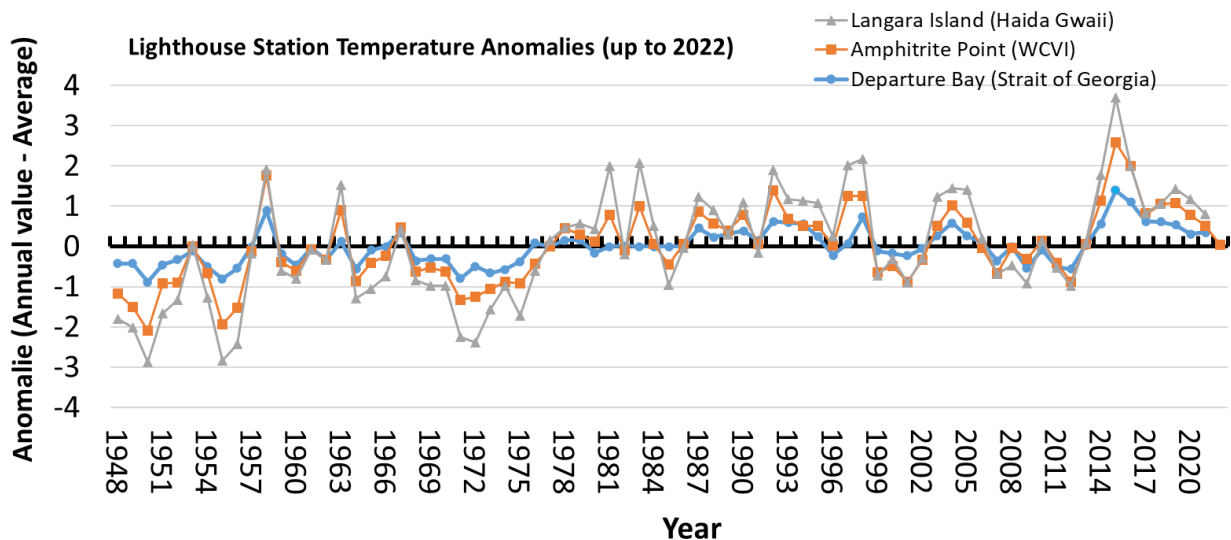


Figure 2.2-3. Annual average sea-surface-temperature anomalies from Fisheries & Oceans Canada lighthouse stations: <https://www.dfo-mpo.gc.ca/science/data-donnees/lightstations-phares/index-eng.html>. Anomalies represent the departure from a mean reference period (1948-2022). Temperature anomalies are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

References

- Anslow, F., and Sobie, S. 2022. Land temperature and hydrological conditions in 2021. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. Can. Tech. Rep. Fish. Aquat. Sci. 3482. pp. 18–22. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41067113.pdf>.
- B.C. Wildfire Service. 2023. 2023 wildfire season summary. Available from <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/about-bcws/wildfire-history/wildfire-season-summary> [accessed 19 December 2023].
- Batten, S., and Ostle, C. 2020. Lower trophic levels in the Northeast Pacific. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2019. *Edited by* J.L. Boldt, A. Javorski, and P.C. Chandler. Can. Tech. Rep. Fish. Aquat. Sci. 3377. pp. 58–62. Available from <http://waves-vagues.dfo-mpo.gc.ca/Library/4098297x.pdf>.
- Boldt, J.L., Joyce, E., Tucker, S., and Gauthier, S. (Editors). 2022. State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. Can. Tech. Rep. Fish. Aquat. Sci. 3482. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41067113.pdf>.
- Brett, J.R. 1971. Energetic responses of salmon to temperature. A study of some thermal relations in the physiology and freshwater ecology of sockeye salmon (*Oncorhynchus nerka*). *Am. Zool.* 11(1): 99–113. doi:198.103.39.129.
- Burt, J.M., Hinch, S.G., and Patterson, D.A. 2011. The importance of parentage in assessing temperature effects on fish early life history: a review of the experimental literature. *Rev. Fish Biol. Fish.* 21: 377–406. doi:10.1007/s11160-010-9179-1.
- Burt, J.M., Hinch, S.G., and Patterson, D.A. 2012. Developmental temperature stress and parental identity shape offspring burst swimming performance in sockeye salmon (*Oncorhynchus nerka*). *Ecol. Freshw. Fish* 21(2): 176–188. doi:10.1111/j.1600-0633.2011.00535.x.
- Chandler, P.C. 2022. Sea surface temperature and salinity observed at shore stations and weather bouys along the B.C. coast in 2021. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. Can. Tech. Rep. Fish. Aquat. Sci. 3482. pp. 42–46. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41067113.pdf>.
- Cloutier, C., Locat, J., Geertsema, M., Jakob, M., and Schnorbus, M. 2017. Potential impacts of climate change on landslides occurrence in Canada. *In* Slope Safety Preparedness for Impact of Climate Change. *Edited by* K. Ho, S. Lacasse, and L. Picarelli. CRC Press, Leiden, The Netherlands. pp. 71–104. doi:10.1201/9781315387789-5.
- Crozier, L.G., McClure, M.M., Beechie, T., Bograd, S.J., Boughton, D.A., Carr, M., Cooney, T.D., Dunham, J.B., Greene, C.M., Haltuch, M.A., Hazen, E.L., Holzer, D.M., Huff, D.D., Johnson, R.C., Jordan, C.E., Kaplan, I.C., Lindley, S.T., Mantua, N.J., Moyle, P.B., Myers, J.M., Nelson, M.W., Spence, B.C., Weitkamp, L.A., Williams, T.H., and Willis-Norton, E. 2019. Climate vulnerability assessment for Pacific salmon and steelhead in the California Current Large Marine Ecosystem. *PLoS One* 14(7): e0217711. doi:10.1371/journal.pone.0217711.
- Dorner, B., Catalano, M.J., and Peterman, R.M. 2018. Spatial and temporal patterns of covariation in productivity of Chinook salmon populations of the northeastern Pacific Ocean. *Can. J. Fish. Aquat. Sci.* 75(7): 1082–1095. doi:10.1139/cjfas-2017-0197.
- Edmundson, J.A., and Mazumder, A. 2001. Linking growth of juvenile sockeye salmon to habitat temperature in Alaskan lakes. *Trans. Am. Fish. Soc.* 130: 644–662. doi:10.1577/1548-8659(2001)130<0644:LGOJSS>2.0.CO;2.

- Eliason, E.J., Clark, T.D., Hague, M.J., Hanson, L.M., Gallagher, Z.S., Jeffries, K.M., Gale, M.K., Patterson, D.A., Hinch, S.G., and Farrell, A.P. 2011. Differences in thermal tolerance among sockeye salmon populations. *Science* (80-). 332(6025): 109–112. doi:10.1126/science.1199158.
- Farrell, A.P., Hinch, S.G., Cooke, S.J., Patterson, D.A., Crossin, G.T., Lapointe, M., and Mathes, M.T. 2008. Pacific salmon in hot water: applying aerobic scope models and biotelemetry to predict the success of spawning migrations. *Physiol. Biochem. Zool.* 81(6): 697–708. doi:10.1086/592057.
- Galbraith, M., and Young, K. 2022. West Coast British Columbia zooplankton biomass anomalies 2021. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. *Can. Tech. Rep. Fish. Aquat. Sci.* 3482. pp. 77–82. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41067113.pdf>.
- Galbraith, M., and Young, K. 2023. West coast British Columbia zooplankton biomass anomalies 2022. *In* State of the physical , biological and selected fishery resources of Pacific Canadian marine ecosystems in 2022. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. *Can. Tech. Rep. Fish. Aquat. Sci.* 3542. pp. 90–96. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41199248.pdf>.
- Ghossoub, M. 2023, August 15. A Pacific marine heat wave has arrived in B.C. waters. Here’s what it means for ocean life. CBC News Online. Available from <https://www.cbc.ca/news/canada/british-columbia/pacific-marine-heat-wave-1.6936075>.
- Gillett, N.P., Cannon, A.J., Malinina, E., Schnorbus, M., Anslow, F., Sun, Q., Kirchmeier-Young, M., Zwiers, F., Seiler, C., Zhang, X., Flato, G., Wan, H., Li, G., and Castellan, A. 2022. Human influence on the 2021 British Columbia floods. *Weather Clim. Extrem.* Elsevier B.V. doi:10.1016/j.wace.2022.100441.
- Gillett, N.P., Weaver, A.J., Zwiers, F.W., and Flannigan, M.D. 2004. Detecting the effect of climate change on Canadian forest fires. *Geophys. Res. Lett.* 31(18). doi:10.1029/2004GL020876.
- Grant, S.C.H., MacDonald, B.L., Lewis, D., G.J., N.L.W.C., and Michielsens, C.G.J. 2021. State of Canadian Pacific salmon in 2020. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2020. *Can. Tech. Rep. Fish. & Aquat. Sci.* 3434. pp. vii + 231. *Edited by* J.L. Boldt, A. Javorski, and P.C. Chandler. pp. 106–111. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/4098297x.pdf>.
- Grant, S.C.H., Macdonald, B.L., and Michielsens, C.G.J. 2020. State of Canadian Pacific salmon in 2019. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2019. *Can. Tech. Rep. Fish. Aquat. Sci.* 3377. pp. x + 288. *Edited by* J.L. Boldt, A. Javorski, and P.C. Chandler. pp. 86–91. Available from <https://www.dfo-mpo.gc.ca/oceans/publications/soto-rceo/2019/index-eng.html>.
- Grant, S.C.H., MacDonald, B.L., and Winston, M.L. 2019. State of the Canadian Pacific salmon: responses to changing climate and habitats. *Can. Tech. Rep. Fish. Aquat. Sci.* 3332: ix + 50 pp. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/40807071.pdf>.
- Hannah, C., Page, S., and Ross, T. 2019. Ocean surface temperatures in 2018: another marine heat wave? *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2018. *Can. Tech. Rep. Fish. Aquat. Sci.* 3314. *Edited by* J.L. Boldt, J. Leonard, and P.C. Chandler. pp. 31–36. Available from <https://dfo-mpo.gc.ca/oceans/publications/soto-rceo/2018/index-eng.html>.
- Hipfner, J.M., Galbraith, M., Bertram, D.F., and Green, D.J. 2020. Basin-scale oceanographic processes, zooplankton community structure, and diet and reproduction of a sentinel North Pacific seabird over a 22-year period. *Prog. Oceanogr.* 182: 102290. Elsevier. doi:10.1016/j.pocean.2020.102290.
- Holsman, K., Hollowed, A., Shin-Ichi, I., Bograd, S., Hazen, E., King, J., Mueter, F., and Perry, R.I. 2018. Climate change impacts, vulnerabilities and adaptations: North Pacific and Pacific Arctic marine fisheries. *In* Impacts of climate change on fisheries and aquaculture: synthesis of current knowledge, adaptation and mitigation options. *FAO Fisheries and Aquaculture Technical Paper*, No. 627. *Edited by* M. Barange, T. Bahri, M.C.M. Beveridge, K.L. Cochrane, S. Funge-Smith, and F. Poulain. *FAO*. pp. 113–138. Available from <https://www.fao.org/3/cb3095en/cb3095en.pdf>.
- Holsman, K.K., Scheuerell, M.D., Buhle, E., and Emmett, R. 2012. Interacting effects of translocation, artificial propagation, and environmental conditions on the marine survival of Chinook salmon from the Columbia River, Washington, U.S.A. *Conserv. Biol.* 26(5): 912–922. doi:10.1111/j.1523-1739.2012.01895.x.
- Holtby, L.B., and Healey, M.C. 1986. Selection for adult size in female coho salmon (*Oncorhynchus kisutch*). *Can. J. Fish. Aquat. Sci.* 43(10): 1946–1959. doi:10.1139/f86-240.

- Hourston, R.A.S., and Thomson, R.E. 2022. Wind-driven upwelling/downwelling along the northwest coast of North America: timing and magnitude. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. Edited by J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. Can. Tech. Rep. Fish. Aquat. Sci. 3482. pp. 31–36. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41067113.pdf>.
- Hourston, R.A.S., and Thomson, R.E. 2023. Wind-driven upwelling/downwelling along the Northwest coast of North America: timing and magnitude. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine Ecosystems in 2022. Edited by J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. Can. Tech. Rep. Fish. Aquat. Sci. 3542. pp. 30–35. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41199248.pdf>.
- Hyatt, K., Stiff, H., and Stockwell, M. 2021. Coast-side sockeye salmon performance indicators, regional overview of trends, 2020 returns, and 2021-2023 outlook. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2020. Can. Tech. Rep. Fish. & Aquat. Sci. 3434. pp. vii + 231. Edited by J. Boldt, P. Chandler, and A. Javorski. pp. 112–116. Available from https://publications.gc.ca/collections/collection_2021/mpo-dfo/Fs97-6-3434-eng.pdf.
- IPCC. 2014. Climate change 2014: impacts, adaptation, and vulnerability. Part A: global and sectoral aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Edited By C.B. Field, V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. 1132 pp. Available from <https://www.ipcc.ch/report/ar5/wg2/>.
- IPCC. 2018. Summary for policymakers. *In* Global warming of 1.5°C. An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change. Edited By V. Masson-Delmotte, P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield. World Meteorological Organization, Geneva, Switzerland. 32 pp. Available from <http://www.ipcc.ch/report/sr15/>.
- IPCC. 2022. Summary for policymakers. [H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Lösschke, V. Möller, A. Okem (eds.)]. *In* Climate change 2022: impacts, adaptation, and vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Edited by H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Lösschke, V. Möller, and A. Okem. Cambridge University Press, Cambridge, U.K. and New York, NY, USA. pp. 1–33. Available from https://report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_FinalDraft_TechnicalSummary.pdf.
- Lapointe, M., Eaton, B., Driscoll, S., and Latulippe, C. 2000. Modelling the probability of salmonid egg pocket scour due to floods. *Can. J. Fish. Aquat. Sci.* 57(6): 1120–1130. doi:10.1139/cjfas-57-6-1120.
- Leising, A., and Williams, G. 2023. The California Current Marine Heatwave Tracker - Blobtracker. Available from <https://www.integratedecosystemassessment.noaa.gov/regions/california-current/california-current-marine-heatwave-tracker-blobtracker> [accessed 27 November 2023].
- Di Liberto, T. 2021. Astounding heat obliterates all-time records across the Pacific Northwest and Western Canada in June 2021. Available from <https://www.climate.gov/news-features/event-tracker/astounding-heat-obliterates-all-time-records-across-pacific-northwest> [accessed 25 November 2021].
- Lisle, T.E. 1989. Sediment transport and resulting deposition in spawning gravels, north coastal California. *Water Resour. Res.* 25(6): 1303–1319. doi:10.1029/WR025i006p01303.
- MacDonald, B., and Grant, S.C.H. 2023. State of Canadian Pacific salmon: considerations for Pacific salmon management in a changing climate. Department of Fisheries and Oceans Canada Report 23-2305. 27 p. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41213531.pdf>.
- MacDonald, B.L., Grant, S.C.H., and Wilson, N.L. 2023. State of Canadian Pacific salmon in 2022. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2022. Edited By Boldt, J.L., Joyce, E., Tucker, S. and Guathier, S. Can. Tech. Rep. Fish. Aquat. Sci. 3542. pp. 125–132. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41199248.pdf>.
- Macdonald, J.S., Scrivener, J.C., Patterson, D.A., and Dixon-Warren, A. 1998. Temperatures in aquatic habitats: the impacts of forest harvesting and the biological consequences to sockeye salmon incubation habitats in the interior of B.C. *In* Forest-fish conference: land managment practices affecting aquatic ecosystems. Proc. Forest-Fish Conf., May 1-4, 1996, Calgary, AB. Edited by M.K. Brewin and D.M.A. Monita. Natural Resources Canada, Edmonton, AB. pp. 313–324.

Mackas, D.L., Batten, S., and Trudel, M. 2007. Effects on zooplankton of a warmer ocean: recent evidence from the Northeast Pacific. *Prog. Oceanogr.* 75(2): 223–252. doi:10.1016/j.pcean.2007.08.010.

Mackas, D.L., Peterson, W.T., and Zamon, J.E. 2004. Comparisons of interannual biomass anomalies of zooplankton communities along the continental margins of British Columbia and Oregon. *Deep Sea Res. Part II Top. Stud. Oceanogr.* 51(6–9): 875–896. doi:10.1016/j.dsr2.2004.05.011.

NOAA Fisheries. 2021. Literature review of climate change impacts on Pacific salmon and steelhead. Available from <https://www.fisheries.noaa.gov/west-coast/climate/literature-review-climate-change-impacts-pacific-salmon-and-steelhead> [accessed 29 November 2021].

NOAA Fisheries. 2023. The California Current Marine Heatwave Tracker - an experimental tool for tracking marine heatwaves. Available from <https://oceanview.pfeg.noaa.gov/projects/mhw/latest> [accessed 27 November 2023].

NOAA National Weather Service. 2024. El Nino/Southern Oscillation (ENSO) diagnostic discussion, January 11, 2024. Available from https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml [accessed 18 January 2024].

North Pacific Anadromous Fish Commission. 2023. The status and trends of Pacific salmon and steelhead trout stocks with linkages to their ecosystem. *N. Pac. Anadr. Fish Comm. Tech. Rep.* 19. Available from <https://www.npafc.org/wp-content/uploads/technical-reports/NPAFC-Technical-Report-19.pdf>.

Ostle, C., and Batten, S. 2022. Lower trophic levels in the Northeast Pacific. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. *Can. Tech. Rep. Fish. Aquat. Sci.* 3482. pp. 83–86. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41067113.pdf>.

Ostle, C., and Batten, S. 2023. Lower trophic levels in the Northeast Pacific. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2022. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. *Can. Tech. Rep. Fish. Aquat. Sci.* 3542. pp. 97–100. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41199248.pdf>.

Patterson, D.A., and Hague, M.J. 2007. Evaluation of long range summer forecasts of lower Fraser River discharge and temperature conditions. *Can. Tech. Rep. Fish. Aquat. Sci.* 2754: vii + 34. Available from <https://science-catalogue.canada.ca/record=4027137-S6>.

Perry, I.R., Young, K., Galbraith, M., Chandler, P., Velez-Espino, A., and Baillie, S. 2021. Zooplankton variability in the Strait of Georgia, Canada, and relationships with the marine survivals of Chinook and Coho salmon. *In* PLoS ONE. doi:10.1371/journal.pone.0245941.

Peterman, R.M., and Dorner, B. 2012. A widespread decrease in productivity of sockeye salmon (*Oncorhynchus nerka*) populations in western North America. *Can. J. Fish. Aquat. Sci.* 69(8): 1255–1260. doi:10.1139/f2012-063.

Philip, S.Y., Kew, S.F., Oldenborgh, G.J. Van, Yang, W., Vecchi, G.A., Anslow, F.S., Li, S., Seneviratne, S.I., Luu, L.N., Arrighi, J., Singh, R., Aalst, V., Hauser, M., Schumacher, D.L., Marghidan, C.P., Ebi, K.L., Vautard, R., Tradowsky, J., Coumou, D., Lehner, F., Rodell, C., Stull, R., Howard, R., Gillett, N., and Otto, F.E.L. 2021. Rapid attribution analysis of the extraordinary heatwave on the Pacific Coast of the US and Canada June 2021. Available from <https://www.worldweatherattribution.org/wp-content/uploads/NW-US-extreme-heat-2021-scientific-report-WWA.pdf>.

Pike, R.G., Redding, T.E., Moore, R.D., Winkler, R.D., and Bladon, K.D. (editors). 2010. Compendium of forest hydrology and geomorphology in British Columbia. Volume 2 of 2. B.C. Min. For. Range, For. Sci. Prog. and FORREX Forum for Research and Extension in Natural Resources. Available from <https://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh66.htm>.

Ross, T., and Robert, M. 2018. La Niña and another warm year. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2017. *Edited by* P.C. Chandler, S.A. King, and J.L. Boldt. *Can. Tech. Rep. Fish. Aquat. Sci.* 3225. pp. 27–32. Available from <https://dfo-mpo.gc.ca/oceans/publications/soto-rceo/2017/index-eng.html>.

Ross, T., and Robert, M. 2019. Another warm, but almost normal, year in the Northeast Pacific Ocean. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2018. *Edited by* J.L. Boldt, J. Leonard, and P.C. Chandler. *Can. Tech. Rep. Fish. Aquat. Sci.* 3314. pp. 15–20. Available from <https://dfo-mpo.gc.ca/oceans/publications/soto-rceo/2018/index-eng.html>.

Ross, T., and Robert, M. 2020. Are marine heatwaves the new normal for the Northeast Pacific Ocean? *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2019. *Edited by* J.L. Boldt, A. Javorski, and P.C. Chandler. *Can. Tech. Rep. Fish. Aquat. Sci.* 3377. pp. 21–25. Available from <https://waves-vagues.dfo-mpo.gc.ca/Library/40884569.pdf>.

- Ross, T., and Robert, M. 2021. Marine heatwave persists despite growing La Niña. *In State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2020. Edited by J.L. Boldt, A. Javorski, and P. Chandler. Can. Tech. Rep. Fish. Aquat. Sci. 3434. pp. 24–28. Available from https://publications.gc.ca/collections/collection_2021/mpo-dfo/Fs97-6-3434-eng.pdf.*
- Ross, T., and Robert, M. 2022. Normal temperatures despite strong cool climate indices and an emerging freshening trend. *In State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. Edited by J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. Can. Tech. Rep. Fish. Aquat. Sci. 3482. pp. 23–30. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41067113.pdf>.*
- Ross, T., and Robert, M. 2023. Marine heatwave makes a brief appearance despite strong La Niña conditions. *In State of the physical, biological and selected fishery resources of Pacific Canadian marine Ecosystems in 2022. Edited by J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. Can. Tech. Rep. Fish. Aquat. Sci. 3542. pp. 22–29. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41199248.pdf>.*
- Schindler, D.E., Rogers, D.E., Scheuerell, M.D., and Abrey, C.A. 2005. Effect of changing climate on zooplankton and juvenile sockeye salmon growth in Southwestern Alaska. *Ecology* 86(1): 198–209. doi:10.1890/03-0408].
- Sopinka, N.M., Middleton, C.T., Patterson, D.A., and Hinch, S.G. 2016. Does maternal captivity of wild, migratory sockeye salmon influence offspring performance? *Hydrobiologia* 779(1): 1–10. doi:10.1007/s10750-016-2763-1.
- Streicker, J. 2016. Yukon climate change indicators and key findings in 2015. Northern Climate ExChange, Yukon Research Centre, Yukon College, 84 pp. Available from https://www.yukoncollege.yk.ca/sites/default/files/inline-files/Indicator_Report_Final_web.pdf.
- Tierney, K.B., Patterson, D.A., and Kennedy, C.J. 2009. The influence of maternal condition on offspring performance in sockeye salmon *Oncorhynchus nerka*. *J. Fish Biol.* 75(6): 1244–1257. doi:10.1111/j.1095-8649.2009.02360.x.
- United Nations Environment Programme. 2019. Emissions gap report 2019. UNEP, Nairobi. doi:10.18356/ff6d1a84-en.
- Wang, X., Parisien, M.A., Taylor, S.W., Candau, J.N., Stralberg, D., Marshall, G.A., Little, J.M., and Flannigan, M.D. 2017. Projected changes in daily fire spread across Canada over the next century. *Environ. Res. Lett.* 12(2). doi:10.1088/1748-9326/aa5835.
- White, T., Wolf, J., Anslow, F., and Werner, A. 2016. Indicators of climate change for British Columbia: update 2016. Victoria, B.C. doi:ISBN 0-7726-4732-1.
- Whitney, C.K., Hinch, S.G., and Patterson, D.A. 2014. Population origin and water temperature affect development timing in embryonic sockeye salmon. *Trans. Am. Fish. Soc.* 143(5): 1316–1329. doi:10.1080/00028487.2014.935481.
- WMO. 2023. Provisional state of the global climate in 2023. World Meteorological Organization. Available from <https://wmo.int/files/provisional-state-of-global-climate-2023>.
- Young, K., Galbraith, M., Sastri, A., and Perry, R.I. 2022. Zooplankton status and trends in the central and northern Strait of Georgia, 2021. *In State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. Edited by J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. Can. Tech. Rep. Fish. Aquat. Sci. 3482. pp. 176–179. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41067113.pdf>.*
- Young, K., Galbraith, M., Sastri, A., and Perry, R.I. 2023. Zooplankton status and trends in the central and northern Strait of Georgia, 2022. *In State of the physical, biological and selected fishery resources of Pacific Canadian marine Ecosystems in 2022. Edited by J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. Can. Tech. Rep. Fish. Aquat. Sci. 3542. pp. 215–218. Available from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41199248.pdf>.*

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 [Error! Reference source not found.](#)

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>

References

Doutaz, D., Huang, A.-M., Decker, S., Vivian, T. 2023. Recovery Potential Assessment for Fraser River Sockeye Salmon (*Oncorhynchus nerka*), Nine Designatable Units Part 2: Biology, Habitat, Threats,

Mitigations and Allowable Harm - Elements 1-11, 14, 16-18, 22. DFO Can. Sci. Advis. Sec. Res. Doc. 2023/003. xiii + 250 p.

Holt, C.A., Holt, K., Warkentin, L., Wor, C., Connors, B., Grant, S., Huang, A.-M., and Marentette, J. 2023. Guidelines for Defining Limit Reference Points for Pacific Salmon Stock Management Units. DFO Can. Sci. Advis. Sec. Res. Doc. 2023/009. iv + 66 p.

Holt, K.R., Holt, C.A., Warkentin, L., Wor, C., Davis, B., Arbeider, M., Bokvist, J., Crowley, S., Grant, S., Luedke, W., McHugh, D., Picco, C., and Van Will, P. 2023. Case Study Applications of LRP Estimation Methods to Pacific Salmon Stock Management Units. DFO Can. Sci. Advis. Sec. Res. Doc. 2023/010. iv + 129 p.

DFO. 2023. Biological Benchmarks And Building Blocks For Aggregate-Level Management Targets For Skeena And Nass Sockeye Salmon (*Oncorhynchus nerka*). DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2023/008.

Neville, C.M., Fitzpatrick, L.C., and Beamish, R.J. 2023. Juvenile Pacific salmon survey in the Strait of Georgia and associated waters, July 8-27, 2007. Can. Data Rep. Fish. Aquat. Sci. 1365: ix +378 p.

DFO. 2023. Proposed Changes to the Conservation Unit for Nanaimo River Watershed Spring Chinook. DFO Can. Sci. Advis. Sec. Sci. Resp. 2023/001.

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 SHARE 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

¹As defined in the Atlantic Fisheries Policy Review (AFPR):

<https://www.dfo-mpo.gc.ca/reports-rapports/regs/afpr-rppa/framework-cadre-eng.htm#toc6>

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.

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 1 (Transboundary Rivers): Covers in-river and terminal (marine) fisheries in northwestern British Columbia and southeast Alaska “transboundary” rivers. Specifically, the Chapter defines the conservation, harvest sharing, management and enhancement arrangements for Canadian-origin Alsek River Chinook and Sockeye salmon as well as Stikine and Taku River Chinook, Sockeye and Coho salmon stocks. This Chapter, and/or modifications subsequently recommended to the Parties by the Transboundary Panel in implementing the Chapter, governs Canadian salmon fisheries covered in this Transboundary Rivers Integrated Fisheries Management Plan)

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 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:

- I. Major Operations (OPS) SEP facilities that produce fish through hatcheries and spawning channels and are operated by DFO;
- II. 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 \(dfompo.gc.ca\)](https://dfompo.gc.ca/IFMP/SEP/DataTables/PacificRegion)

Significant production adjustment proposals for 2024 are incorporated into the *Enhancement Information* in each Species Overview of the Section [Error! Reference source not found.](#) 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.

3.3 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>

3.4 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.

3.5 CANADA AND FIRST NATIONS COLLABORATIVE GOVERNANCE

3.5.1 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. 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.

3.6 ADVISORY COMMITTEES AND BOARDS

3.6.1 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.

3.6.2 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 co-ordinate fishing plans and (where possible) resolve potential issues between 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 the Appendix of the South Coast and North Coast IFMPs.

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/>).

3.6.3 COMMERCIAL SALMON ADVISORY BOARD

The Commercial Salmon Advisory Board (CSAB) consists of two representatives from each Area Harvest Committee (AHC 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>

3.6.3.1 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 current AHC members list is available at: <https://www.pac.dfo-mpo.gc.ca/consultation/smon/csab-ccpcs/ahc-ces-membs-eng.html>

3.6.4 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 and Yukon using available information. In future years, more 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 Aboriginal food, social, and ceremonial fishery, the recreational fishery, and commercial fishery (harvest, processing and export activity including that generated by the Aboriginal 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.

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:

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

- 2 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.
- 3 To contribute to the economic self-sufficiency of Indigenous communities.
- 4 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.

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.

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:

- New and continued commercial licence acquisition and access to fisheries (including terminal fisheries).
- Fulsome opportunities for community members to participate in activities in support of commercial fishing opportunities including employment, contracting, training, and education.
- 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 [Error! Reference source not found.](#)

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, Ehatesaht, 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 [Error! Reference source not found.](#)

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 501 commercial 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 [Error! Reference source not found.](#)), 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.

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 ([Error! Reference source not found.](#)). 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%).

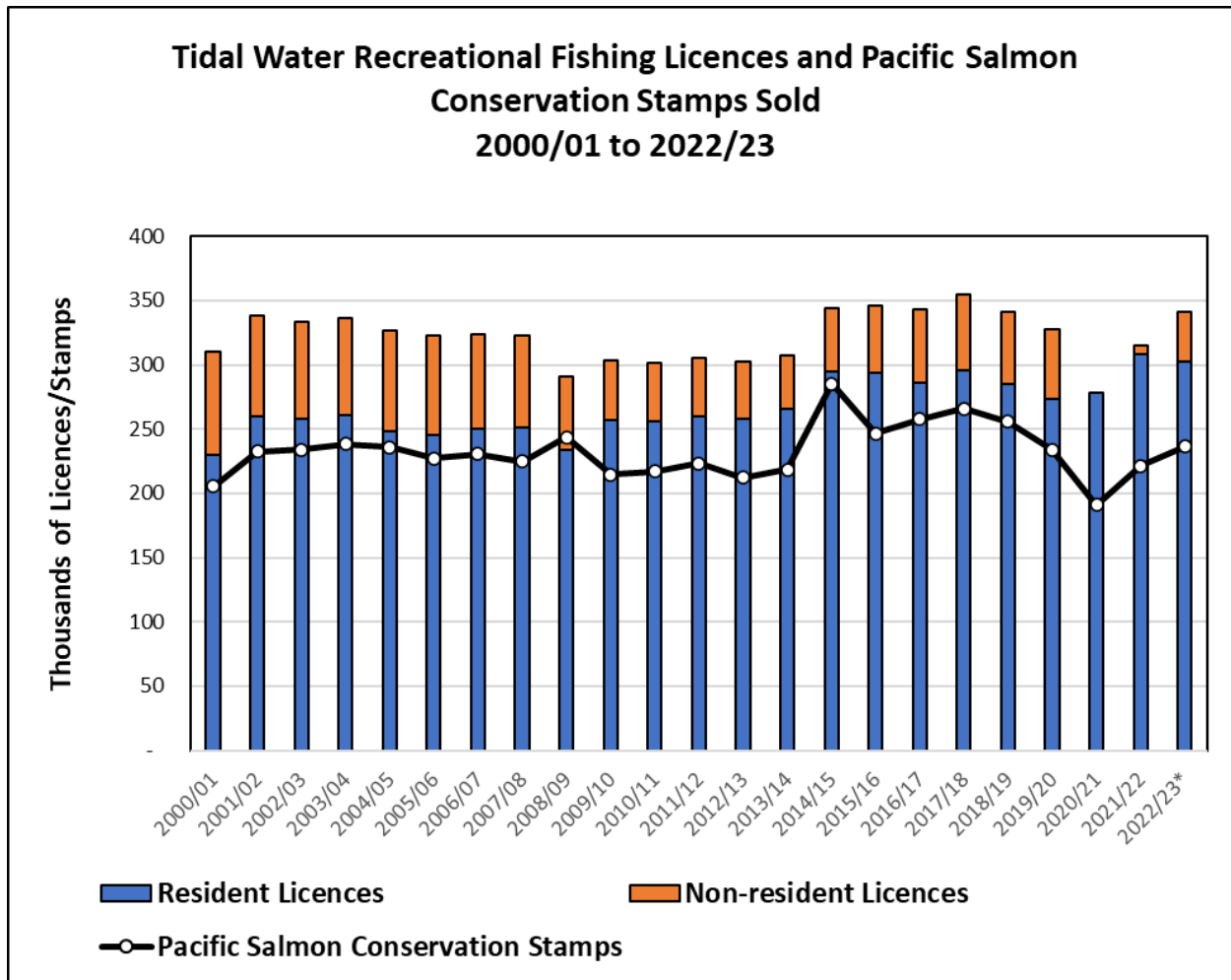


Figure 4.2-1: Tidal Water Recreational Fishing Licences and Pacific Salmon Conservation Stamps Sold, 2000/01 to 2022/23*

*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 experience¹. 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 angling². 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 BC³. 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 severely 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

¹ 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.

² 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.

³ 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.

4 ECONOMIC, SOCIAL AND CULTURAL IMPORTANCE

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-Resident	\$ 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 fishery⁴; 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 4.3-1, 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

⁴ 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.

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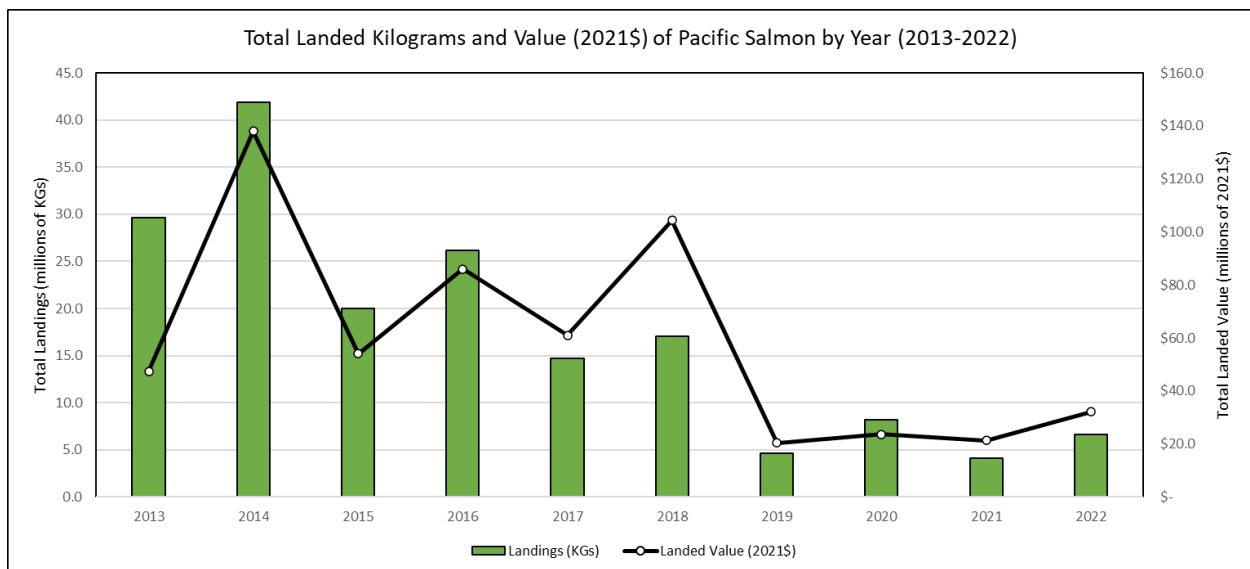


Figure 4.3-1: Total Landed Kilograms and Value (2022\$) of Pacific Salmon by Year (2013-2022)

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).

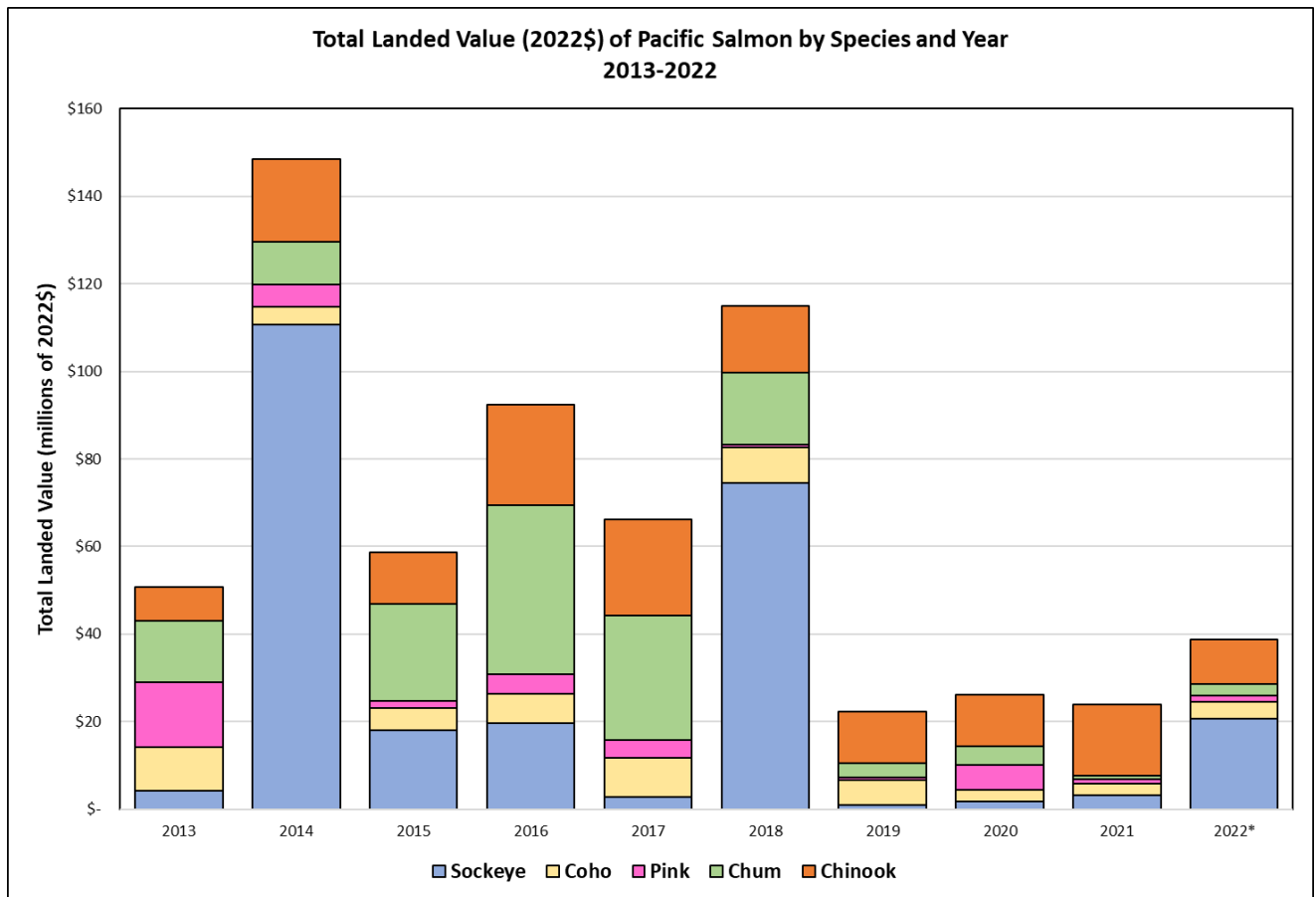


Figure 4.3.1-2 Total Landed Value (2022\$) of Pacific Salmon by Species by Year (2013-2022)

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.

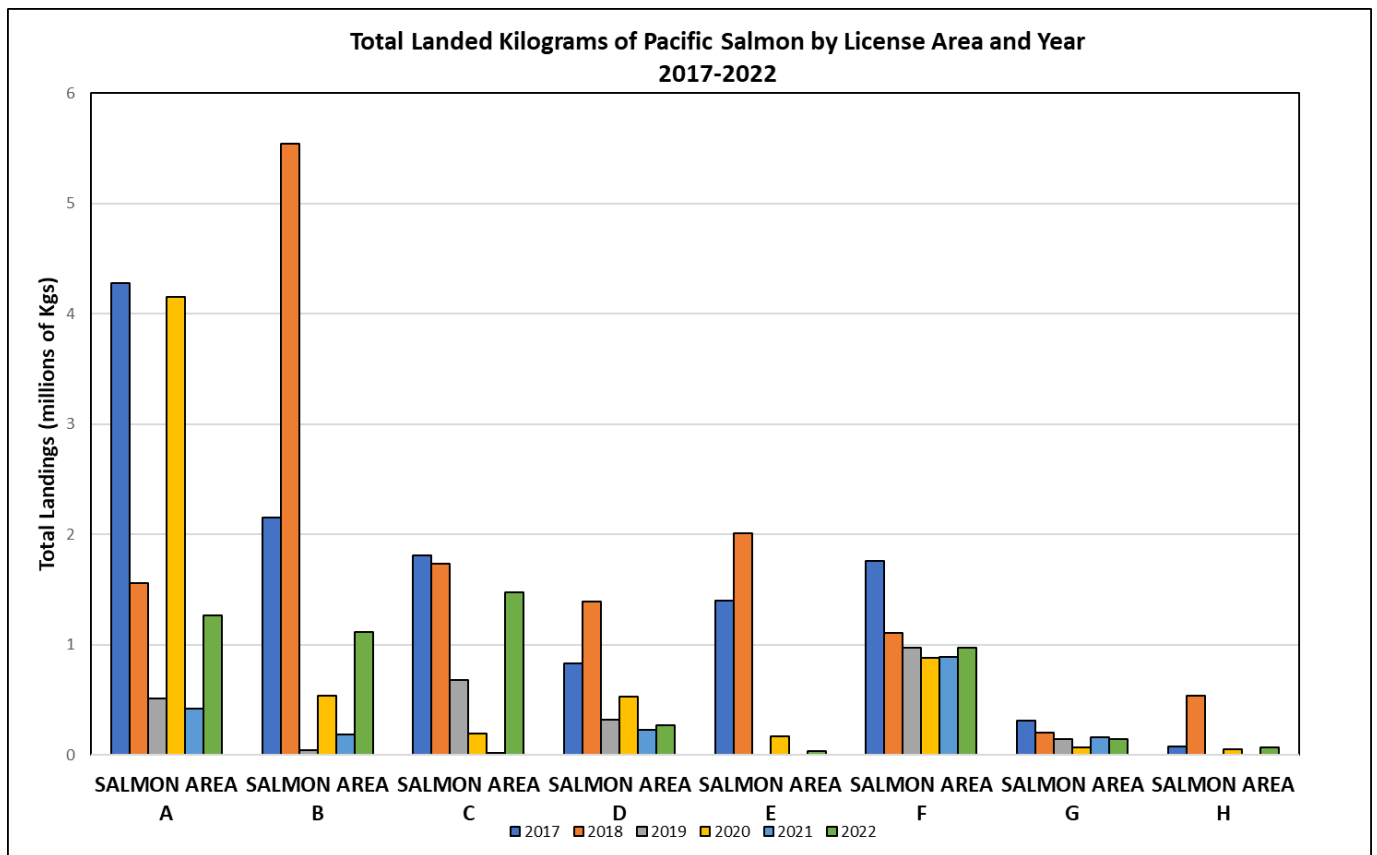


Figure 4.3-3: Total Landed Kilograms of Pacific Salmon by Licence Area by Year (2017-2022)

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

*Estimates for 2022 are to be treated as preliminary

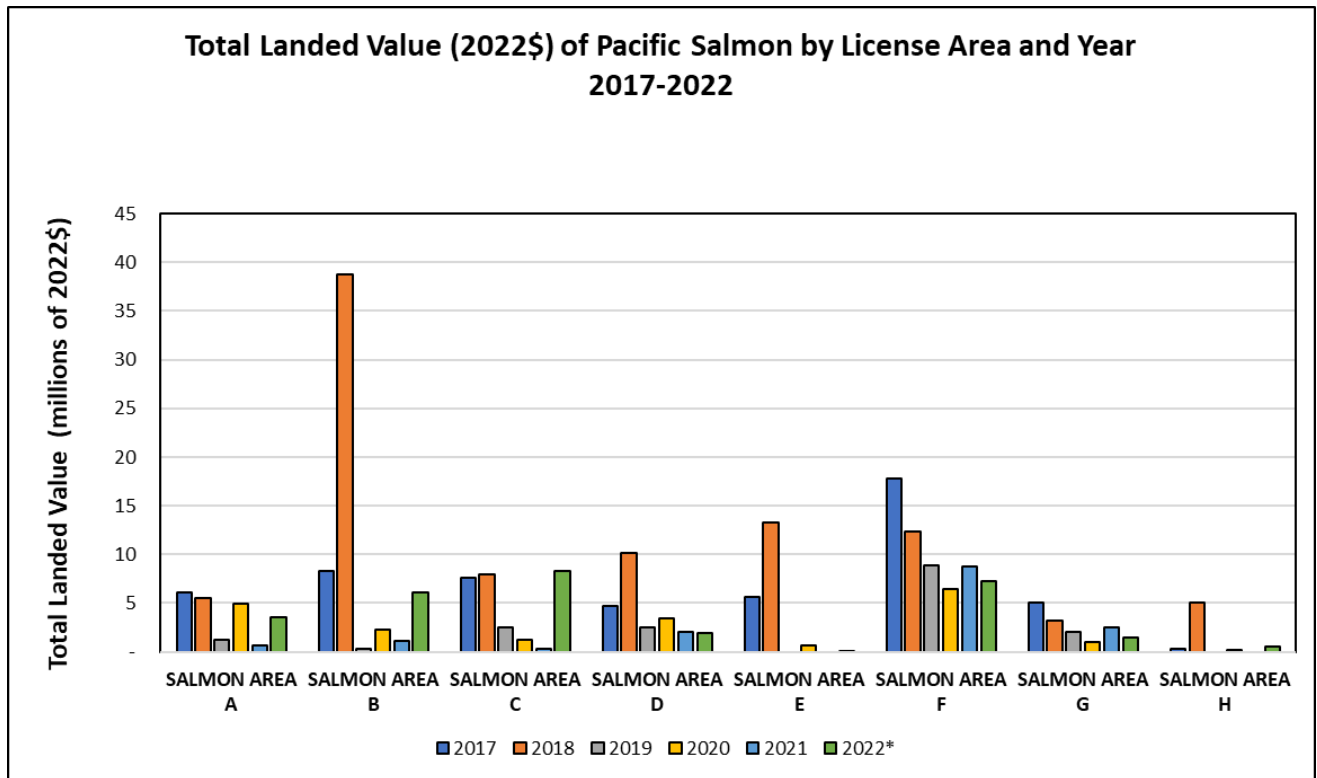


Figure 4.3-4: Total Landed Value (2022\$) of Pacific Salmon by Licence Area by Year (2017-2022)

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.

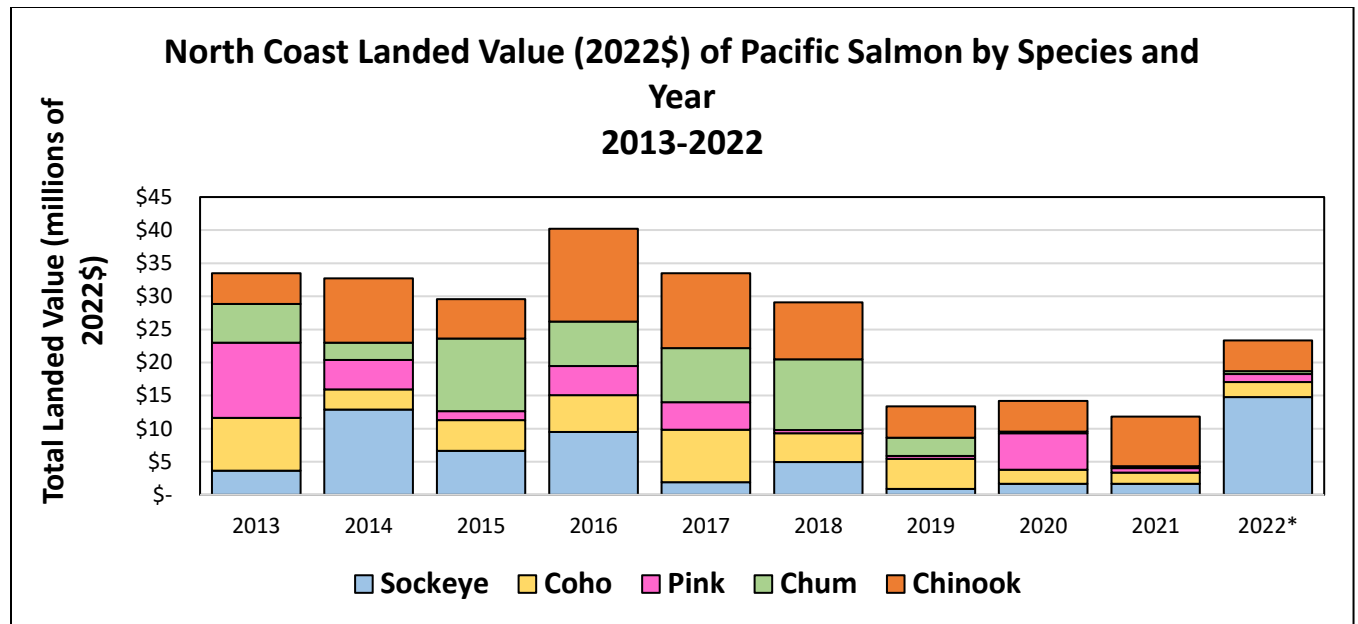


Figure 4.3-5: North Coast Salmon value by species, 2013-2022 (in 2022\$)

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

*Estimates for 2022 are to be treated as preliminary

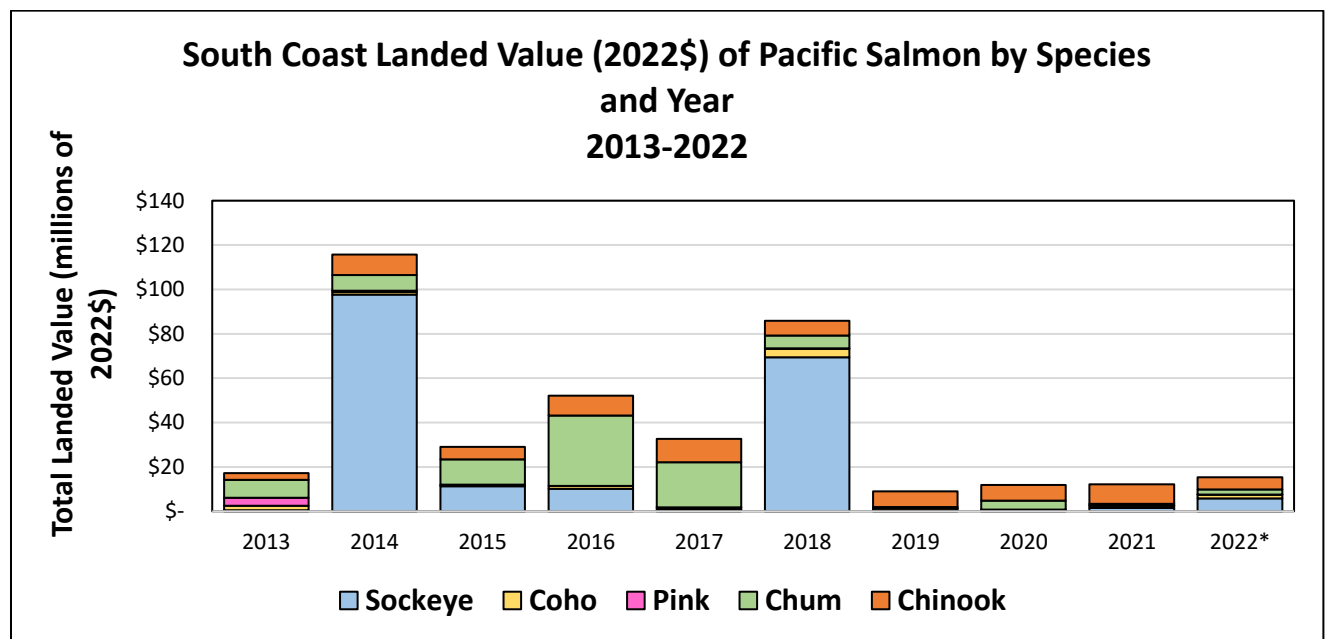


Figure 4.3-6: South Coast salmon value by species, 2013-2022 (in 2022\$)

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.⁵

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 year⁶. 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).

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

⁵ Licence valuations are in nominal terms.

⁶ DFO Fleet Diversification Table Tool

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).

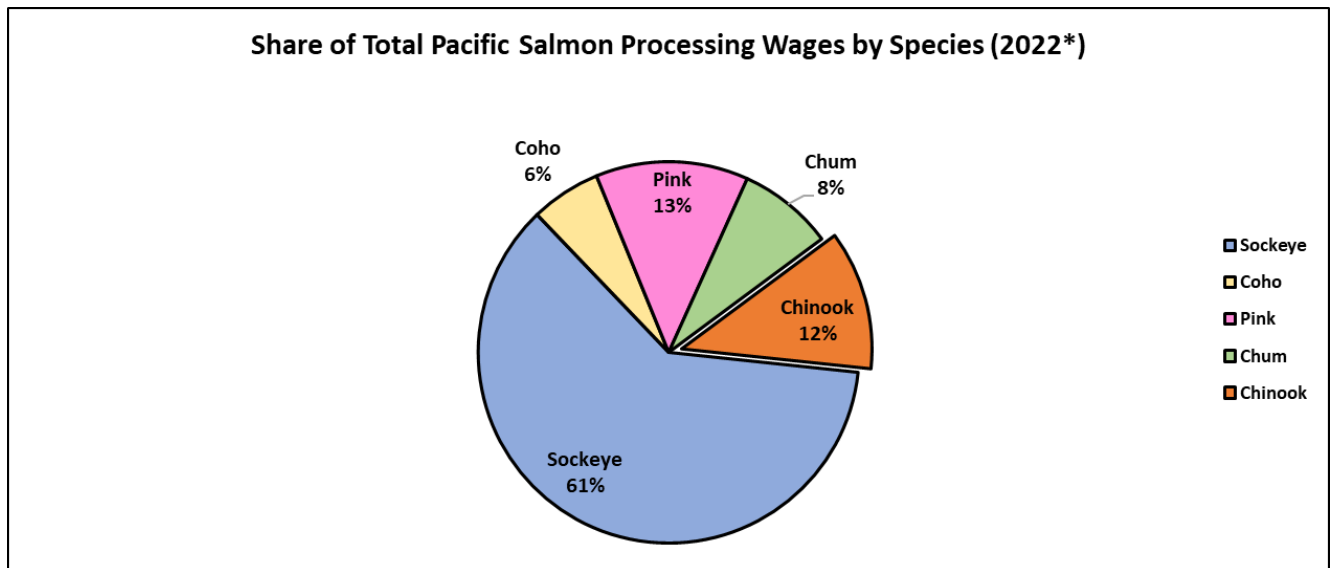


Figure 4.3-7: Share of the total value of processing sector wages in 2022 (by salmon species)

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 2018-2021.⁷ 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% 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).

⁷ Statistics Canada EXIM Database; value in nominal terms.

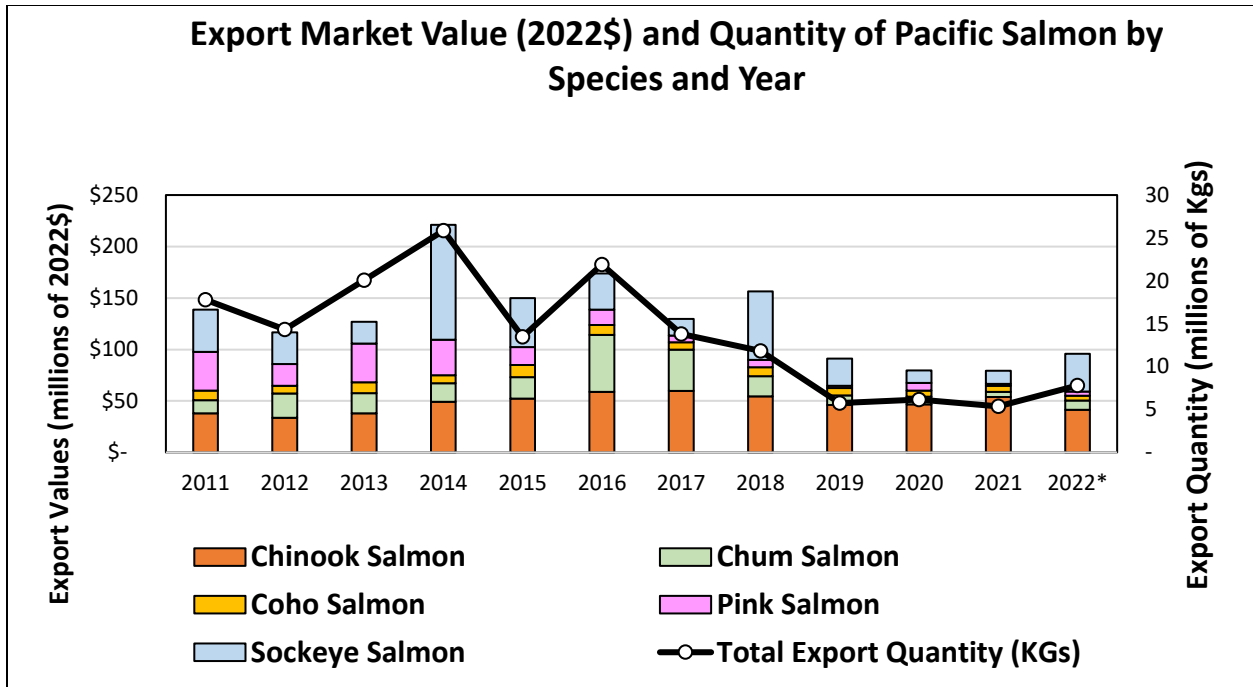


Figure 4.4-1: Total value and quantity of Pacific salmon exports (in 2022 constant dollars), 2011-2022*

Source: Statistics Canada EXIM database accessed on December 2023.

*Estimates for 2022 are to be treated as preliminary

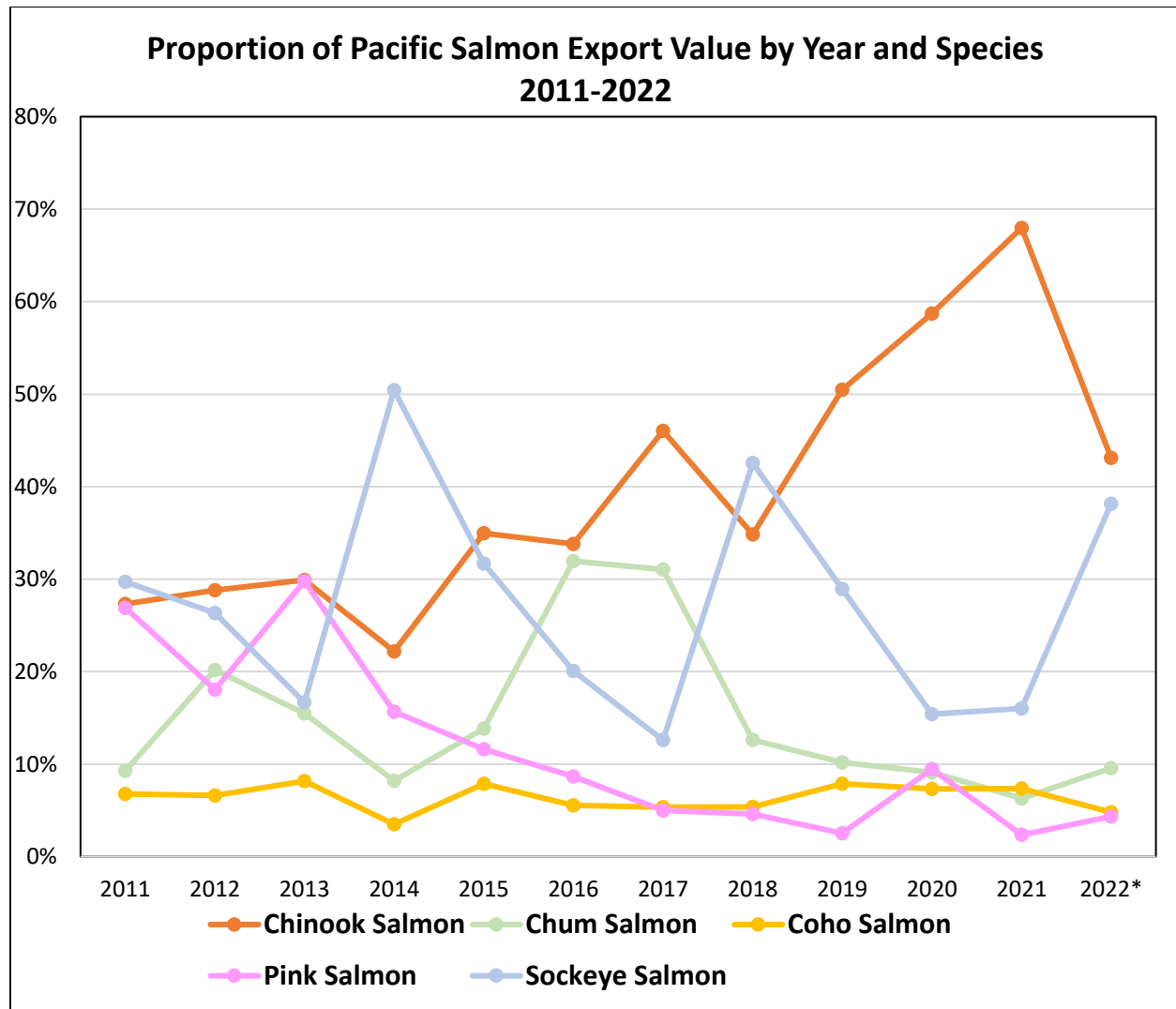


Figure 4.4-2: Proportion of Pacific salmon annual export value by species, 2011-2022*

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.

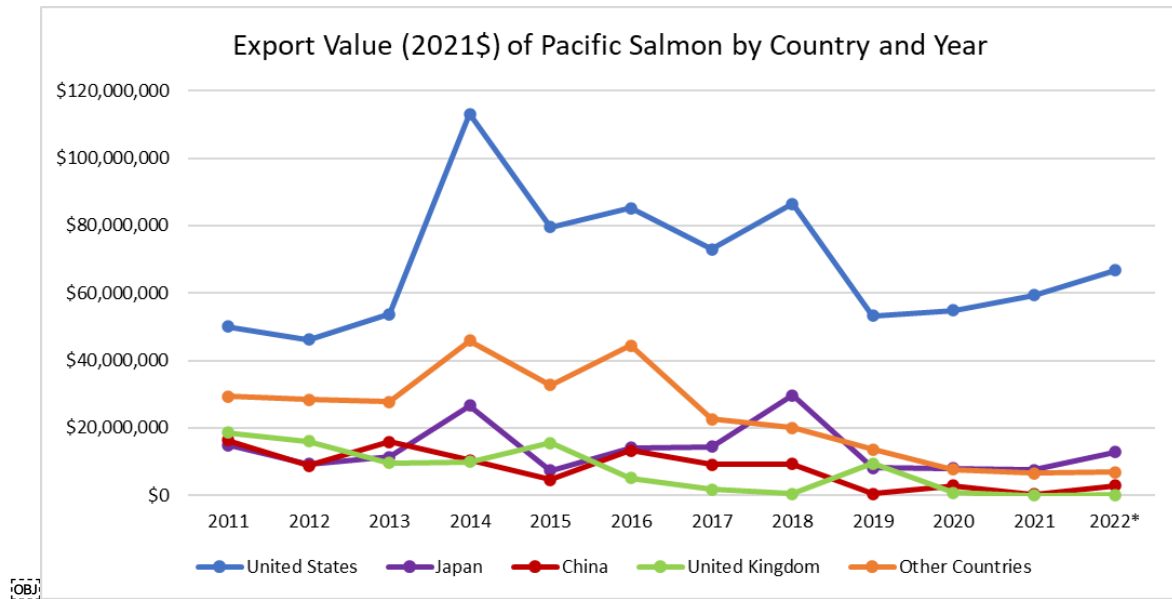


Figure 4.4-3: Total value of Pacific salmon exports from BC per main importers, 2011-2022 (in 2022\$)

Source: Statistics Canada EXIM database accessed on December 2023.

*Estimates for 2022 are to be treated as preliminary

Figure 4.4-4 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.

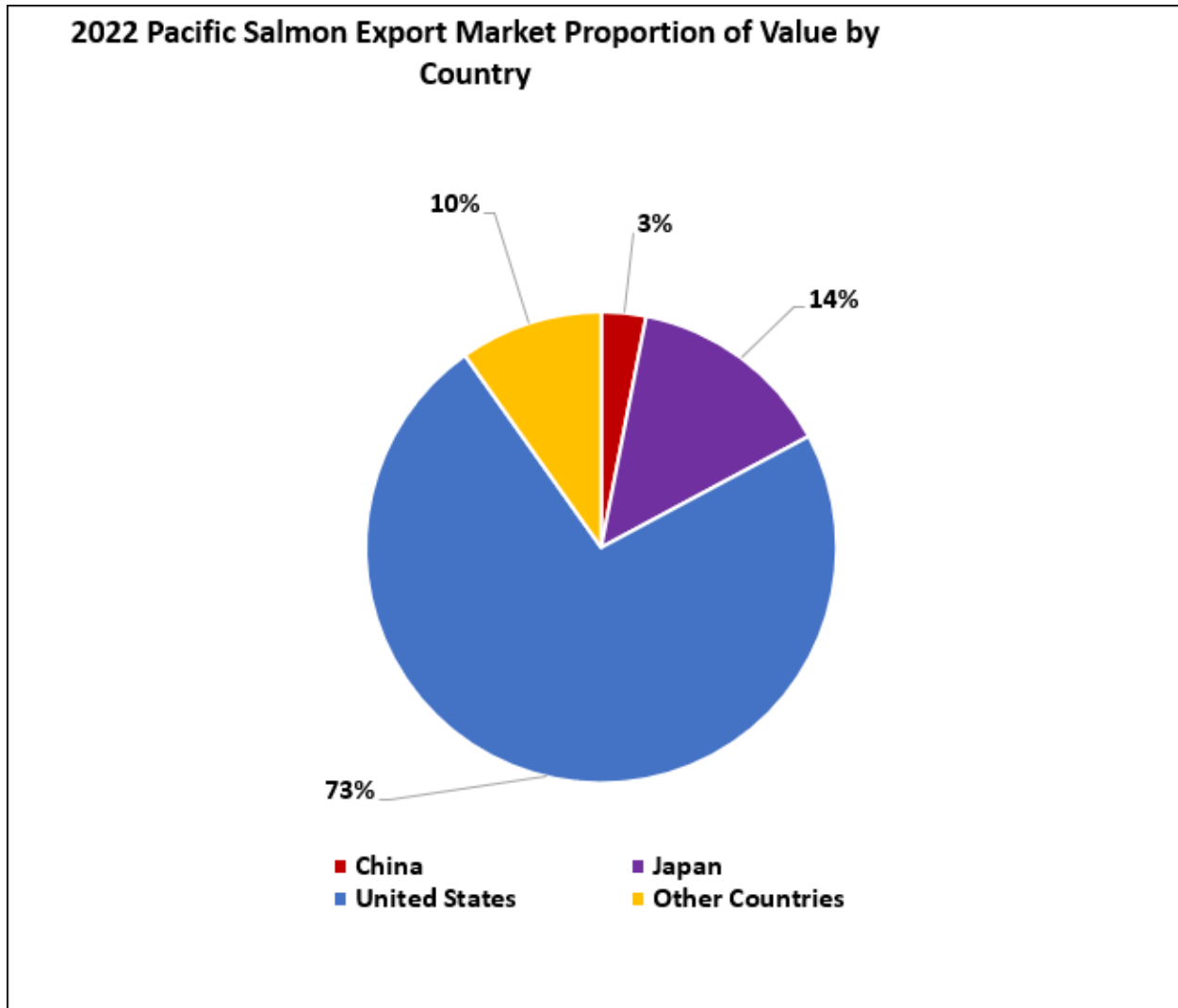


Figure 4.4-4: Proportions of total value of Pacific salmon exports from BC by main destination countries in 2022

Source: Statistics Canada EXIM database accessed in December 2023.

*Estimates for 2022 are to be treated as preliminary

REFERENCES:

BC Ministry of Agriculture, Food, and Fisheries (BCMOAFF). Various years. Sector Snapshot: B.C. Seafood. <https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/statistics/agriculture-and-seafood-statistics-publications>

BC Ministry of Agriculture (BCMOA). Various years. British Columbia Seafood Industry Year in Review. <https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/statistics/agriculture-and-seafood-statistics-publications>

BC Stats. 2018. British Columbia’s Fisheries and Aquaculture Sector, 2016 Edition. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/statistics/industry-and-sector-profiles/sector-reports/british_columbias_fisheries_and_aquaculture_sector_2016_edition.pdf

Castlemain. Various Years. Analysis of Commercial Fishing Licence, Quota, and Vessel Values.

4 ECONOMIC, SOCIAL AND CULTURAL IMPORTANCE

Fisheries and Oceans Canada (DFO). Various years. Survey of Recreational Fishing in Canada. <http://www.dfo-mpo.gc.ca/stats/rec/canada-rec-eng.htm>

Gislason, G. 2011. The British Columbia Salmon Fleet Financial Profile 2009. <http://waves-vagues.dfo-mpo.gc.ca/Library/343812.pdf>

Gislason, G and Associates. 2017. Linkages between seafood harvesting and processing, pp.1-7.

Nelson, Stuart. Various Years. West Coast Fishing Fleet: Analysis of Commercial Fishing Licence, Quota, and Vessel Values. <http://waves-vagues.dfo-mpo.gc.ca/waves-vagues/>

Nelson, Stuart. 2009. Pacific Commercial Fishing Fleet: Financial Profiles for 2007. <http://www.dfo-mpo.gc.ca/Library/343814.pdf>

Nelson, Stuart. 2011. Pacific Commercial Fishing Fleet: Financial Profiles for 2009. <http://www.dfo-mpo.gc.ca/Library/343762.pdf>

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. In order to achieve this, specific actions are taken to not only ensure protection of fish stocks, but also 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 lays 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. 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. The purposes of the *Act* are “to prevent wildlife species from being extirpated or becoming extinct, and to provide for the recovery of a 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 in the recovery strategy or an action plan for the species.

To view the list of extirpated, endangered, threatened, and special concern species currently listed under Schedule 1 of SARA, please visit: <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>

The process to list a wildlife species on Schedule 1 of SARA is initiated after an assessment by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) for that species is completed. The SARA legal listing process formally begins when the Minister of Environment and Climate Change issues a response statement, detailing how he intends to proceed with the COSEWIC species designations. Response statements can be found at *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.”

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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.

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Please visit the [Species at Risk Public Registry](#) for the most up to date list of aquatic species that are currently listed under SARA, the [Committee on the Status of Endangered Wildlife in Canada](#) (COSEWIC) status reports and associated recovery documents.

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.

6 FISHERY MANAGEMENT OBJECTIVES AND STOCKS OF CONCERN

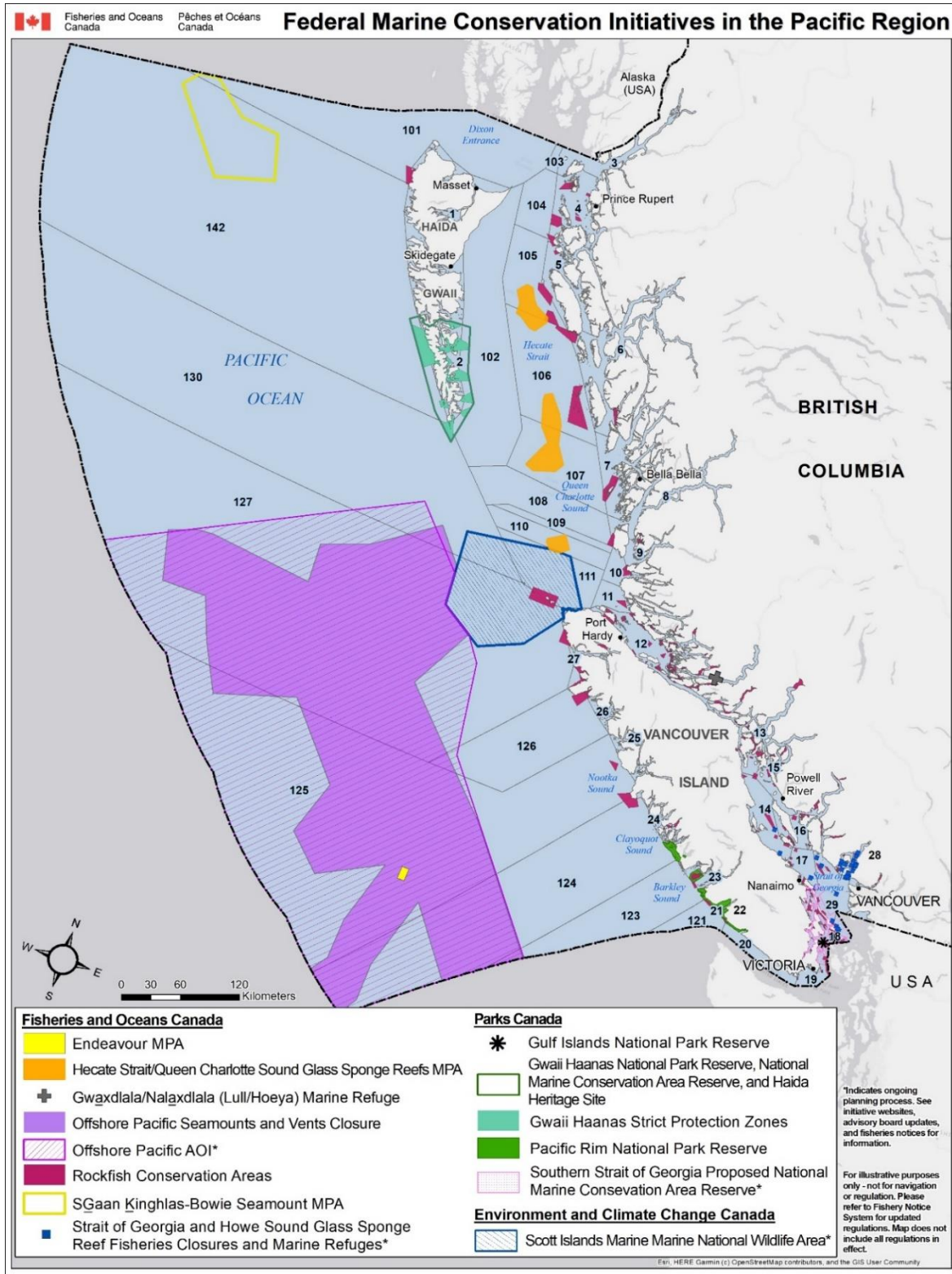


Figure 5.2-1. Pacific Fisheries Management Areas and Federal Marine Conservation Initiatives and Closures

Table 5-1. Overview of Federal Marine Conservation Initiatives in DFO Pacific Region (see Figure 5.2-1 map)

Name	Type	Lead	Weblinks	Contact	Fishery Considerations
Fisheries and Oceans Canada, <i>Ocean's Act</i> and <i>Fisheries Act</i>					
Endeavour Hydrothermal Vents Marine Protected Area	MPA	DFO	http://www.dfo-mpo.gc.ca/ocean/s/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.
SGáan Kínghlas-Bowie Seamount Marine Protected Area	MPA	DFO & Council of Haida Nation	http://www.dfo-mpo.gc.ca/ocean/s/mpa-zpm/bowie-eng.html	Email: DFO.Bowie MPA-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 <u>all</u> 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/ocean/s/mpa-zpm/hecate-charlotte/index-eng.html	Email: DFO.HSQC SMPA-ZPMDHBR C.MPO@df o-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

6 FISHERY MANAGEMENT OBJECTIVES AND STOCKS OF CONCERN

					(CPZ) are closed to anchoring and all fishing activities. Vertical Adaptive Management Zones (VAMZs) and Adaptive Management Zones (AMZs) are closed to some commercial and recreational fishing activities.
Tang.cwan – ḥačxwīqak – 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

6 FISHERY MANAGEMENT OBJECTIVES AND STOCKS OF CONCERN

					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 4,350km 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. 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.PAC.FMMCT-OCMGPP.AC.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.PAC.FMMCT-OCMGPP.AC.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, <i>National Marine Conservation Areas Act</i>					

6 FISHERY MANAGEMENT OBJECTIVES AND STOCKS OF CONCERN

Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site	NMCA R	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. 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, <i>Canada Wildlife Act</i>					
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-Scott_MP@dfompo.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 PACIFIC NORTH COAST INTEGRATED MANAGEMENT AREA(PNCIMA)

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 NORTHERN SHELF BIOREGION MARINE PROTECTED AREA NETWORK PLANNING PROCESS

The Government of Canada, the Province of BC and First Nations are working together to develop a planned approach for a Network of marine protected areas for the Northern Shelf Bioregion. The planning process is being developed under the policy direction outlined in the National Framework for Canada's Network of MPAs, the Canada-British Columbia MPA Network Strategy, and is informed by previously developed First Nation marine plans and the BC Marine Planning Process.

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

5.2.6 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>

5.2.7 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>

5.2.7.1 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 does mean 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 4,350km² of the Canadian Pacific Coast. These areas are closed to a range of recreational and commercial fisheries to protect inshore rockfish and their habitat.

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.

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 **Error! Reference source not found.**), 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

The Department 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



5.3.3.2 SIGHTING REPORTING

The Department 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 BC Cetacean Sightings Network:

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

Email: sightings@ocean.org

Website: <http://wildwhales.org/>

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

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 (*Cetorhinus 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-especies/publications/sharks/coc/coc-sharks/index-eng.html>

5.3.6 CODE OF CONDUCT FOR BASKING SHARKS: [HTTPS://WWW.DFO-MPO.GC.CA/SPECIES-ESPECES/PUBLICATIONS/SHARKS/COC/COC-BASKING/INDEX-ENG.HTML](https://www.dfo-mpo.gc.ca/species-especies/publications/sharks/coc/coc-basking/index-eng.html) SARA LISTED 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

5.3.6.1 SARA LISTING PROCESS FOR PACIFIC COAST FEEDING GROUP AND WESTERN PACIFIC GREY WHALE POPULATIONS

The Grey Whale is a medium- to large-sized baleen cetacean. As of 2017, COSEWIC recognizes three Grey Whale populations in Canadian Pacific waters. The Eastern North Pacific population, currently Special Concern on Schedule 1 of SARA, was split into two populations. A broader Northern Pacific Migratory population, which migrates from winter breeding grounds in Mexico to summer feeding areas in the Bering Sea and Arctic waters, was assessed by COSEWIC as Not at Risk. A small population which over-winters in Mexico and resides and feeds in British Columbia waters in summer and fall, the Pacific Coast Feeding Group, was assessed as Endangered. A new Western Pacific population, which was recently found to contain individuals that migrate through British Columbia waters to breeding areas in Mexico, was also assessed as Endangered.

The two COSEWIC-assessed Endangered Grey Whale populations are under consideration for SARA listing. Consultations on these proposed amendments under SARA and the potential impacts of SARA listing are anticipated to be held in 2023. For further information, please contact the Species at Risk Program at DFO.PACSAR-LEPPAC.MPO@dfo-mpo.gc.ca.

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^{8,9}.

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

⁸ 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

⁹ Stredulinsky, E., et al. 2023. Delineating important killer whale foraging areas using a spatiotemporal logistic model. *Global Ecology and Conservation*.

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 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 \(dfo-mpo.gc.ca\)](https://www.dfo-mpo.gc.ca/marine-mammals/bulletin-2)

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@df-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:

- A) Feeding, swimming or interacting with a marine mammal;
- B) Moving a marine mammal (or enticing/causing them to move);
- C) Separating a marine mammal from its group or going between them and a calf;
- D) Trapping a marine mammal or its group between a vessel and the shore, or between a vessel and other vessels; and
- E) 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:

- F) Reporting an injured, stranded, entangled or dead marine mammal to the [BC Marine Mammal Response Network \(Observe, Record, Report\)](#): 1-800-465-4336
- G) Reporting as bycatch in a logbook
- H) [Reporting accidental contact through the marine mammal interaction form](#)
- I) 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 \(dfo-mpo.gc.ca\)](https://www.dfo-mpo.gc.ca/aquaculture/eng/eng-eng.html).

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 CATCH MONITORING

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-ppsp-mise-en-oeuvre-eng.htm>

6 FISHERY MANAGEMENT OBJECTIVES AND STOCKS OF CONCERN

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*.

6.1 CONSERVATION OF PACIFIC SALMON

Conservation of Pacific salmon is the primary objective and will take precedence in managing the resource.

The primary fisheries management objective of DFO is the conservation of Canada's fish stocks for current and future generations through sustainable and responsible fisheries management that is science based, applies the precautionary approach, addresses ecosystem considerations and uses a risk-based approach. Accordingly, the attainment of escapement targets and maintenance of fish habitat are of primary importance in managing for the optimum production of salmon stocks.

In the Transboundary rivers area, management plans are focused on Chinook, Sockeye and Coho salmon in the Stikine and Taku rivers and Chinook and Sockeye salmon in the Alsek River. These stocks all are managed under provisions of the PST. Spawning escapement goals for these stocks have been established as ranges which reflect biological data and professional judgment regarding stock productivity, the ability of existing management systems to deliver established goals, the accuracy and precision of estimates of escapement generated by stock assessment programs and the degree of risk considered acceptable. Specific goals and conservation targets for Alsek, Stikine and Taku salmon stocks are described in Sections 13.1-13.3, under respectively.

When returns decline below sustainable levels, management actions are taken which may include reducing the impact of fisheries on specific stocks, strategic enhancement and habitat restoration. Stocks within the Transboundary rivers which require special management considerations for 2022 include: Stikine River Chinook salmon and Taku River Chinook salmon. Details on how these stocks will be managed are provided in Section 13.1-13.3 (Sections 13.1.5, 13.2.5, 13.3.5 and 13.1.6, 13.2.6, 13.3.6) of this plan.

6.2 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 Transboundary Technical Committee and reviewed at post-season meetings of the Transboundary Panel; associated technical reports are published by the PSC. Summaries of Transboundary treaty performance for 2019 appear in the post season review sections of Section 13.1 (Section 8), Section 13.2 (Section 9) and Section 13.3 (Section 9).

6.3 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 on-line 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 6.4

An update on the review of the Salmon Allocation Policy can be found in Section [1.6.1](#).

6.4 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 6-1: 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.

6.4.1 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.

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.

6.4.2 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 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.

6.4.3 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 resulting in less than optimal opportunities.

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.

The ability to achieve allocations is often limited by conservation constraints and other factors. Low impact fisheries (limited number of vessels/licences) 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.

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 inconsistent with the allocation targets.

6.4.4 TEST FISHERIES (ASSESSMENT)

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.

6.4.5 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, 502 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 – Area Specific Salmon Fishing Plans.

6.4.6 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 in 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, 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 requirements, which cannot be met through approved FSC 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 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 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](#) — Transboundary Rivers area Specific Salmon Fishing Plans.

7.1.1 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 run forecasts, escapement targets, exploitation rate limits, sector allocations and enforcement objectives.

7.1.2 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.

7.1.3 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.

7.1.4 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.

7.1.5 RELEASE MORTALITY RATES USED TO ACCESS FRIMS

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 7-1: Post-Release Mortality Rates. The revised rates reflected the results of additional research on post-release mortality rates that were available at that time. DFO has generally continued to use these post-release mortality rates each year in the development of annual fishing plans including this salmon IFMP.

DFO will review the post-release mortality rates currently used for salmon fisheries in Canadian waters and update 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 7-1: Post-Release Mortality Rates

Fishery	Pre 2001 Post-Release Rates (for historical comparison)	Post 2001-Release 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%

Fishery	Pre 2001 Post-Release Rates (for historical comparison)	Post 2001-Release Rates
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
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 has been undertaken in 2012 and 2013 to re-evaluate the release mortality rates for Coho caught using purse seine gear in Area 20. Results to-date indicates that short-term release mortality rates are less than the current 70% estimate. For the 2021 fishery, the Department will use a 50% release mortality 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*:

- III. Voluntary **compliance promotion** through education, stewardship and stakeholder engagement;
- IV. Intelligence-led **monitoring, control and surveillance** activities;
- V. 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;

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 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;
- Utilization 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.

9.1 2023/24 POST SEASON REVIEW FOR ACCESS AND ALLOCATION OBJECTIVES

The results of the previous year's annual review (e.g. 2023 season) for the Transboundary Rivers are provided in: Section 13.1.8 (for the Alsek); Section 13.2.9 (for the Stikine); and, Section 13.3.9 (for the Taku) of this document.

9.1.1 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 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>

9.1.2 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.

9.1.3 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 2023/24 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 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, to other users of the resource.

10.1 CANADA AND FIRST NATION LONG-TERM AGREEMENTS - TREATIES AND RECONCILIATION AGREEMENTS

10.1.1 TREATIES

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-traits-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 Nacho 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.

10.1.2 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:

- *GayGahlda “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:

- *Haílčístut 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 Tšilhqot’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 Nuchanulth 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).

1.1.1 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 LICENCING

First Nations opportunities to harvest salmon for food, social and ceremonial purposes is 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 details of the FSC fishery including the dates, times, methods, locations of harvest. Communal licences for Transboundary First Nations are for salmon and are generally issued on an annual basis.

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 form the basis of the communal licence issued by DFO. Where agreement cannot be reached, Fisheries and Oceans Canada will nonetheless issue an Aboriginal communal fishing licence to the group based on DFO's best understanding of the group's Indigenous fishery.

10.2.1 COMMUNAL LICENCE HARVEST ALLOCATION

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.

Where requests are put forward by First Nations for changes in FSC access arrangements, these are evaluated against a common set of criteria. FSC access should reflect some 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>

10.3 INDIGENOUS COMMERCIAL FISHING OPPORTUNITIES

10.3.1 ALLOCATION TRANSFER PROGRAM

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.

10.4 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-ppsp-mise-en-oeuvre-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-ppsp-mise-en-oeuvre-eng.htm>

Appendix III provides further information on the national *Fishery Monitoring Policy*, risk assessment tools, and steps for implementation.

10.4.1 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 2018 to 16 First Nation's currently using AHMS throughout the Region, with 6 First Nations still using MS Access databases. FSC data is now being maintained by DFO within KREST (the Kept and Released Estimation Survey Tool).

For more information contact Aleta Rushton at 250-230-1227.

II 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.

II.1 RECREATIONAL

Recreational Salmon – British Columbia (Taku and Stikine drainages; Alsek drainage – B.C. portion)

The management of salmon fisheries in B.C. in both tidal and fresh waters, is the responsibility of Fisheries and Oceans Canada (DFO). The regulations related to fishing limits and opening and closures for salmon fishing in fresh water are available online: <https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/bc-zones-cb-eng.html>. For Taku, Stikine, and Alsek (B.C. portions) recreational fishery information reference zone 6 (Skeena).

Recreational Salmon – Yukon (Alsek drainage – Yukon portion)

The management of salmon fisheries in the Yukon, is in fresh waters and is the responsibility of Fisheries and Oceans Canada (DFO). The a regulations related to fishing limits and opening and closures for salmon fishing in fresh water available online:

DFO Link: <https://www.pac.dfo-mpo.gc.ca/yukon/regs-eng.html>

Yukon Fishing Regulations summary: <https://yukon.ca/en/yukon-fishing-regulations-summary>

II.2 RECREATIONAL VISION - BC

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 A/Regional Recreational Fisheries Coordinator Greg Hornby (250) 286-5886.

II.3 LICENCING

British Columbia – Salmon Freshwater

To fish for salmon in fresh water, a provincial Non-Tidal Angling Licence is required. To retain any salmon caught in fresh water, your provincial Non-Tidal Angling Licence must be validated with a Non-Tidal Salmon Conservation Stamp. Check for applicable fees and purchase your licence online via the Province of BC:

<https://www2.gov.bc.ca/gov/content/sports-culture/recreation/fishing-hunting/fishing/recreational-freshwater-fishing-licence>

Alternatively, licences may be purchased over the counter at Independent Access Providers (IAPs) in many areas (note that the IAP may charge an additional service fee).

Licences may be purchased online via the National Recreational Licensing System:

<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>.

Yukon –Salmon Freshwater

To fish for and retain salmon in freshwater of the Yukon, fishers must have both a Yukon Angling licence and a Salmon Conservation Catch card. Salmon Conservation Catch Cards are available online through the National Recreational Licensing System: <https://recfish-pechesportive.dfo-mpo.gc.ca/nrls-sndpp/index-eng.cfm>

11.3.1 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

11.3.1.1 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>

11.3.1.2 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-pechebc-app-faq-eng.html> and at <http://www.fishingbcapp.ca/>

II.4 CATCH MONITORING

The SFAB has been working with DFO on initiatives to strengthen fishery monitoring and catch reporting in the BC recreational fishery. To this end, a plan has been developed to meet the objectives of the *Strategic Framework for Fishery Monitoring and Catch Reporting in Pacific Fisheries* (2012)(Appendix III). 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. 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.

The Salmon Conservation Catch Card, was implemented in 1999, as a mechanism to collect recreational salmon harvest information in the Yukon. Fishers are required to record their salmon catch on the Salmon Conservation Catch Card, then submit it to Fisheries and Oceans Canada by November 30 of year of issue.

11.4.1 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.

11.4.2 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>

11.4.3 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.

11.4.4 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 COMMERCIAL FISHERIES

Details regarding specific commercial fisheries are contained in the Section [13](#) – 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 their 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/PREFIX

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 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

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>

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](mailto: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 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 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 0 – Management Objectives for Stocks of Concern). Fisheries that occur on the Transboundary Rivers (Stikine and Taku) 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).

12.3 LICENCE CONDITIONS

12.3.1 TRANSPORTING

Please see Part III of the commercial 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 licence eligibility holders and has previously been a provincial requirement for transport (packer) vessels. It is a federal requirement for transport (packer) 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 transport (packer) vessel received fish, approximate volume 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 NON-RETENTION SPECIES

There are local and, at times, seasonal restrictions on various salmon species. Please refer to the Fishery Notice that is released prior to every commercial fishery to determine any locally restricted species, or any in-season updates to the above.

12.3.3 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.

12.3.4 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 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 E-log Program. The service provider for the E-log Program in 2023 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.

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 exist 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 that 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.

Since 2011, the Department has been working with the Commercial Salmon Advisory Board as part of a Catch Monitoring Working Group to review catch monitoring requirements consistent with the *Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries* (2012). A set of minimum requirements has been developed for commercial salmon catch monitoring programs. Minimum catch monitoring requirements identified by DFO and the Commercial Salmon Advisory Board Catch Monitoring Working Group (CSAB CMWG) include:

- Independent verification of fishery specific effort
- Independent verification of landed catch
- Independent verification of at-sea releases
- Fishery specific minimum biological sampling standards
- Independent verification of compliance with fishery rules

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>

Appendix III provides further information on the national Fishery Monitoring Policy, risk assessment tools, and steps for implementation.

12.5 CONSERVATION MEASURES

12.5.1 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.

13 SALMON FISHING PLANS – ALSEK, TAKU AND STIKINE RIVERS

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13.1 ALSEK RIVER SALMON FISHING PLAN

13.1.1 INTRODUCTION

The Alsek River originates in the southwest Yukon and northwestern British Columbia and flows into the Gulf of Alaska via Dry Bay, which is located approximately 80 km southeast of Yakutat, Alaska (Figure 13.1-1). Much of the watershed lies within the national parks and protected areas of the International Kluane/Wrangell-St. Elias/Glacier Bay/Tatshenshini-Alsek World Heritage Site (see: <http://whc.unesco.org/en/list/72>). Three ecoregions are represented in the area including the Yukon-Stikine Highland, Ruby Ranges and the St. Elias Mountain ecoregions. Coastal portions lie within the Pacific Maritime ecozone (Smith, et al. 2004¹⁰). The topography is diverse, from dynamic braided river valley flats, to extensive icefields bounded by the highest mountains in Canada, to the drier and highly variable temperatures of the interior highlands.

13.1.1.1 DESCRIPTION OF THE ALSEK RIVER RESOURCE

The Alsek River drainage is a moderate producer of Chinook, Sockeye and Coho salmon most of which spawn in the Canadian portion; limited spawning activity has been observed and documented in U.S. tributaries in the lower river. Only low numbers of Pink and Chum salmon occur in the lower reaches of this drainage. Salmon access to headwaters of the Alsek River proper is denied by a major velocity barrier at Turnback Canyon which is located roughly 130 km upstream from the Canada/U.S. border. As a result, most spawning areas in Canada occur in the Tatshenshini River drainage and its headwater tributaries in the Yukon and northwestern B.C. and along the margins of the lower Alsek River.

Salmon stocks returning to the Alsek River (also referred to as Alsek/Tatshenshini River) drainage are managed by DFO, the Champagne and Aishihik First Nations (CAFN) and ADFG.

13.1.1.1.1 Chinook Salmon

From 1997 to 2004, mark-recapture estimates of the total in-river run size of Alsek drainage adult Chinook salmon averaged approximately 9,900 fish (range: 5,580-15,856 fish). Although the tagging program terminated in 2004, total run size estimates have been made intermittently since that time using a combination of expanded Klukshu River counts and genetic stock identification results. In 2022, mark recapture estimates of total in-river run size of Alsek

¹⁰ Smith, C.A.S., Meikle, J.C., and Roots, C.F. (editors). 2004. Ecoregions of the Yukon Territory: Biophysical properties of Yukon landscapes. Agriculture and Agri-Food Canada, PARC Technical Bulletin No. 04-01, Summerland, British Columbia, 313 p.

drainage adult Chinook salmon were initiated with estimates generated in 2022 and 2023. Estimates based on these data have ranged from 3,489 to 4,359 Chinook salmon, respectively. The run generally enters the river mouth in early May, peaks early June and has vacated the lower river by early July. The run reaches accessible areas of the Canadian portion of the drainage in late June, peaks in late July, with spawning mostly completed by end of August.

Although several spawning sites have been located throughout the Tatshenshini drainage, these populations have been aggregated into one Chinook CU (ALSEK) based on ecotypic and timing characteristics. Primary Chinook salmon spawning stocks include: Klukshu River; Blanchard River; Takhanne River; Goat Creek; and the mainstem Tatshenshini River.

The Klukshu River is the largest Chinook producing tributary of the Tatshenshini River. During years when system-wide population estimates were calculated from mark-recapture studies (1997-2004), Klukshu Chinook accounted for an average of 21.5% of the total Alsek Chinook escapement (range = 14.0% to 32.2%). However, in 2007 and 2011 to 2015 (as calculated from genetic stock identification (GSI) data), the Klukshu River count on average accounted for 48% of the total escapement. Based on total counts, the spawning escapement in the Klukshu River over the past decade (2014-2023) has averaged approximately 1,100 Chinook salmon (historical range since 1976: 443 in 2017, to 5,394 in 1995). Since 1976, the escapement has displayed a declining trend with current averages half of the late 1970's, 1980's and 1990's (Figure 13.1-1).

13.1.1.1.2 Sockeye Salmon

Estimates of the total in-river run size of Alsek Sockeye salmon have averaged approximately 85,500 fish over the past decade. Since 2011 the estimates have been based on a combination of Klukshu River counts and GSI data. In 2022, mark recapture estimates of total in-river run size of Alsek drainage adult sockeye salmon were initiated with estimates generated in 2022 and 2023. The run generally enters the river mouth in early June, peaks early July and has vacated the lower river by early August. The run reaches accessible areas of the Canadian portion of the drainage in late July, peaks in late August, with spawning mostly completed by end of September.

One River-type and three Lake-type Sockeye Conservation Units have been identified for the Alsek River based on genetic and ecotypic attributes. The River-type CU is broadly distributed in the drainage from spawning populations in side-slough areas in the lower mainstem Alsek River to river spawning populations of the Takhanne, Blanchard and upper Tatshenshini River. The Lake-type CU's include: Klukshu, Blanchard and Nesketahin. Improved understanding of population run timing characteristics is ongoing. For example, the early Klukshu River Sockeye run (which peaks in mid-July) is dominated by river-type fish, and the generally more abundant

later Klukshu River Sockeye run (which peaks in early-to-mid September) is dominated by lake-type fish.

The status of Alsek Sockeye salmon is monitored primarily through the assessment program located on the Klukshu River where the recent 10-year (2014-2023) average escapement is approximately 12,400 Sockeye salmon (historical range since 1976: 2,741 in 2008, to, 32,120 in 2003). On average, Klukshu Sockeye escapement accounts for approximately 20% of the above border drainage escapement (determined by mark-recapture or GSI programs). Smoothed counts (10-year moving averages) indicate a waning trend in the total count with early time series declining by approximately 40% to current levels. Inter-annual counts are highly cyclic characterized by un-sustained highs and deep lows.

13.1.1.1.3 Coho Salmon

System-wide population estimates for Alsek Coho salmon are not available. For management purposes, Alsek Coho salmon are treated as a single stock. One Coho CU has been identified based on ecotypic characteristics. Information regarding Coho spawning distribution in the Alsek-Tatshenshini drainage is incomplete and not nearly as extensive as that for Chinook and Sockeye salmon, which have the benefit of radio-tagging data and GSI baselines. Some of the known Coho spawning locations include: Klukshu River, Takhanne River and Village Creek.

Counts of Coho salmon through the Klukshu River assessment program have averaged approximately 2,820 fish over the (2014-2023) period and have ranged from 30 (1978) to 11,671 (2023) since 1976. Unfortunately, these Coho salmon counts constitute an incomplete record of total abundance into the Klukshu River since the assessment program is terminated due weather conditions before the migration is completed. Nevertheless, since 1976, there is an overall increasing trend in the count and the current 10-year average exceeds those in the early 1980's by a factor of roughly 2.5.

13.1.1.1.4 Pink and Chum Salmon

Little information exists for Alsek Pink and Chum salmon. Based on very low and intermittent catches in the U.S. fishery in Dry Bay at the river mouth, combined with the lack of observations of these species in the Canadian section of the drainage, suggests production is low. No Alsek Pink or Chum salmon CU's have been identified.

13.1.1.1.5 Steelhead

Steelhead have been observed infrequently and in low numbers in the upper Tatshenshini (Village Creek and Klukshu River). Information regarding this species in the Alsek River drainage is limited.

13.1.1.2 DESCRIPTION OF THE ALSEK-TATSHENSHINI RIVER SALMON FISHERIES

There are two fisheries that target salmon in the Canadian section of the Alsek River: the First Nation (FSC) fishery and the recreational fishery (Figure 13.1-1). The principal U.S. fishery that targets Alsek stocks is a commercial set gillnet fishery that operates in Dry Bay, Alaska near the mouth of the Alsek River. A small subsistence fishery also operates in Dry Bay. Alsek River salmon stocks are incidentally harvested (in unknown quantities) in Yakutat area marine and coastal areas, contributing to recreational, subsistence and commercial gillnet and troll fisheries.

13.1.1.2.1 Champagne and Aishihik First Nations (CAFN) Subsistence Fishery

The longest standing fishery within the Alsek River drainage in Canada is the CAFN subsistence fishery, which has relied on the salmon resources from the watershed since pre-European contact. In years of unrestricted fishing opportunity, approximately 100-150 members of the CAFN harvest primarily Chinook and Sockeye salmon in the upper Tatshenshini drainage (Figure 13.1-1). Recent 10-year average (2014-2023) catches include approximately 26 Chinook salmon and 800 Sockeye salmon. Catches have declined over the past 3-4 decades. Although catches have been low, traditionally the preferred Sockeye salmon are the early run fish due to their good condition and arrival earlier in the summer which makes them more suitable for drying. The later, but more abundant late summer Klukshu run occurs when the weather is generally becoming wetter and less suitable for drying. The main fishing locations include the Klukshu River (60 km south of Haines Junction, Yukon) at Klukshu Village, and near the mouths of Vand and Motherall creeks, Village Creek and to a lesser extent Goat Creek and Blanchard River.

Fishing generally commences in late June and continues until October. Traditional fish traps have been used to harvest salmon at the outlet of Klukshu Lake and gaffs are used in many other fishing areas. Set nets and angling/snagging have become more popular over time. In some years, special harvest arrangements for elders have occurred through the Klukshu River assessment program.

13.1.1.2.2 Recreational Fishery

Recreational fisheries in the Alsek River occur both in British Columbia and in Yukon with the majority of the effort occurring in Yukon on the Tatshenshini River near the abandoned settlement of Dalton Post (

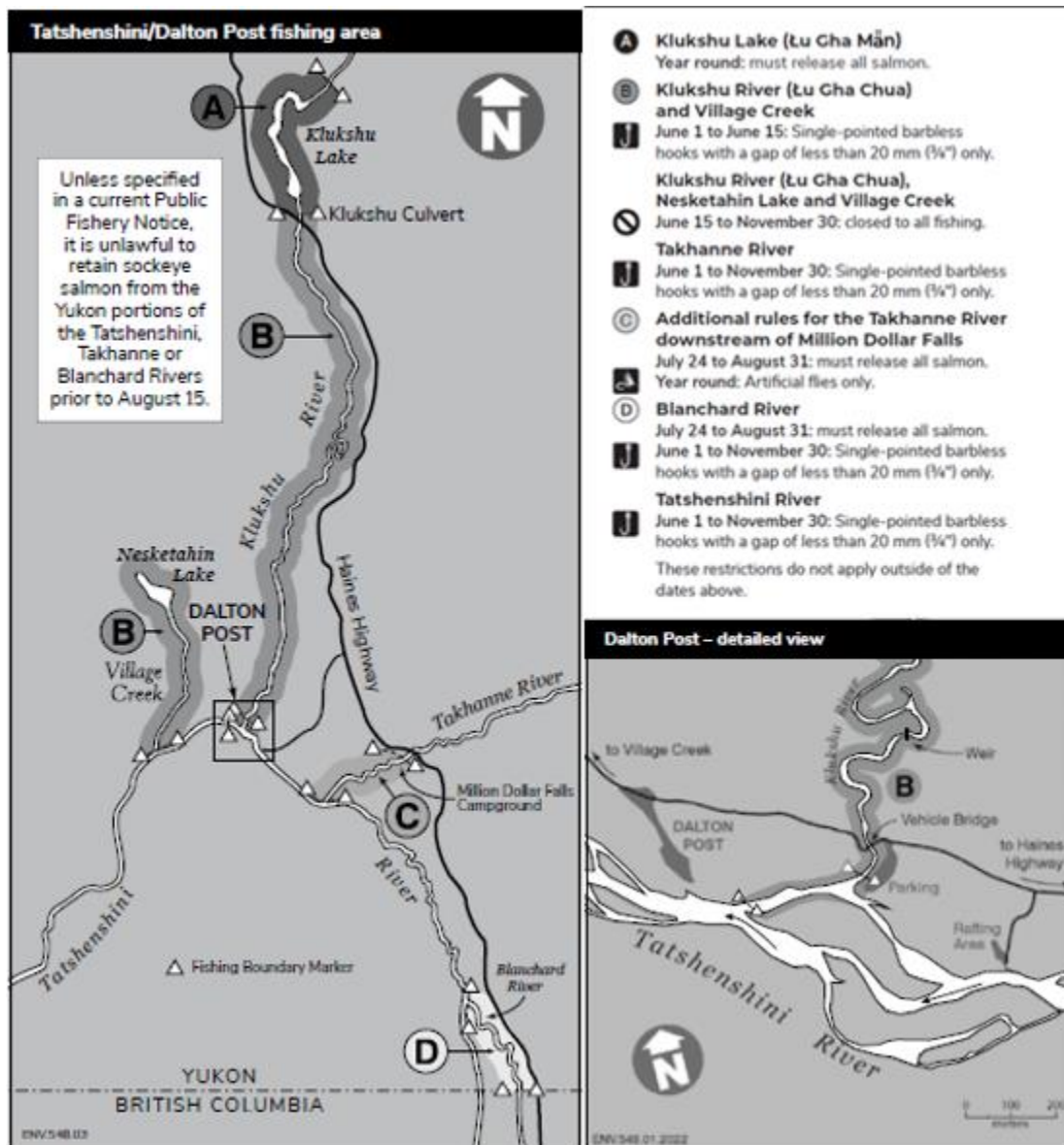


Figure 13.1-2). The number of anglers participating in the Alsek River recreational fisheries varies considerably from year to year, and is influenced by a number of factors such as run strength, river conditions and weather. For example, in 2022 only 42 recreational anglers participated in the Alsek River recreational fishery in the Yukon portion of watershed due to the weak Chinook and delayed opening for the Sockeye salmon run; this was down considerably from 2012 when 280 anglers reported fishing there.

13.1.2 RUN OUTLOOKS FOR ALSEK RIVER SALMON IN 2024

It is recognized that there is much uncertainty with pre-season forecasting in the Alsek River. Recent survivals of Chinook and Sockeye have been highly variable which has created significant challenges in forecasting with any certainty. Hence, the pre-season outlook serves to guide the pre-season planning and early in-season management stages, eventually giving way to in-season run projections when they become available.

13.1.2.1 CHINOOK SALMON

The Klukshu River Chinook salmon escapements in 2018 and 2019, which are the two principal brood years that contribute to the 2024 run, were 1,087 and 1,589 respectively. The returns from principal brood years were within the escapement goal range of 800 to 1,200 established by the PSC Transboundary Panel. Based on these primary brood year escapements, the pre-season stock-recruit and siblings outlook for Klukshu River Chinook salmon in 2024 is 1,500 fish. This includes an adjustment (reduction) to account for the recent 5-year forecast model error. The 2024 forecast is above the recent 10-year average (2013-2022) run size of approximately 1,100 Chinook salmon and within the escapement goal range.

13.1.2.2 SOCKEYE SALMON

The 2024 overall Alsek River Drainage Sockeye salmon run is expected to be approximately 137,000 fish, which is above the recent 10-year average (2014-2023) run size of approximately 92,000 Sockeye salmon. The outlook for 2024 is based on a predicted run of 31,000 Klukshu River Sockeye salmon derived from a Klukshu River stock-recruitment model (2011 Eggers et al.) and represents 23% of the Alsek River run. The outlook was adjusted (reduced) to reflect recent variability in marine survival of Sockeye salmon. Principal contributing brood years were 2019 (Klukshu River escapement of 18,700 Sockeye salmon) and 2020 (Klukshu River escapement of 4,300 Sockeye salmon). An escapement goal range of 7,500 to 11,000 has been established by the PSC Transboundary Panel for the Klukshu River Sockeye salmon stock.

13.1.2.3 COHO SALMON

The Coho salmon primary brood year escapements through the Klukshu River weir in 2020 (3,869 fish) and 2021 (3,559 fish) were above the 10-year average of 2,820 adult fish, which suggests that the 2024 run will be average to above average.

13.1.3 SPAWNING ESCAPEMENT GOALS FOR ALSEK SALMON

13.1.3.1 CHINOOK SALMON

The escapement goal range for the Klukshu River Chinook salmon stock is 800 to 1,200 fish, with a management objective (SMSY) of 1,000 fish. The drainage wide escapement goal range for Alsek River Chinook salmon is 3,500 to 5,300 with a management objective (SMSY) of 4,700 fish. The analyses and rationale for this goal were submitted for peer-reviewed to the Canadian Science Advisory Secretariat (CSAS) in 2010 and results published in 2011 (https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2011/2011_019-eng.html). This escapement goal range was recommended by the PSC TTC, the Transboundary Panel and adopted by Canada and the United States in 2013.

13.1.3.2 SOCKEYE SALMON

The escapement goal range for the Klukshu River Sockeye salmon stock is 7,500 to 11,000 fish, with a management objective (SMSY) of 9,700 fish. The drainage wide escapement goal range for the Alsek is 24,000 - 33,500 fish with a management objective (SMSY) of 29,700 fish. The analyses and rationale for this goal were submitted for peer-reviewed to the Canadian Science Advisory Secretariat (CSAS) in 2010 and results published in 2011 (https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2011/2011_018-eng.html). This escapement goal range was recommended by the PSC TTC, the Transboundary Panel and adopted by Canada and the United States in 2013.

13.1.3.3 COHO SALMON

An escapement goal for Coho salmon in the Alsek River has not yet been established.

13.1.4 CONSULTATION PROCESS FOR ALSEK SALMON FISHERIES

The development of decision guidelines and specific fishery management plans for Alsek fisheries involves consultation with the YSSC, CAFN as well as consideration of DFO policies, deliberations of the Transboundary Rivers Panel, scientific advice and Fishery Manager experience. In Yukon, the First Nation consultative process is guided by individual First Nation Final Agreements.

13.1.4.1 YUKON UMBRELLA FINAL AGREEMENT AND THE CHAMPAGNE AND AISHIHIK FIRST NATIONS FINAL AGREEMENT

The Yukon First Nation Umbrella Final Agreement (UFA) was approved in 1993 by the Government of Canada, Government of Yukon and Yukon First Nations as represented by the Council of Yukon First Nations (CYFN). The UFA served as a framework for the establishment of individual Yukon First Nation Final Agreements. The Champagne and Aishihik First Nations (CAFN) Final Agreement was signed May 29, 1993 and ratified in 1995 (<https://www.rcaanc-cirnac.gc.ca/eng/1294331836730/1542812214590>). Yukon First Nation Final Agreements represent an exchange of undefined aboriginal rights for defined treaty rights. Specifically, a Yukon First Nation Final Agreement, which is considered a modern-day treaty, sets out specific rights for the particular First Nation and its citizens.

The UFA and CAFN Final Agreement also clarify the roles and responsibilities of Governments, First Nations and the committees, sub-committees and councils created to implement the UFA and Final Agreement including protocols for consultation. “Consultation” means to provide:

- to the party to be consulted, notice of a matter to be decided in sufficient form and detail to allow that party to prepare its views on the matter;
- a reasonable period of time in which the party to be consulted may prepare its views on the matter, and an opportunity to present such views to the party obliged to consult; and
- full and fair consideration by the party obliged to consult of any views presented.

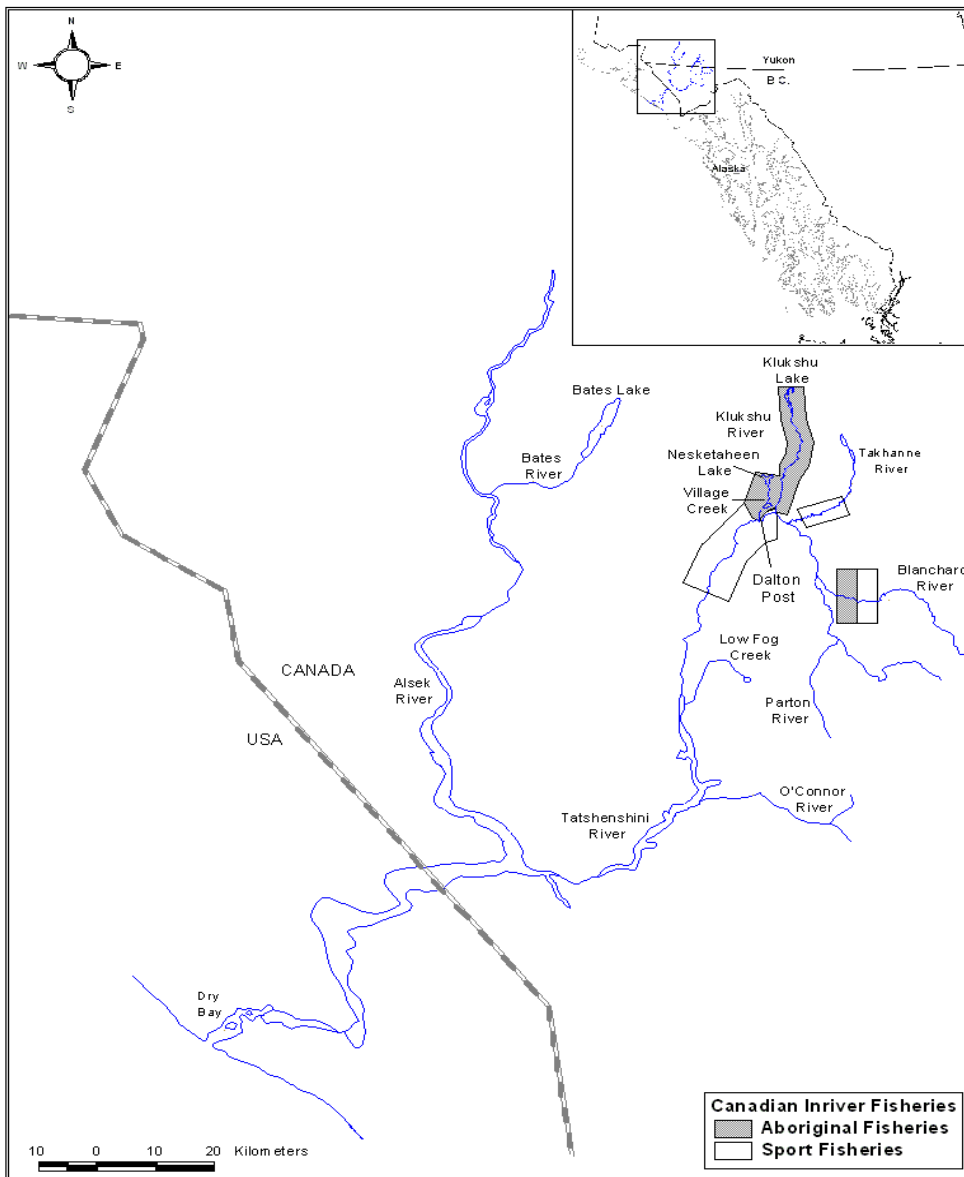


Figure 13.1-1: The Alsek River and principal Canadian fishing areas.

13.1.4.2 YUKON SALMON SUB-COMMITTEE (YSSC)

The YSSC, a public advisory body (a sub-committee) of the Yukon Fish and Wildlife Management Board, was established under the UFA as “the main instrument of salmon management in the Yukon”. The mandate of the YSSC is to garner public input into matters related to salmon through its authority to make official recommendations to the Minister of DFO and to Yukon First Nations. These recommendations may apply to all matters related to salmon, their habitats and management including legislation, research, policies, and programs but primarily focus on salmon harvest management. In particular, the UFA specifies that the

YSSC consult with First Nations on allocations and seek input from the public, and local Renewable Resource Councils (RRC) which were also established under the UFA, on salmon management plans. For example, the Alsek RRC can make recommendations to the YSSC on the timing and content of salmon management plans, allocation of commercial and other uses of salmon, and on other matters pertaining to the purview of the YSSC. Specific protocols including response options and timeframes for the Minister are outlined in the UFA and Final Agreements with respect to how the recommendations received from the YSSC are handled.

The members of the YSSC come from all regions of the Yukon and represent both First Nation and non-First Nation populations. The composition of the ten-member Committee is laid out in the UFA and is carefully structured to ensure diversity and balance. YSSC members consist of Yukon Fish and Wildlife Management Board appointees and nominees from Canada and the Yukon First Nations from the Alsek and Yukon River (including Porcupine) drainage basins. The YSSC has two seats allocated to provide input on matters affecting salmon in the Alsek River drainage.

At this time, the YSSC has not provided recommendations to the Minister regarding Alsek River salmon management matters for 2024.

13.1.4.3 TRANSBOUNDARY PANEL OF THE PACIFIC SALMON TREATY

Canada/U.S. arrangements for the coordinated conservation and abundance-based management of salmon stocks originating in the Canadian portion of the Alsek River are specified in Chapter 1, paragraph 3(c), of Annex IV of the PST. The Transboundary Panel oversees the implementation of these arrangements with technical support from the joint Transboundary Technical Committee. Fishery management, conservation, enhancement and stock assessment plans are reviewed and discussed annually by the Panel and/or the Committee.

Recommendations ensuing from the deliberations of the Panel can be made to the Pacific Salmon Commission which, upon review, may make recommendations to respective national governments.

The obligations and provisions contained in Chapter 1 of the PST and subsequent recommendations from the PSC adopted by the Parties provide a foundation for the development of this IFMP. Management regimes under Annex IV will be implemented by Fisheries and Oceans Canada and U.S. agencies for the 2024 season.

13.1.5 ALSEK-TATSHENSHINI DECISION GUIDELINES FOR 2024

Although Canada/U.S. harvest sharing arrangements for Alsek Chinook and Coho salmon have yet to be negotiated, an interim allocation of Sockeye salmon to Canadian fisheries is outlined in

Chapter 1, Annex IV of the PST which states: “the interim management intent of the United States is to pass sufficient Sockeye salmon into Canada to achieve the agreed Klukshu River spawning escapement goal range plus 3,000 Sockeye salmon”.

Because of the uncertainty associated with pre-season outlooks; in-season assessment information is used to inform fishery management decisions. In-season management primarily focuses on the projections of abundance of salmon into the Klukshu River derived from Klukshu counts expanded by historical and/or in-season timing data. The following Table 13-1 (below) summarizes management thresholds, i.e. trigger points, for implementation of more stringent conservation actions. Trigger points refer to the projected season total counts below which additional restrictions, including closures, in the specified fishery can be expected. Dates reflect when in-season projections are expected to be used.

Table 13-1: Alsek-Tatshenshini salmon management thresholds for conservation actions.

Run Component	Subsistence Triggers	Recreational Triggers	Date	Potential Subsistence Harvest
Chinook	800	N/A	July 18	10% of Klukshu count
Chinook	800	1,200	Post Aug. 14	10% of Klukshu count
Early Sockeye	1,500	N/A	July 18	10% of Klukshu count
Sockeye	1,500	4,500	Post Aug. 14	10% of Klukshu count
Total Sockeye	7,500	12,700	Sept. 06	10% of Klukshu count

[note: Trigger points are based on projected Klukshu counts; dates indicate when in-season information is expected to be available].

The trigger points outlined above are based on escapement requirements and Basic Needs Allocation (BNA) obligations. The general approach is to only consider restrictions to the First Nation subsistence fishery if the lower end of respective biological escapement goal range will not be achieved. The triggers for the recreational fishery are intentionally set higher than the First Nation subsistence fishery to reflect the priority for the First Nation subsistence fishery. They are derived from the management target plus the BNA established in the CAFN Final Agreement. For example, the recreational trigger of 12,700 for overall Sockeye management, is the sum of the management target of 9,700 plus the BNA for CAFN of 3,000 Sockeye.

In addition to fishery management measures intended to achieve escapement targets, several additional factors may influence salmon fisheries management measures on the Alsek River.

These factors may include environmental, stock abundance and fishery assessment program needs.

Fishery decisions are made by DFO based on the trigger points identified above and recommendations from the YSSC and the CAFN Government. Any short-notice or emergency actions will involve engagement with the YSSC and CAFN as per the requirements established in the CAFN Final Agreement.

13.1.6 ALSEK-TATSHENSHINI FISHERY PLANS FOR 2024

13.1.6.1 CHAMPAGNE AND AISHIHIK FIRST NATION SUBSISTENCE FISHERY

13.1.6.1.1 Champagne and Aishihik First Nations Basic Needs Allocation

The CAFN Basic Needs Allocation (BNA) is defined as 200 Chinook salmon and 3,000 Sockeye salmon. A BNA has not been established for Coho salmon, although occasional harvest of this species by the CAFN does occur.

13.1.6.1.2 Asek-Tatshenshini First Nation Subsistence Controls and Monitoring of Removals

Based on the pre-season forecast, a Chinook salmon harvest in the subsistence fishery is anticipated to occur in 2024. Subject to conservation concerns, CAFN fishing activities are permitted 7 days a week. Any changes to the fishery management strategy will occur in accordance with the Asek River Decision Guidelines and engagement with CAFN and the Yukon Salmon Sub-Committee. Action triggers and subsequent management actions for CAFN fisheries include:

- a) In-season projections of Chinook salmon into the Klukshu River will be made after July 18. If the projection is less than 800 Chinook salmon, fishing time restrictions and or area closures will be recommended. In the event of abundance below the lower end of the escapement goal range, and contingent on the operation of the Klukshu assessment program, up to 10% of the in-season count of Chinook salmon may be harvested for CAFN Elders. As in past years, the harvest of Chinook salmon on the Parton River, Goat and Stanley creeks will be limited by the CAFN to CAFN Elders or ceremonial purposes;
- b) In-season projections of the early Sockeye run into the Klukshu River will also be made after July 18. If the projection is less than 1,500 Sockeye, fishing time restrictions and or area closures will be recommended. In the event of abundance below the lower end of the escapement goal range, and contingent on the operation of the Klukshu assessment

program, up to 10% of the in-season count of Sockeye salmon may be harvested for CAFN Elders or ceremonial purposes.

- c) In-season projections of the total Sockeye run into the Klukshu River will be made after September 6. In this case, a projection of less than 7,500 Sockeye would result in restrictions in the First Nation fishery being considered. In the event of a closure, consideration will be given to allowing up to 10% of the Klukshu count of Sockeye salmon to be harvested for CAFN Elders or ceremonial purposes.

In the event that short-notice in-season restrictions to the subsistence fishery are required, management actions will be implemented following notification of CAFN and the YSSC.

Harvest monitoring in the subsistence fishery is the responsibility of CAFN, which includes harvest reporting to the YSSC per Paragraph 16.7.20 of the CAFN Final Agreement.

13.1.6.1.3 Alesk-Tatshenshini First Nation Subsistence Fishery Licencing

The CAFN is issued a communal fishing license for subsistence purposes which authorizes persons designated by the First Nation to fish for Chinook, Sockeye and Coho salmon.

13.1.6.2 ALSEK-TATSHENSHINI RECREATIONAL FISHERY

As portions of the Alesk River drainage which are inhabited by adult salmon occur in both the Yukon and British Columbia, both the *British Columbia Sport Fishing Regulations* and *Yukon Territory Fishery Regulations*, apply to recreational angling in respective areas of the Alesk-Tatshenshini watershed.

Recreational angling restrictions and requirements are subject to change in-season should conservation concerns arise, or if additional recreational opportunities become available. Changes are communicated through Fishery Notices, media reports, telephone information lines and/or postings on the Pacific Region Fisheries and Oceans Canada website at: <https://www.dfo-mpo.gc.ca/fisheries-peches/recreational-recreative/index-eng.html>.

13.1.6.2.1 Alesk Recreational Fishery Control and Monitoring of Removals

Controls for the Alesk-Tatshenshini recreational salmon fishery include daily and possession limits, hook restrictions, area closures, catch record keeping requirements, catch reporting requirements and licencing requirements. Since the regulations governing the fishery differ by jurisdiction, the following sub-sections outline the main features for the Yukon and British Columbia portions of the drainage; generally, most of the fishing effort occurs in the former.

13.1 ALSEK RIVER SALMON FISHING PLAN

Controls and Monitoring in those portions of the Alsek drainage located in the Yukon

Notwithstanding in-season variation orders, information on recreational fisheries for salmon in the Yukon, including possession limits, gear and area restrictions are outlined in the Yukon Fishing Regulations Summary: 2024-2025, which is available from: Fisheries and Oceans Canada, Whitehorse; Environment Yukon, Fish and Wildlife Branch of the Yukon Government, Whitehorse and district offices; and many outlets in Yukon (see: <https://yukon.ca/en/yukon-fishing-regulations-summary>). Unless specified through in-season variation order, the daily catch and possession limits for the recreational fishery in the Yukon portion of the Alsek watershed at the start of the 2023 fishing season are as outlined in Table 13-2. 2024 fishing season are as outlined in Table 13-2.

Table 13-2: Species Daily Catch limit and Possession Limit (Yukon Recreational Fisheries).

Species	Daily Catch Limit	Possession Limit
Chinook	0	0
Sockeye	0	0
Coho	2	4
Aggregate (species combined)	2	4

In addition to specific provisions for Chinook and Sockeye salmon, the gear, catch and area restrictions outlined in the 2024-2025 Yukon Fishing Regulations Summary booklet will apply to the recreational fishery (in-season changes available online).

The following rules will apply to recreational Chinook and Sockeye salmon fisheries in the Alsek River watershed (Yukon portion) in 2024:

- a) A salmon angling (including catch and release) closure will be in effect April 1 through August 14, 2024;**
- b) Due to a sustained period of poor returns, the daily catch and possession limits for Chinook salmon will be varied to 0 at the start of the season. Further management actions will be informed by in-season estimates of abundance;**
- c) The pre-season outlook projects an above average return of Sockeye salmon in 2024. The daily catch and possession limits will be varied to 0 at the start of the season and remain in effect unless in-season abundance projections exceed management triggers (4,500 by August 15 or 12,700 by September 6);**

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Angling for, retention or possession of Chinook and Sockeye salmon will not be permitted in the recreational fishery prior to August 15, 2024. Recreational harvest opportunities may be liberalized for Coho salmon should sufficient abundance materialize. Factors that will influence liberalization of recreational Coho salmon harvest limits include:

- the status of the Sockeye run and potential incidental catch of Sockeye during the Coho recreational fishery.
- the status of the Coho run and overall projected abundance.

In the recreational salmon fishery, the following closed/open times will be in effect for 2024:

- the closed times (all angling) for Klukshu River (Łu Ghą Chù), Nesketahin Lake and Village Creek will be from June 15 to November 30;
- the salmon non-retention periods on the Takhanne and Blanchard rivers will be from July 24 to August 31;
- salmon non-retention in Klukshu Lake (Łu Ghą Mǎn) will be in effect year-round; and
- single hook and artificial fly only restrictions are applicable in specified waters.

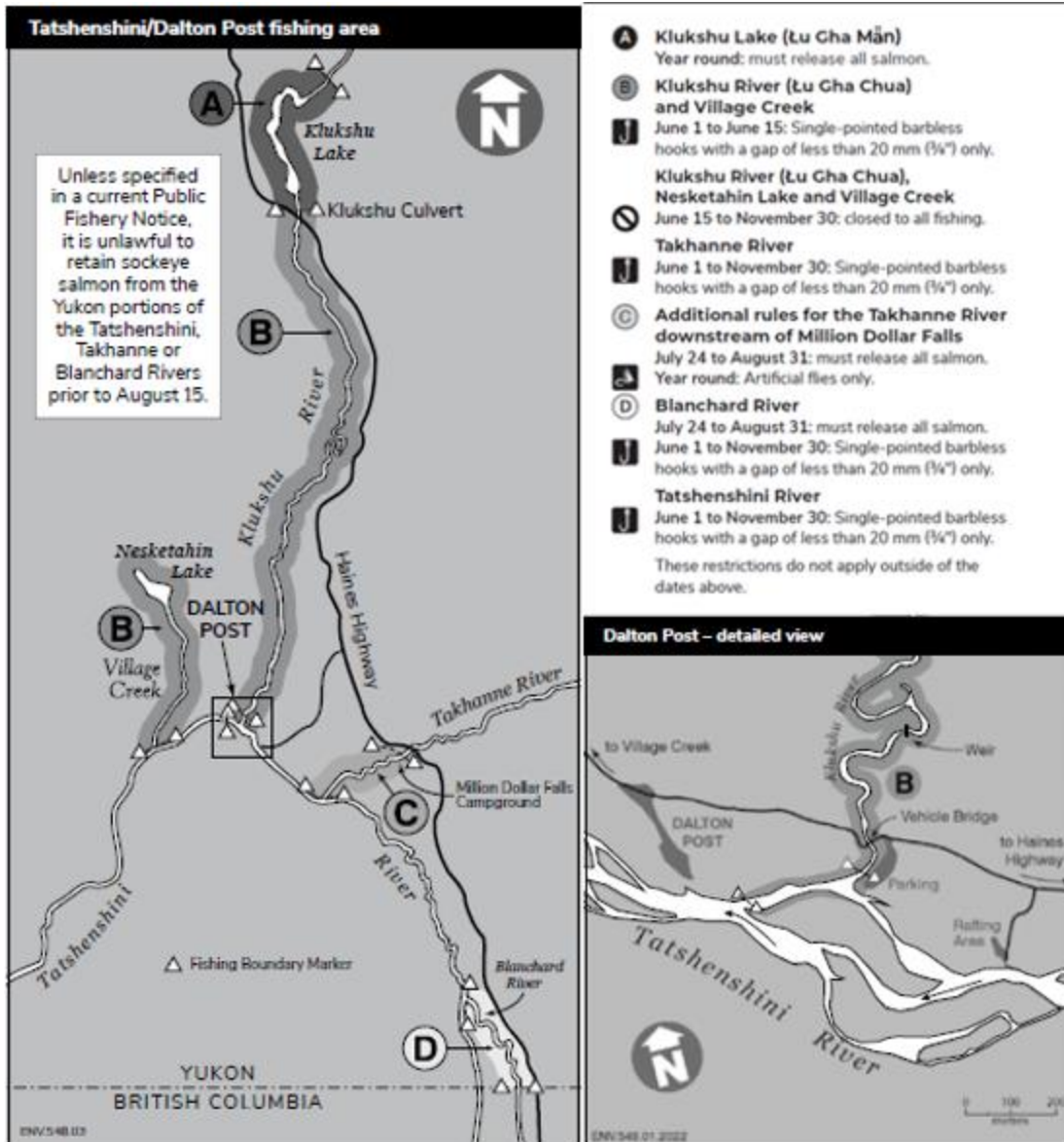


Figure 13.1-2: Area closures and gear restrictions on the Tatshenshini River and tributaries in the Alsek drainage in the Yukon Territory.

[see: <https://yukon.ca/en/yukon-fishing-regulations-summary>].

In-season recreational fishery monitoring will be conducted by DFO personnel through the conduct of a creel census in the Dalton Post area. Fishery Officers and other partnering government enforcement personnel (e.g. Yukon Government Conservation Officers) may conduct patrols for compliance and enforcement at any time during the recreational fishery. Post-season recreational fishery catch estimates will be derived from information collected

through the submission of Yukon Salmon Conservation Catch Card (mandatory) and in-season creel census.

Controls and Monitoring in those portions of the Alsek River drainage located in B.C.

Hook restrictions, catch record keeping requirements, catch reporting requirements and licencing requirements in the B.C. portions of the Alsek-Tatshenshini drainage can be found in the *British Columbia Sport Fishing Guide* published by Fisheries and Oceans Canada. Specific daily and possession limits and area closures can be found in the *2023-2025 B.C. Freshwater Fishing Regulations Synopsis* or online (see: https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/outdoor-recreation/fishing-and-hunting/freshwater-fishing/region_6_skeena.pdf), and in the Fisheries and Oceans Sport Fishing Guide for Region 6 (<http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/fresh-douce/region6-eng.html>).

Notable considerations for the Alsek River watershed (B.C.) portion in 2024 include:

- **Angling for Chinook and Sockeye salmon in the recreational fishery is prohibited effective April 1 (until further notice);**
- The daily limit for Coho salmon is 2 per day;
- The maximum number of salmon (species combined) that can be retained in any one day is 4;
- The possession limit is 8 salmon (in the aggregate, species combined);
- All retained salmon must measure 30 cm or more;
- It is illegal to catch or attempt to catch salmon by willfully foul hooking. Any accidentally foul-hooked salmon must be released;
- Only single barbless hooks are allowed;
- All steelhead must be released;
- Salmon fishing closures:
 - The Blanchard River and Tatshenshini River are closed to fishing for Chinook, Coho and Sockeye salmon from July 24 to August 14.
- Annual fishing closures include:
 - Kwatini Creek, Stanley Creek and Goat Creek (closed to Chinook, Sockeye and Coho fishing).

If conservation concerns arise in-season, additional restrictions such as reduced catch limits and area or time closures may be required. Increases to recreational limits will be considered if conservation and FSC objectives will be exceeded.

Compliance monitoring and enforcement will be undertaken by Fisheries and Oceans Canada and BC Provincial enforcement personnel.

13.1.6.2.2 Alsek-Tatshenshini Recreational Fishery Licencing

All anglers (except as noted in the either British Columbia or Yukon regulations) must obtain a valid Angling Licence for the jurisdiction they plan to fish in. In addition, all recreational anglers fishing for salmon in the Yukon Territory must also possess a Yukon Salmon Conservation Catch Card. The card requires the angler to record and report the number, sex, size, date and location of any salmon caught and retained or released.

When fishing for salmon in British Columbia portions of the Alsek drainage, anglers are required to have a B.C. Non-Tidal Angling Licence. This licence must be validated with a Salmon Conservation Surcharge Stamp if any salmon are, or expected to be, retained. In order to fish for steelhead, a Steelhead Conservation Surcharge Stamp is required.

13.1.6.2.3 Pacific Salmon Strategy Initiative (PSSI) Longer Term Commercial Fishery 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 with a commitment to review longer term closures for 2022 and beyond after additional consultation with affected groups. See Appendix II for a list of longer-term fishery closures/mitigations under consideration.

13.1.7 ALSEK-TATSHENSHINI STOCK ASSESSMENT PLAN FOR 2024

The Alsek stock assessment program planned for 2024 includes the enumeration of Chinook, Sockeye, and Coho salmon at the Klukshu River assessment site located just upstream from the confluence of the Tatshenshini River near Dalton Post. (Figure 13.1-2). The assessment program operated as an enumeration weir (between 1976 and 2015) and subsequently (since 2016) as a video-based monitoring / assessment site. The Klukshu River assessment site is the principal salmon escapement monitoring tool in the Alsek drainage. Annual abundance of Chinook, Sockeye and Coho are displayed in Figure 13.1-3, Figure 13.1-4 and Figure 13.1-5. The assessment program includes enumeration and the collection of limited biological data (sex and

13.1 ALSEK RIVER SALMON FISHING PLAN

size estimates). Attempts have been made since 2018 to gather this data in the headwaters from post-spawn fish.

Sockeye salmon will also be enumerated using a video counter at Village Creek, another Tatshenshini River tributary, which drains Nesketahin Lake. Snorkel survey assessments on the Takhanne River and the Chinook salmon sonar assessment pilot project on the Blanchard River are planned in 2023. Recreational and FSC fishery monitoring will occur in the Klukshu River area in order to estimate catch and harvest of salmon and to collect biological data.

The PST (Alsek River provisions) requires the Transboundary Technical Committee (TTC) to produce an annual estimate of the in-river abundance of Chinook and Sockeye salmon. To achieve this, subject to TTC considerations, mark-recapture will be used to provide estimates of spawning escapement for both Alsek River Chinook and Sockeye salmon. To support the mark-recapture program, final fates and drop out rates, a radio telemetry programs will be implemented in 2024. An estimate of the total Alsek River Sockeye salmon run will also be made using genetic analysis of samples collected from the assessment program located at Dry Bay and the U.S. commercial fishery in conjunction with an expansion of the Klukshu River and Nesketahin Lake counts.

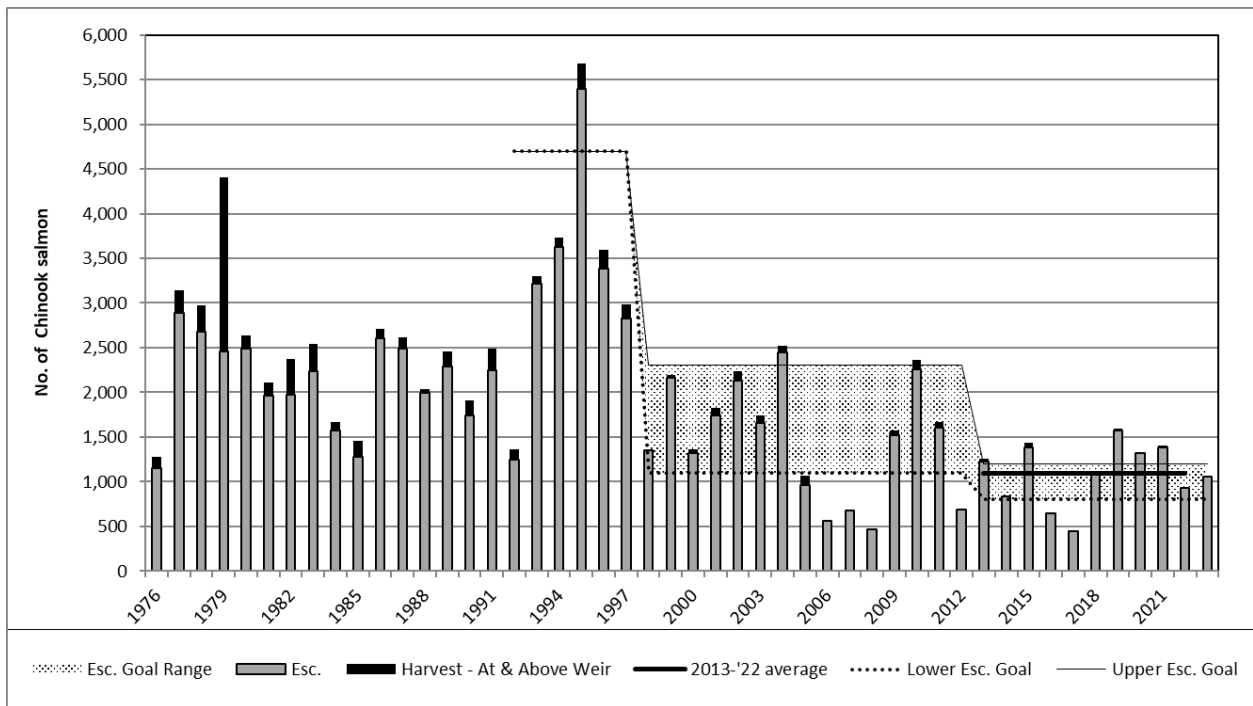


Figure 13.1-3: Weir counts of Klukshu River Chinook salmon, 1976 to 2023 (including jacks). [Note: Annual weir counts are represented by the stacked bars which include escapement plus the First Nation catch that occurred upstream of the weir].

13.1 ALSEK RIVER SALMON FISHING PLAN

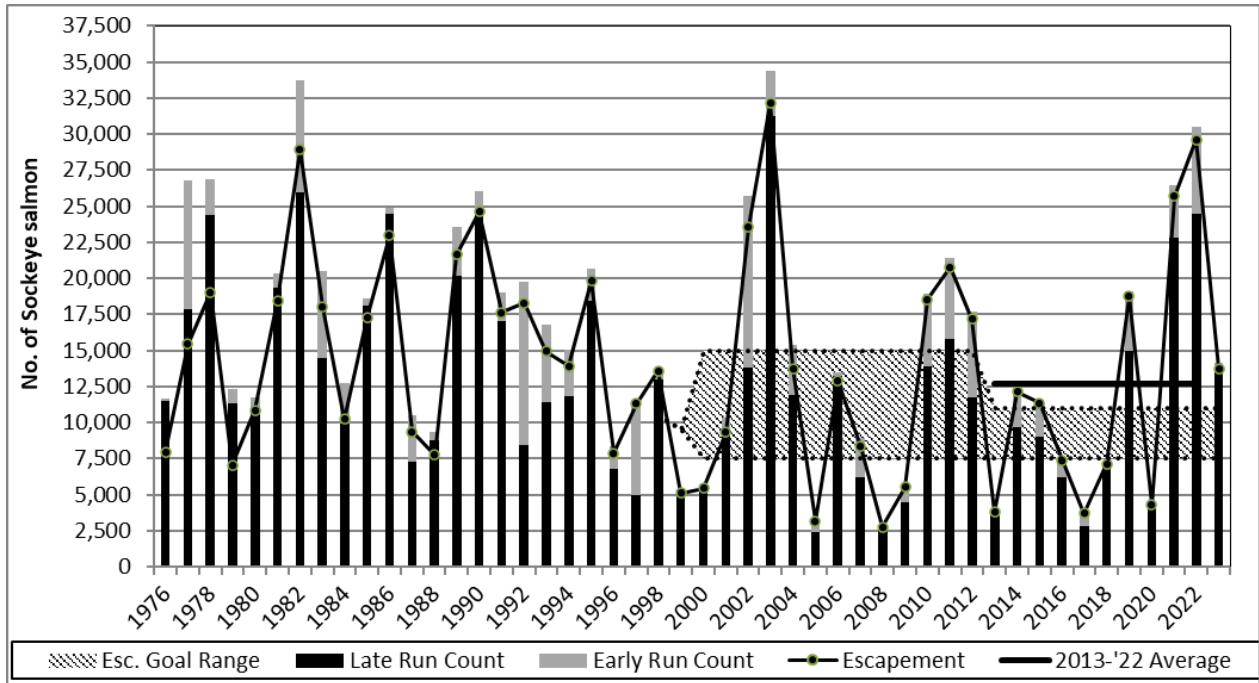


Figure 13.1-4: Weir counts of Klukshu River Sockeye salmon, 1976 to 2023. Total weir counts are portrayed by the stacked bars which include the early (<15 August) count plus the late count (≥15 August). Escapement is the total weir count minus fish harvested upstream of the weir.

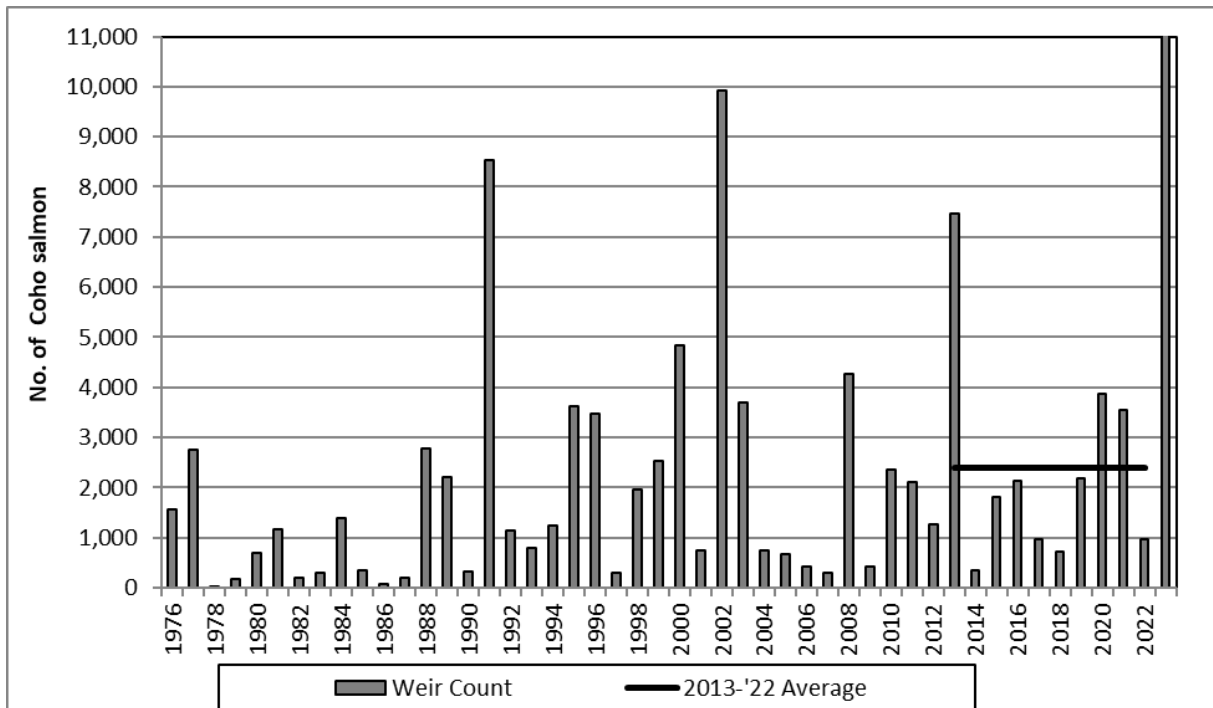


Figure 13.1-5: Weir counts of Klukshu River Coho salmon, 1976 to 2023. [Note: due to the timing of weir removal, counts do not cover the entire Coho salmon run].

13.1.8 ALSEK-TATSHENSHINI POST SEASON REVIEW

13.1.8.1 CONSERVATION

The 2023 Klukshu Chinook salmon weir count of 1,064 fish was within the Klukshu escapement goal range of 800 - 1,200 fish (Table 13-3). The counts of 2023 Klukshu Sockeye salmon was 14,130. The resulting Klukshu Sockeye salmon escapement was above the higher end of the escapement goal range of 7,500 - 11,000 (Figure 13.1-4). The Klukshu Coho salmon weir count of 11,671 was below average (Figure 13.1-5)

Table 13-3: Salmon counts and escapement through the Klukshu River weir enumeration site in 2023.

Species	2023 Pre-season Outlook	Weir Count (Total)		Estimated Spawners (Total)		Escapement Goal Range	Esc./Management Target Achieved?
		2023	2013-2022 Avg.	2023	2013-2022 Avg.		
Chinook	>average	1,064	1,100	1,053	1,083	800 – 1,200	Achieved
Sockeye	>average	14,130	14,700	13,690	12,390	7,500 - 11,000	Exceeded
Coho	NA	11,671	2,300	NA	NA	NA	NA

13.1.8.2 FIRST NATION FISHERY

Due to the absence of a harvest monitor in 2023, catches in the FSC were estimated from reported catches of fish taken at the DFO assessment sites combined with estimates of the catches taken upstream and downstream of the weir based on the relationship between historical catches and weir counts. The CAFN harvested an estimated 22 Chinook and 880 Sockeye salmon.

13.1.8.3 RECREATIONAL FISHERY

In 2023, the Tatshenshini River recreational fishery was closed to all salmon angling (including live release) prior to August 15. On August 15, the recreational fishery was opened with Chinook salmon limits set at 0 daily and 0 in possession, Sockeye salmon 0 daily and 0 in possession, and Coho salmon limits at 2 daily and 4 in possession. The Sockeye salmon run was reviewed in early September and due to low return numbers, at that time Sockeye remained at 0 retention for the remainder of the season. A preliminary estimate of 27 Coho salmon were harvested in the recreational fishery, and an additional estimate of 36 Coho salmon were released.

13.1.8.4 PST HARVEST SHARING PERFORMANCE

There are no specific harvest sharing arrangements in the PST for Alsek salmon although the U.S. management intent for Sockeye salmon as specified in the PST is “*to achieve the agreed Klukshu River spawning escapement goal range plus 3,000 Sockeye salmon*”. With a count of 14,130 Sockeye salmon past the Klukshu assessment site in 2023, there was a sufficient number of fish to achieve a BNA harvest of 3,000 and achieve a spawning escapement within the target range of 7,500 - 11,000 Klukshu River Sockeye salmon.

Harvest of Chinook salmon in the U.S. Alaskan Dry Bay fisheries was 167 fish in the commercial fishery and 7 in the subsistence fishery. The average catches for these fisheries were approximately 285 and 19 Chinook salmon respectively. Sockeye salmon harvest was 2,744 fish in the commercial fishery and 133 fish in the subsistence fishery; respective 10-year averages were approximately 9,612 and 158 Sockeye salmon.

The 2023 Canadian salmon harvest was limited in both the First Nation and recreational fisheries. Combined fishery catches of 22 Chinook and 880 Sockeye salmon were below respective 2013-2022 averages of approximately 50 Chinook and 829 Sockeye salmon.

13.2 STIKINE RIVER SALMON FISHING PLAN

13.2.1 INTRODUCTION

The headwaters of the Stikine River are located in northern British Columbia with the river flowing southwesterly and terminating about 20 km north of the town of Wrangell in southeast Alaska (the Gulf of Alaska). There are three main population centres in this watershed in B.C. Telegraph Creek, Dease Lake and Iskut. The drainage covers an area of approximately 52,000 km² of which roughly 97% lies in Canada and is characterized by two main ecoregions: the moist, rugged, mountainous and glacier-rich (e.g. Great Glacier) Boundary Ranges Ecoregion; and the drier, continental climate of the sub-Arctic Yukon–Stikine Highlands Ecoregion which includes the Spatsizi Plateau. There are numerous protected areas within the watershed, e.g. Stikine Provincial Park which includes the Grand Canyon of the Stikine, Spatsizi Plateau Wilderness Provincial Park, Mt. Edziza Provincial Park (<http://www.env.gov.bc.ca/soe/indicators/land/protected-lands-and-waters.html>).

13.2.1.1 DESCRIPTION OF STIKINE SALMON RESOURCES

The Stikine River is a major producer of Transboundary Chinook, Sockeye and Coho salmon and steelhead. Due to velocity barriers in the Grand Canyon of the Stikine River and in Forrest Kerr Canyon on the Iskut River, salmon access is limited to approximately the lower 40% of the drainage (Figure 13.2-1).

Salmon stocks returning to the Stikine River drainage are jointly managed by DFO, the Tahltan Central Government (TCG) and the Alaska Department of Fish and Game (ADFG) through the joint Transboundary Technical Committee (TTC) of the Transboundary Panel (TRP) which were both established pursuant to the Pacific Salmon Treaty (PST).

13.2.1.1.1 Chinook Salmon

In the southeast Alaska/ northwestern British Columbia context, the Stikine River is considered to be a major producer of Chinook salmon. Over the past decade (2014-2023), the annual terminal run size has averaged approximately 14,500 large Chinook salmon (i.e., fish with a mid-eye to fork length measuring ≥ 660 mm) with a historical run size range since 2002 of 8,100 (2017) to 87,800 fish (2005). The run generally enters the river mouth in early May, peaks mid-June, and has vacated the lower river by mid-July.

Pursuant to Canada's Wild Salmon Policy two Chinook salmon Conservation Units have been identified in the Stikine River based on timing and habitat characteristics: Stikine-early (LSTK-early) and Stikine-late (LSTIK-late). Primary Chinook salmon spawning locations include: Little

Tahltan River, Tahltan River, mainstem Stikine River, Iskut River and tributaries (Verrett and Craig rivers), Christina Creek, Tuya River, Chutine River, and Shakes Creek.

The longest time series of Stikine Chinook salmon escapement data is from the Little Tahltan River with weir counts dating back to 1985. Five-year moving averages increased from roughly 4,600 large Chinook in the late 1980's to a peak 5-year average of approximately 9,500 fish in the 2001-2005 period. Since that time, the stock has been in a noticeable decline with the current 5-year average (2019-2023) escapement having dropped to 582 large Chinook salmon. This trend had been exacerbated by a major landslide on the Tahltan River located just upstream from the mouth which occurred in 2014. It drastically reduced the number of adult Chinook salmon reaching spawning areas in the Tahltan River watershed in the 2014 salmon run, including the Little Tahltan River. As a result, the lowest Little Tahltan weir count occurred in 2014 (169 large fish). Remedial work and increased flows in the Tahltan River in recent years has improved passage conditions and as a result, further improvements to the site are not anticipated. Plans for 2024 will be to continue to monitor the site for passage concerns, the changes as a result of further erosion, and to evaluate observations to determine if further work is required.

Although the time series of total run estimates of Stikine Chinook salmon is shorter than for Little Tahltan River Chinook salmon, declining overall abundance is also apparent in this dataset. Since 2002, the terminal run sizes of large Chinook have decreased from a range of 54,000 – 88,000 during the 2002-2006 period, to a range of 8,100 to 27,000 fish during the 2015-2019 period. Prior to 1999, directed terminal gillnet fisheries of Stikine Chinook salmon had been curtailed for approximately 20 years to allow stocks to rebuild. Arrangements for directed harvest, if/when warranted by abundance, commenced in 2005 and were updated in 2019 following re-negotiation of the Transboundary Chapter of the PST.

13.2.1.1.2 Sockeye Salmon

The Stikine River is also considered to be a major producer of Transboundary Sockeye salmon. Over the past decade (2014-2023), the annual total run size has averaged approximately 101,700 adult Sockeye salmon (historical range since 1979: 43,300 in 1987 to 334,200 in 1996). The run generally enters the river mouth in early June, peaks mid-July and has migrated upstream beyond the lower river by late August.

One River-type and three Lake-type Sockeye Conservation Units have been identified for the Stikine River based on genetic attributes. The River-type CU is part of the broadly distributed Northern Transboundary Fjord CU; the Lake-type CU's include the Tahltan, Chutine and Christina Lake stocks.

Based on total counts from 1959 to the present, escapement of Tahltan Lake Sockeye salmon generally quadrupled from 5-year cycle averages of approximately 10,000 Sockeye in the early 1960's, increasing steadily to average 40,000 fish in early 1980's. Since then, cycle averages exhibit a pronounced decadal oscillation with low cycle averages of approximately 10,000 followed by peak cycle averages of approximately 50,000 Sockeye. The current 5-year average (2019-2023) count is approximately 53,800 Sockeye. Total Stikine Sockeye run size estimates are available since 1979 and they generally follow a similar trend over the past three decades. Five-year averages have fluctuated from a low of approximately 64,000 to peak cycle-averages in excess of 260,000 fish. The current 5-year cycle-average (2019-2023) is approximately 83,900 fish.

PST arrangements for Stikine River Sockeye include a joint Canada-U.S. enhancement project. Eggs are collected at Tahltan Lake, incubated and hatched at a central incubation facility at Port Snettisham Alaska, and resultant fry are out-planted back into Tahltan Lake. Prior to 2014, fry were also out-planted into Tuya Lake in the Stikine headwaters.

For management and monitoring purposes, Stikine River Sockeye salmon are subdivided into two distinct stock groups:

- the **Tahltan stock**, which is composed of the *wild Tahltan* stock (fish originating from naturally spawning Sockeye salmon in Tahltan Lake) and the *planted Tahltan* stock (fish originating from broodstock collected at Tahltan Lake and subsequently returned as fry into Tahltan Lake);
- the **Mainstem stock** conglomeration which comprises all other natural Sockeye populations in the Stikine River. The principal spawning sites of this stock group include numerous side channels and sloughs of the mainstem Stikine and Iskut rivers, and the Verrett, Scud, Porcupine and Chutine rivers.

13.2.1.1.3 Coho Salmon

Estimates of the total run size of Stikine Coho salmon are less reliable than either Chinook or Sockeye salmon being primarily based on comparisons of test fishery and/or commercial catch-per-unit-effort data with that of Sockeye salmon. Historically, Coho run sizes are believed to be of similar magnitude as the Taku River. Based on limited aerial survey data, the run status appears to have been declining since 2002. Coho salmon generally cross the international border at the Stikine River into Canada in August with the peak of the run arriving in early to mid-September. For research and management purposes all spawning groups (stocks) of Coho salmon in the Stikine River are considered one management unit.

One Coho CU has been identified for the Stikine River based on ecotypic characteristics (Lower Stikine, LSTIK). The principal Coho spawning stock groupings include: Iskut (Verrett and Craig

rivers); Katete River; Porcupine River; Scud River; and streams located in the U.S. section of the Stikine River.

13.2.1.1.4 Pink and Chum Salmon

A number of Pink salmon spawning sites in Canada have been documented in the Stikine mainstem near the Porcupine and the Iskut River near Zappa Creek. Pink salmon production from the Stikine River is relatively minor. Based on ecotypic characteristics, Stikine Pink salmon form part of the broader Transboundary Fjord Pink salmon CU (TBFj).

Chum salmon spawning sites have been documented in the Stikine and Iskut rivers (mainstem locations), although Stikine River Chum salmon production is also considered to be low. Based on ecotypic characteristics, Stikine Chum salmon constitute one CU (i.e. Lower Stikine - LSTIK).

Currently, there are no programs in place to assess Pink or Chum salmon border escapements or drainage-wide spawning escapements within the Stikine River.

13.2.1.1.5 Steelhead salmon

Steelhead salmon (fall run) are present in the Stikine River drainage although data regarding abundance and life history are limited. Spawning locations have been identified in the Tahltan River, Little Tahltan River and tributaries of the Iskut River.

13.2.1.2 DESCRIPTION OF STIKINE SALMON FISHERIES

There are three fisheries that target salmon in the Canadian section of the Stikine River: a First Nation FSC fishery, a recreational fishery, and a commercial gillnet fishery. Fisheries in Alaska that also target Stikine salmon stocks include: Alaska District 108 (adjacent to the mouth of the Stikine River) and Alaska District 106 (Sumner and Clarence straits) commercial drift gillnet fisheries; the Wrangell and Petersburg area sport fishery; and, a subsistence fishery in the lower Stikine River in Alaska. S.E. Alaskan troll and seine fisheries also intercept Stikine salmon stocks of which Chinook and Coho are of primary interest to the troll fleet.

13.2.1.2.1 First Nation Fishery

Tahltan Central Government (formerly: Tahltan First Nation) (TCG) members have been actively fishing on the Stikine River since well before European contact. TCG members are mainly centred around the communities of Telegraph Creek, B.C. and Iskut, just south of Dease Lake, B.C. Subject to achieving spawning escapement requirements, eligible First Nation people or designated fishers are permitted to practice traditional food, social and ceremonial (FSC) fishing activities throughout the Stikine River drainage in Canada.

The First Nation FSC fishery predominantly occurs in the Telegraph Creek area. The fishery commences when Chinook salmon begin to appear in upper Stikine portions of the watershed, usually in May. Steelhead are also encountered during May and June as late over-wintering adults or downstream migrants. Fishing effort during May and early June is generally light. Fishing for Sockeye salmon occurs from mid-June through early August with most fishing activity completed by late August. Gear primarily involves set gillnets (10-15 m in length) with an average mesh of 13.3 to 15.2 cm (5.25 to 6 inches). In some cases, mesh sizes up to 20.3 cm (8 inches) are employed when targeting Chinook salmon in years when Chinook salmon abundance exceeds conservation requirements. Most gillnets are secured to, and serviced from, shore by boom poles. Sport fishing gear is also used in tributaries such as the Tahltan River.

Over the past decade (2014-2023), the FSC fishery has annually harvested an average of approximately 7,000 Sockeye salmon (range since 1972 of approximately 2,000 to 10,600 Sockeye), 400 large Chinook salmon (range: 100 to 1,400 fish); and 300 small Chinook salmon (range: <100 to 600 fish). Generally, Sockeye salmon catches have been increasing over the past four decades and have roughly doubled over that time period; the highest reported catch occurred in 2016. Moving ten-year average Chinook catches increased to peak levels in the mid 1990's and levelled off through the mid 2000's and have since declined. Few, if any, Coho, Pink or Chum salmon are encountered in the First Nation FSC fishery.

13.2.1.2.2 Recreational Fishery

The most prominent recreational fishery on the Stikine River in Canada focuses on Chinook salmon, with fishing effort primarily occurring on the Tahltan River near its confluence with the Stikine River. Minor recreational fishing efforts for both Chinook and Coho salmon also occur in the mainstem of the Stikine River as well as the Iskut River. Fishing for steelhead occurs in a few tributaries (e.g. Tahltan River) in the fall.

The TCG controls recreational access on Reserve Lands and frequently conducts a creel census program on the Tahltan River to monitor recreational fishing activity. Over the last 10 years (2014-2023), recreational fishers retained an average of 3 large Chinook per year, ranging from 0 (2007, 2016-2023) to 420 (2002) since 1979.

13.2.1.2.3 Commercial Fishery

Currently, there are twenty-three limited entry party-based licences allocated to fish commercially on the Stikine River. Of these, six commercial licenses are designated to fish in the upper Stikine River near Telegraph Creek, while the remaining licenses are designated for the lower Stikine River fishery. Most commercial licence holders on the Stikine River hire an additional fisher to assist them with their fishing.

Commercial fishing occurs in two principal fishing areas (Figure 13.2-1) described as follows:

- The upper Stikine River fishing area, which has been fished since 1975, occurs from the confluence of the Chutine River, upstream to the confluence of the Tuya River, excluding any other tributaries of the Stikine River; and
- The lower Stikine River fishing area which opened in 1979 and includes:
 - a. the portion of the Stikine River, from the Canadian / U.S. international border upstream to the boundary signs located approximately 2 km above the Stikine River confluence with the Flood River;
 - b. the portion of the Iskut River from its confluence with the Stikine River to fishing boundary signs located approximately 1.5 km upstream from the water survey station on the lower Iskut River, excluding any other tributaries of the Stikine or Iskut Rivers.

Most of the commercial fishing activity and catch originates in the lower river. Average lower river commercial catches over the past decade (2014-2023) include approximately: 24,000 Sockeye (range since 1979: 6,100 to 95,800 Sockeye salmon), 600 large Chinook (range of 0 to 19,100 Chinook salmon); 300 small Chinook salmon (range of 0 to 2,100), 5,000 Coho salmon (range of 0 to 15,900 Coho); 100 Pink salmon; and 200 Chum salmon.

Over the past decade (2014-2023), the upper Stikine commercial catch has averaged: 253 Sockeye salmon (range since 1975: 40 to 2,500 Sockeye); Chinook salmon have not been harvested significantly in the upper Stikine commercial fishery over the last decade.

Since 2005, the PST established the conditions (abundance-based) under which the Parties may pursue directed commercial fisheries for Stikine River Chinook salmon. The management and harvest of Sockeye and Coho salmon is also subject to terms and conditions outlined in the PST.

When the run strength is deemed sufficient, the Chinook salmon fishery typically commences in early May and continues through late-June overlapping with the beginning of the Sockeye salmon fishery. The Sockeye salmon fishery typically commences mid-June in statistical week (SW) 26 and terminates in late August (SW 35). The early portion of the Coho salmon return is subject to harvest in the later periods of the directed Sockeye commercial fishery in the lower Stikine. Improved market conditions in recent years have rekindled commercial interest in harvesting of Coho salmon which has extended the fishing season into September. Few Coho salmon migrate upstream into the upper Stikine commercial fishing area. Pink and Chum salmon are caught as bycatch during the lower Stikine Sockeye fishery but are seldom encountered in the upper Stikine fishing area. Also in the lower river, although not targeted,

steelhead are encountered during the Sockeye and Coho fisheries in late summer and fall. All steelhead intercepted in commercial fisheries must be released.

Salmon captured in the lower Stikine River are processed (gutted and blast frozen) at a federally registered processing plant located on the banks of the Stikine River near the Canada/ U.S. border. Salmon are also marketed in the round to buyers located in Wrangell and or Petersburg, Alaska. Marketed products include fresh frozen, fresh and smoked salmon. Commercially caught salmon in the upper Stikine are generally sold fresh or fresh-frozen to local buyers.

13.2.1.2.4 Fisheries for Excess Salmon to Spawning Requirements (ESSR)

The intended purpose of ESSR fisheries is to facilitate the harvest of salmon deemed surplus to spawning escapement requirements. ESSR fisheries have occurred at Tahltan Lake in 1993 to 1996, and in 2002, when Sockeye salmon numbers exceeded the upper end of the spawning escapement goal range. ESSR catches in excess of 14,300 Sockeye (1996) have been recorded during this period.

ESSR fisheries have also been conducted on the Tuya River for enhanced Sockeye salmon from 1996 to 2000, as well as in 2003 and 2004, with catches of over 7,000 occurring (2004). The last Tuya Lake Sockeye salmon fry outplant occurred in 2014 and returns have been realized.

13.2 STIKINE RIVER SALMON FISHING PLAN

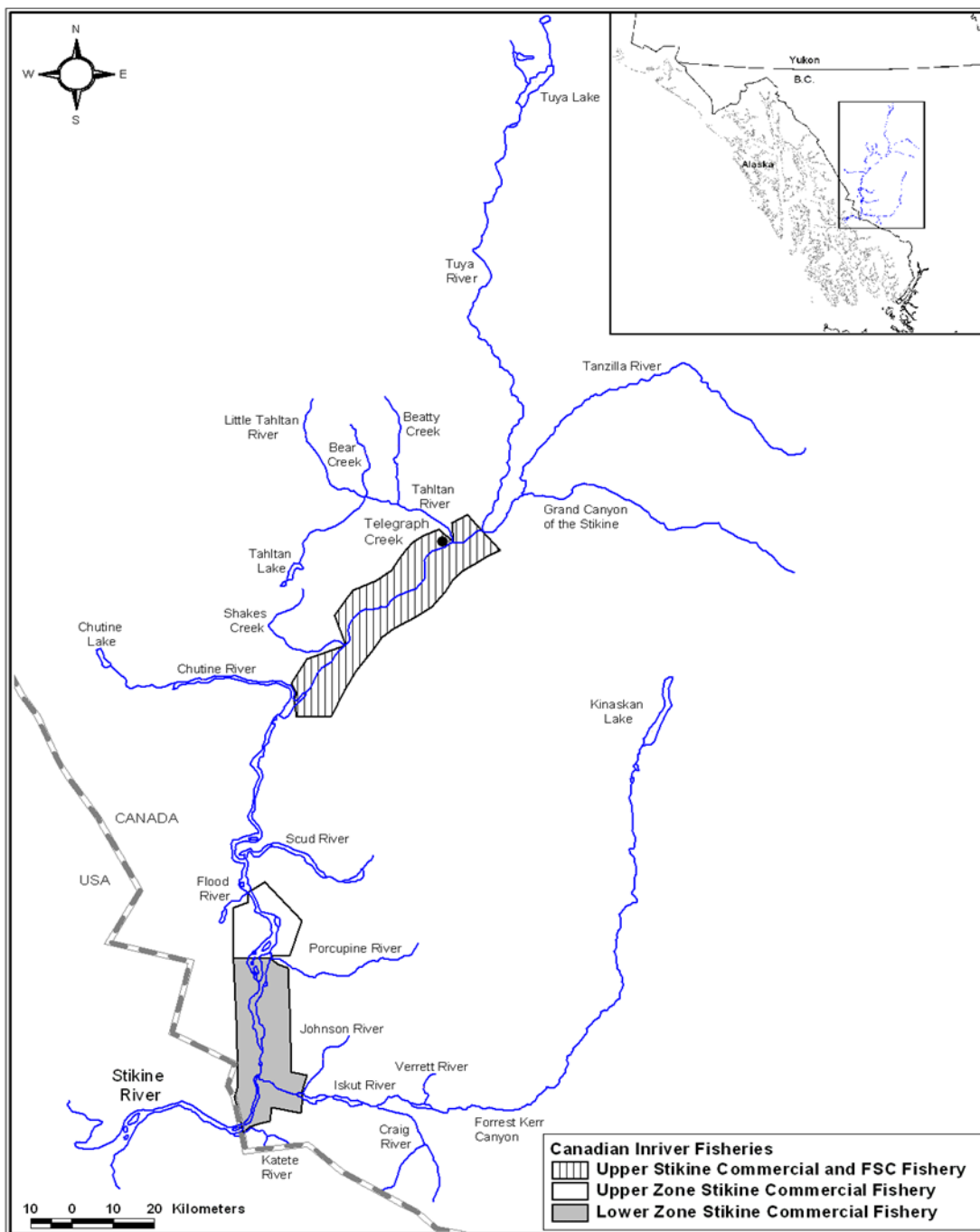


Figure 13.2-1: The Stikine River and Canadian fishing areas.

13.2.2 RUN OUTLOOKS FOR STIKINE SALMON IN 2024

13.2.2.1 CHINOOK SALMON

The 2024 outlook for the terminal run of Stikine River Chinook salmon is 12,900 large fish, which is 16% below the recent ten-year average run size of approximately 14,500 large Chinook salmon, and below the target escapement goal range of 14,000 to 28,000 fish. Unlike past years when a sibling model was used to generate the Stikine River Chinook forecast, the 2024 forecast used the best fit model in the program ForecastR.

13.2.2.2 SOCKEYE SALMON

The 2024 terminal Stikine River Sockeye run outlook is approximately 130,000 fish which is above the recent ten-year average (2014-2023) run size of approximately 102,000 fish. The components of this forecast are summarized below.

Tahltan Lake Sockeye

The total run outlook for Tahltan Lake Sockeye is approximately 99,000 fish of which 42,000 are expected from the enhancement project and 57,000 are expected from natural spawners. For comparison, the ten-year average (2014-2023) run size of Tahltan Lake Sockeye salmon is approximately 68,000 fish. The outlook is based on a smolt model which uses the number of smolts emigrating from Tahltan Lake in 2021 (571,659 natural, 1,287,816 enhanced) and 2022 (1,463,677 natural, 244,231 enhanced) combined with the recent 3-year average survival rates.

Mainstem Sockeye

The outlook of 30,000 mainstem Sockeye salmon is based on the spawner recruitment relationship and adjusted by the most recent 5-year model performance (forecast versus actual returns) and below the ten-year average (2014-2023) run size of approximately 34,000 fish.

13.2.2.3 COHO SALMON

The lack of reliable escapement and marine survival data for Stikine River Coho salmon precludes the development of a reliable outlook for this stock in 2024. Aerial surveys are conducted once annually and are subject to various surveying and run timing variables. Work is underway to enable development of outlooks in the near future.

13.2.2.4 PINK AND CHUM SALMON

A pre-season outlook for Stikine River Pink or Chum salmon has not been developed due to limited data on historical escapement and abundance pertaining to these species.

13.2.3 SPAWNING ESCAPEMENT GOALS FOR STIKINE SALMON

13.2.3.1 CHINOOK SALMON

The Canada/U.S. bilaterally agreed escapement goal range for Stikine River Chinook salmon is 14,000 to 28,000 large Chinook salmon with a S_{MSY} point estimate goal of 17,400 large Chinook salmon. The Canadian management objective for Little Tahltan River Chinook salmon is 2,700 to 5,300 large fish with a point target of 3,300 large fish. The Chinook escapement goal is based on a peer-reviewed analyses conducted by U.S. and Canadian TTC members and associates and reported in: *Bernard, D.R., S.A. McPherson, K.A. Pahlke, and P. Etherton. 2000. Optimal production of Chinook salmon from the Stikine River. Alaska Department of Fish and Game, Fishery Manuscript No. 00-1, Anchorage.* Escapement concerns particularly with respect to Little Tahltan Chinook are currently undergoing technical review by Canada with input from the TTC.

Escapements goals for other stock groupings, such as the Tahltan, mainstem Stikine (between Butterfly and Flood rivers), and Iskut rivers have not been established. A 2005 radio telemetry project indicated that these three stock groupings represented 41%, 8% and 14%, respectively, of the combined Stikine River spawning population. This same report attributed 13% of the total escapement to the Little Tahltan River. In the future, based on improved definition of specific stocks through GSI and external tagging, management considerations may be directed at other spawning groups.

13.2.3.2 SOCKEYE SALMON

Escapement goals have been bilaterally agreed by Canada and the U.S. for two Stikine River Sockeye stock groups: the total Tahltan Lake stock and the mainstem stock aggregate. The Tahltan and mainstem stocks are considered to be independent. Surpluses or deficits in escapement realized in one stock are not used to balance deficits or surpluses in the other.

Tahltan Stock

In 2023, Canada and the U.S. adopted a new, bilaterally agreed management target of 22,600 fish for the Tahltan Lake Sockeye salmon stock which included an escapement goal of 19,000 naturally spawning fish and up to 3,600 fish for broodstock to meet the objectives of the current Canada/U.S. Sockeye enhancement program. Escapement goal ranges for the various management categories for the Tahltan stock are summarized in

Table 13-4 below.

Table 13-4.21: Tahltan Sockeye escapement goals for 2024.

	TARGET = 22.6k				
Escapement	0 - 7k	7k - 11k	11k - 25k	25k - 35k	>35k
Mgmt. Category	Red	Yellow	Green	Yellow	Red

Mainstem Stock

In 2023, Canada and the U.S. adopted a new, bilateral management target of 21,300 Sockeye salmon for the Mainstem stock. Escapement goal ranges for the various management categories for this stock are summarized in Table 13-5 below.

Table 13-5.22: Mainstem Sockeye escapement goals for 2024.

	TARGET = 21k				
Escapement	0 - 8k	8k - 13k	13k – 33k	33k - 45k	>45k
Mgmt. Category	Red	Yellow	Green	Yellow	Red

A post-season estimate of escapement that falls within the green escapement goal range is fully acceptable; one that falls above the escapement range is acceptable but not desirable. A return that falls below the escapement range is undesirable. These scenarios translate to Management Categories employed by DFO with Green considered fully acceptable, Yellow considered acceptable but not desired and Red considered undesirable.

13.2.3.3 COHO SALMON

The interim escapement goal range for Stikine Coho salmon is 30,000 to 50,000 fish.

13.2.3.4 PINK AND CHUM SALMON

Escapement goals for Stikine Pink and Chum have not been developed due to the limited abundance of these species.

13.2.4 CONSULTATION PROCESSES FOR STIKINE SALMON FISHERIES

The development of decision guidelines and specific fishery management plans for Stikine River fisheries involves consultation with the Stikine River Salmon Management Advisory Committee (SRSMAC) and the Tahltan Central Government. Recommendations of the Transboundary Panel (TRP) of the PSC provide an overarching backdrop for decision guidelines as do DFO policies, scientific advice, and the experience of fishery managers.

13.2.4.1 TAHLTAN CENTRAL GOVERNMENT: ABORIGINAL FISHERIES STRATEGY CONSULTATION

Consultations with the TCG relating to the Aboriginal Fisheries Strategy (AFS) occur throughout the year. Results of these consultations are contained within a multi-year DFO/TCG Fisheries Agreement. The Agreement details fish management and stock assessment programs, enforcement protocols, communal and commercial licenses, ESSR fishing opportunities and the First Nations' fishery and communal license provisions. The TCG also participate actively in the Stikine River Salmon Management Advisory Committee and have representation on the Transboundary Panel.

13.2.4.2 STIKINE RIVER SALMON MANAGEMENT ADVISORY COMMITTEE (SRSMAC)

The SRSMAC is comprised of representatives of DFO, TCG, and Stikine River salmon resource stakeholders, specifically commercial harvesters. Recreational fishers have also participated in Committee meetings. Membership is established by DFO through consultation with the groups which choose their representatives. Transboundary Rivers Panel members with Stikine interests also participate in SRSMAC meetings to ensure continuity and coordination in domestic and international discussions and recommendations. The Committee endeavours to meet twice annually to develop recommendations pertaining to management plans, conduct post-season reviews, and to address issues such as licensing, allocations and licence conditions.

13.2.4.3 TRANSBOUNDARY PANEL (TRP) OF THE PACIFIC SALMON TREATY

Canada/U.S. arrangements for the coordinated conservation and abundance-based management of salmon stocks originating in the Canadian portion of the Stikine River are specified in Chapter 1, paragraph 3(a), of Annex IV of the PST. The TRP oversees the implementation of these arrangements with technical support from the joint Transboundary Technical Committee. Fishery management, conservation, enhancement and stock assessment plans are reviewed and discussed annually by the Panel and/or the Committee. The TRP provides recommendations on

salmon fishery and conservation actions to the Pacific Salmon Commission which, upon review, conveys recommendations to respective national governments. The obligations and provisions contained in the PST and subsequent recommendations from the PSC adopted by the Parties provide the foundation for development of this IFMP. Management regimes under Annex IV will be implemented by Fisheries and Oceans Canada and U.S. agencies for the 2024 season.

13.2.5 DECISION GUIDELINES FOR STIKINE SALMON MANAGEMENT

Fishery decisions are made by DFO based on the provisions identified in Chapter 1 of the PST and recommendations from the TRP, the SRSMAC and the TCG. The following sections describe the various decision guidelines for Stikine salmon.

13.2.5.1 CHINOOK SALMON

Provisions for harvest sharing and management of directed fisheries for Stikine River large Chinook salmon (Chinook ≥ 660 mm mid-eye to fork length) were successfully negotiated by the TRP and implemented commencing 2005. Updates to these provisions have been made during Panel re-negotiations and are in effect January 1, 2019 through to December 31, 2028.

The catch sharing provisions were developed to acknowledge the traditional catches in existing fisheries, referred to as base level catches (BLCs), which had occurred prior to 2005.

Considerations for traditional catches included incidental catches and bycatch in Canadian and U.S. commercial gillnet fisheries, U.S. and Canadian sport fisheries, the Canadian First Nation fishery and the Canadian assessment fishery. For directed fisheries, it was agreed that for the 2019-28 PST Chapter 1 period, the total allowable catch (TAC) would be calculated as follows:

- TAC = Terminal run - Base terminal run (BTR);
- BTR = Spawning Objective + Assessment Fishery + U.S. BLC + Canadian BLC:
 - a. The S_{MSY} spawning objective for Stikine River Chinook salmon is 17,400 large fish;
 - b. BLCs are as follows:
 - i. US Stikine BLC: 3,400 large Chinook salmon;
 - ii. Canadian Stikine BLC: 2,300 large Chinook salmon;
 - iii. Assessment fishery: up to 1,400 large Chinook salmon.

Directed fisheries may be implemented based on pre-season forecasts only if the pre-season forecast terminal run size equals or exceeds the spawning objective as defined in the annual management plan in addition to the combined Canada and U.S. base level catches (BLCs) and

assessment fishery catches of Stikine River Chinook salmon. The pre-season forecast shall only be used for management until bilaterally approved in-season projections become available. For the purposes of determining whether to allow directed fisheries using in-season information, such fisheries shall not be implemented unless the projected terminal run size exceeds the spawning objective as defined in the annual management plan in addition to the combined Canada and U.S. BLCs and assessment fishery catches of Stikine River Chinook salmon. The TTC shall determine when in season projections can be used for management purposes and establish the methodology for in-season projections and update them weekly or at other approved intervals.

Harvest sharing and accounting of the TAC shall be as follows:

- 50% is allocated to the U.S.;
- 50% is allocated to Canada;
- If the pre-season TAC forecast exceeds 30,000 Chinook salmon, the Panel shall review and recommend potential harvest share adjustments to the Parties.

When the terminal run is insufficient to provide for the Parties' Stikine River Chinook salmon BLC and the lower end of the escapement goal range, the reductions in each Party's base level fisheries (i.e. the fisheries that contributed to the BLCs) shall be proportional to the Stikine BLC shares. In this situation, the TTC may recommend details for an alternate assessment program. Following the Panel's approval, an assessment fishery may be implemented which fully considers the conservation needs of the stock.

If the escapement of Stikine River Chinook salmon is below the lower end of the agreed escapement goal range for three consecutive years, the Parties shall examine the management of base level fisheries and of any other fishery that harvests Stikine River Chinook salmon stocks, with a view to rebuilding the escapement.

The bilaterally agreed terminal run pre-season forecast of 12,900 large Chinook does not meet the threshold for implementing a directed Chinook commercial fishery based on the terminal run preseason forecast as described in the decision provisions above. The TAC, based on the pre-season forecast, is therefore 0 Chinook salmon. According to the harvest sharing provisions, Canada's share of the TAC is 0 large Chinook salmon which does not provide for a directed Chinook fishery. The Canadian catch allocation may be adjusted according to the in-season projections once they become available but for 2024 this is not considered likely.

The pre-season forecast is expected to serve as the principal run size estimator for 2024. Typically, the pre-season forecast will be replaced with in-season run projections once reliable, in-season estimates become available based on the Stikine Chinook Management Model

(SCMM) which primarily uses Kakwan catch-per-unit-effort (CPUE) data; mark-recapture estimates expanded by historical timing data may be used in conjunction with the model projections. Weekly mark-recapture estimates are normally available by SW22 (May 28 – June 3), but it is anticipated that few tags will be applied in 2024 and recoveries in the Canadian fisheries (incidental interceptions in Sockeye fishery) will be minimal.

For 2024, in the unlikely event that in-season run size projections allow for a directed large Chinook salmon harvest, the fishery will be managed on a weekly basis with management actions driven by the SCMM and in-season mark-recapture results combined with pre-season decision rules (conservation and allocation objectives). Weekly inputs to the model will include: catch data from Alaska District 108 gillnet, troll and sport fisheries; catch data from the Canadian Stikine commercial, test, First Nation, and recreational fisheries; catch and effort from the Kakwan tagging site; and escapement requirements. The in-river run timing model for 2024 (which is used to expand the mark-recapture estimates to give projections of the total in river run size) will be based on the average run timing of large Chinook salmon observed in the Canadian commercial/assessment fisheries. Extrapolation of current D-108 catches to provide estimated seasonal values will be based on a District 108 timing model. This model will incorporate: D-108 drift gillnet CPUE data; Kakwan Point CPUE data lagged by one week; and, Canadian Chinook test fishery CPUE data lagged by two weeks.

13.2.5.2 SOCKEYE SALMON

Under the revised PST provisions for 2019-28, harvest shares for Stikine Sockeye will be calculated as follows:

- 53% U.S. / 47% Canada from 2019 through 2023. If the final 2017 or 2018 Stikine Sockeye production plan (SEPP) provides an expected production of 100,000 returning Sockeye salmon, the harvest shares shall be 50% U.S. / 50% Canada in 2022 or 2023.
- Beginning with the final 2019 SEPP and subsequent years, if expected production is 100,000 returning Sockeye salmon, the harvest shares three years later shall be 50% U.S. / 50% Canada. Otherwise, the harvest share for the Party that failed to implement enhancement projects designed to annually produce 100,000 returning Sockeye salmon shall be reduced by 7.5% and reallocated to the other Party.
- If either the U.S. or Canada fully terminates or does not continue its participation in the joint enhancement program, that Party's harvest share shall be reduced to 35%, and the harvest share adjustment shall be reallocated to the other Party for the subsequent fishing season(s).

The pre-season forecast translates into an expected TAC of 77,400 Tahltan Sockeye salmon and 9,000 Mainstem Sockeye salmon and a 42.5% harvest share for Canadian fisheries of 36,700 Sockeye salmon. This estimate will be updated once in-season run size projections become available and are incorporated into weekly management decisions.

Weekly management actions will consider data from stock assessment projects (including the CPUE from the fisheries) and the projected run sizes, catch and escapements from the Stikine Management Model (SMM) and the Stikine Forecast Management Model (SFMM). Descriptions of these models and data inputs are summarized in:

- *Miller, S.E. and J.A. Bednarski. 2017. Stikine Sockeye salmon management model: improving management uncertainty. Pacific Salmon Comm. Tech. Rep. No. 38: 31 p.*

The part of the SMM model which determines total and weekly TAC levels for the U.S. and Canadian fisheries has been formulated in EXCEL® for use by managers in-season. Estimates of weekly TAC and effort are provided as guidelines for the managers and are derived from average run timing of the stocks and the corresponding average CPUE levels of each fishery. The 2024 in-season predictions of abundance and TAC will be based on the following datasets:

- 1) Management actions for Sockeye salmon will be based on the pre-season forecast from the opening of the season through SW28 (July 7). For stat weeks 30 – 34 (beginning July 21) limited opportunities are anticipated based on the low pre-season mainstem Sockeye salmon forecast.
- 2) The in-season run projections for SW28-32 (July 7 through August 10) will be based on the SMM and the SFMM produced forecasts or other approved methodology.
- 3) After SW32, the management models will continue to be updated; however, run projections are typically less reliable after SW32 and will be viewed accordingly.
- 4) Historical timing data will be used to provide weekly guideline harvests for each country.
- 5) Weekly management decisions may include other considerations such as:
 - a. The lower river commercial CPUE of the Tahltan Lake stock grouping may be used to calculate the in-river run size by a linear regression equation independent of the model. The run size of the mainstem stock grouping will be determined based on the proportion of the CPUE of these stock groupings in the current statistical week and expanded by run timing (note: water levels and associated changes in exploitation rates will be monitored and used in assessing the run size);

- b. The current weeks in-river run size of Tahltan Lake Sockeye salmon may be calculated based on the estimated harvest rate in the lower Stikine River commercial fishery expanded by run timing. The harvest rate is estimated based on the historical relationship between effort and in-river run size. The run size projections for the mainstem stock groupings will be determined based on the proportion of the CPUE of these stock groupings through the current statistical week and expanded by run timing (note: water levels and associated changes in exploitation rates will be monitored and used in assessing the run size);
- c. Harvest rates in existing fisheries compared to historical averages, run sizes, and water levels;
- d. Comparison of current year in-river harvest performance by stock grouping against past harvest performance and run size, and perceived changes in current year run timing information from the run timing regime identified in the management models.

Separate projections of terminal run size will be made for the combined Stikine Sockeye stocks (Tahltan + mainstem), the Tahltan stock (wild + enhanced) and the mainstem stock. This information will be used in-season to assist in fisheries management and will, along with other measures of abundance, be evaluated post season. Consideration for Tahltan Lake Sockeye stock management objectives should persist through July 27 (SW30) when the contribution of Tahltan stocks typically drops to below 50%. Thereafter, management attention will be focused primarily on mainstem Sockeye stock objectives.

13.2 STIKINE RIVER SALMON FISHING PLAN

Table 13-6.23: Key Decision Points for Tahltan Lake Sockeye salmon.

In-river run size: Tahltan Lake Sockeye	FN Fishery	Commercial Fishery
>25,000	Unrestricted	Normal 2-3 day fishery with possible extensions
19,000 – 25,000	Unrestricted	Restricted fishery 1-2 days – possible gear/area restrictions
11,000 – 19,000	Unrestricted	Closure considered
7,000 – 11,000	Restricted – days reduced	Closed
<7,000	Closed*	Closed

[note: a FN fishery closure is imposed only if the commercial fishery closed for at least one week prior].

13.2 STIKINE RIVER SALMON FISHING PLAN

Table 13.23 and Table 13-7 identify the Canadian management reference points for Tahltan Lake and mainstem Sockeye salmon, respectively. Since the FN fishery occurs mostly upstream of the mainstem Sockeye spawning areas, it is not generally affected by conservation concerns for this stock as indicated in Table 13-7.

Table 13-7.24: Key Decision Points for Stikine mainstem Sockeye salmon.

In-river run size	FN Fishery	Commercial Fishery
>33,000	Unrestricted	Normal 2-3 day fishery with possible extensions.
21,000 – 33,000	Unrestricted	Restricted fishery 1-2 days – possible gear/area restrictions.
13,000 - 21,000	Unrestricted	Closure considered
<13,000	Unrestricted	Closed

13.2.5.3 COHO SALMON

Pursuant to the PST, management efforts of the U.S. are intended to ensure that sufficient Coho salmon are allowed to pass into the Canadian section of the Stikine River to meet escapement needs, plus an annual Canadian catch of 5,000 Coho salmon in a directed Coho salmon fishery. Coho salmon taken as bycatch during the directed Sockeye fishery in Canada, i.e. prior to SW35, do not count towards this catch limit. In 2024, Canadian Coho salmon management will commence in SW36 (September 1 - 7).

13.2.5.4 PINK AND CHUM SALMON

As Pink and Chum salmon are currently not targeted in lower Stikine fisheries, and are seldom encountered in the First Nation fishery, harvest sharing arrangements have not been developed for these stocks.

13.2.6 STIKINE FISHERY PLANS FOR 2024

13.2.6.1 FIRST NATION FISHERY

13.2.6.1.1 Stikine River First Nations Basic Needs Allocation (BNA)

The Communal Fishing Licence for the Tahltan and Iskut First Nation (TIFN) allows for a BNA of up to 10,000 Sockeye, 2,000 Chinook, and 200 Coho salmon.

13.2.6.1.2 Stikine River First Nations Control and Monitoring of Removals

The poor production of Chinook salmon continues to be a concern in 2024. Although additional restrictions in FSC fisheries are not anticipated, TCG members are encouraged to avoid harvesting large Chinook salmon and to focus harvest on Sockeye salmon. Additional adjustment of this strategy may need to occur should conservation issues arise for Chinook and Sockeye salmon. Changes to the FSC fishery management strategy such as reductions in fishing time and/or area closures will only be considered if sufficient adjustments cannot be accomplished through reductions or closures in commercial and/or recreational fisheries and will be made through application of the Stikine River Decision Guidelines and consultation with the TCG.

Catches will be recorded in-season by Fisheries and Oceans Canada from specific harvest data submitted to the Department on a weekly basis by the TCG Fisheries Program. Biological sampling to assess age, size and stock identification will be conducted during the latter portion of the Chinook salmon fishery and throughout the Sockeye fishery.

13.2.6.1.3 Stikine River First Nations Communal Licensing

Communal licenses are issued to First Nations that have rights to fish in the Stikine River watershed for FSC purposes. The First Nation maintains control of these licenses and has the authority to designate all persons fishing in this category.

13.2.6.2 STIKINE RIVER SALMON RECREATIONAL FISHERY

In British Columbia, recreational fishing opportunities for salmon are regulated by the *British Columbia Sport Fishing Regulations* pursuant to the federal *Fisheries Act*. Salmon fishing in the Stikine River watershed in B.C. is covered under the Region 6 fishing regulations (see: the 2023-2025 B.C. *Freshwater Fishing Regulations Synopsis* at: https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/outdoor-recreation/fishing-and-hunting/freshwater-fishing/region_6_skeena.pdf; or, the Fisheries and Oceans Sport Fishing Guide for Region 6 at: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/fresh-douce/region6-eng.html>).

Recreational angling restrictions and requirements are subject to change in-season if additional conservation concerns arise or if additional recreational opportunities become available. Changes are communicated through Fishery Notices, media reports, telephone information lines, Twitter (@sportfishingbc) and/or the in-season decisions website: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/season-saison/index-eng.html>.

To address conservation concerns associated with low escapements of Chinook salmon in recent years and specifically 2024, the retention of Chinook salmon is prohibited (effective April 1 to March 31), done annually through a variation order (2024-RFQ-073). In addition, the Tahltan River will be closed to recreational salmon fishing from June 1 to August 31.

13.2.6.2.1 Stikine Recreational Control and Monitoring of Removals

The controls for the Stikine recreational fishery for salmon include daily possession limits, hook restrictions, area closures, catch record keeping requirements, catch reporting requirements and licencing requirements. These are described at: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/fresh-douce/region6-eng.html>. Some of the highlights include the following:

- For 2024, recreational angling in the Stikine River and tributaries for Chinook salmon is not permitted and the daily limit is 0 per day;
- The daily limit for Coho salmon is 4 per day, only 2 can exceed 50 cm (nose to fork of tail);
- The daily limit for Sockeye, Pink and Chum salmon is 0 per day;
- The maximum number of salmon (species combined) that can be retained in any one day is 4;
- The possession limit is 8 salmon (in the aggregate, species combined);
- The annual catch limit for Chinook salmon in British Columbia non-tidal waters is 10;
- All retained salmon must measure 30 cm or more;
- All retained Chinook salmon must immediately be recorded on the licence or, if a record can be made in a catch registry kept by the Department of Fisheries and Oceans, in that registry;
- It is illegal to catch or attempt to catch salmon by willfully foul hooking. Any accidentally foul-hooked salmon must be released;
- Only single barbless hooks are allowed to be used when fishing for salmon in streams;
- All steelhead must be released;
- Annual fishing area openings include:
 - a. **As noted in Section 13.2.6.2 above, for 2024, the Tahltan River will be closed to salmon fishing from June 1 until August 31.**
 - b. The remainder of the Stikine River drainage is open to salmon fishing from April 1, 2024 to March 31, 2025.

Additional restrictions may be implemented in 2024 other than those listed above or outlined in the B.C. Freshwater Salmon regulations. If the in-season run size projections of Chinook and/or Coho salmon indicate conservation or FSC concerns, further closures, or reductions in quotas including non-retention, may be required. Increases in the possession limits could be considered if the conservation and FSC objectives will be significantly exceeded.

Fishing activity in the Telegraph Creek area will be monitored opportunistically by a TCG field technician stationed near the Tahltan River to collect catch and release data. The technician will also be tasked with the collection of baseline biological data including sex, size and age of harvested fish as well as the collection and collation of fish tags recovered by the fishery.

Compliance monitoring and enforcement will be undertaken by enforcement personnel with the Province of B.C. and/or DFO.

13.2.6.2.2 Stikine River Recreational Fishery Licensing

Recreational fishing on the Stikine River is permitted provided the angler is the holder of a current BC “Non-Tidal Angling Licence”. A “Salmon Conservation Stamp” must be validated with the basic angling licence if the fisher intends to keep salmon. In order to fish for steelhead, a “Steelhead Conservation Surcharge Stamp” is required

(see: <http://www.env.gov.bc.ca/fw/fish/licences/surcharge.html>).

Residents under the age of sixteen may fish without a licence unaccompanied by a licence holder. Non-residents under the age of sixteen may fish without a licence but must be accompanied by a valid licence holder. Catches must be counted towards the possession limit of the licence holder. Licence fees vary depending on the type of licence required.

13.2.6.3 STIKINE COMMERCIAL SALMON FISHERY

The commercial fishery is allowed to operate providing conservation, FSC, recreational (in the case of Chinook salmon) and PST harvest sharing objectives are likely to be met. The Canadian catch will be managed with the objective of meeting escapement and agreed Canada/US and domestic harvest sharing objectives.

The 2024 pre-season Chinook salmon forecast is not sufficient in magnitude to proceed with a directed commercial fishery for Stikine River Chinook salmon. Restrictions in the commercial fisheries are required for the 2024 season in order to maximize the number of Chinook salmon reaching the spawning grounds.

Contingent on in-season abundance estimates, should a directed Sockeye salmon commercial fishery occur, the implementation of Chinook conservation measures would include the

following: delaying the Sockeye salmon fishery until the week of June 30 – July 06 (SW27) to avoid the Chinook salmon migration period; the retention of incidentally caught Chinook salmon would be prohibited; the use of set nets may be permitted in the commercial Sockeye salmon fishery but limited to 30 minute soak times to allow for the release of Chinook salmon in the best condition possible; for the duration of the Sockeye salmon management period, the maximum mesh size would be 14.0 cm (~5.5”) to reduce the interception of the larger Chinook salmon which make up the majority of the spawning population.

The lower Stikine River commercial Sockeye salmon fishery would be managed on a weekly basis subject to in-season estimates of abundance and available allowable harvest. The upper Stikine commercial fishery would typically mirror openings in the lower Stikine River fishery lagged a week with consideration given to Chinook salmon conservation concerns. Upper Stikine River fishers are permitted to use one net of the same dimensions as that used by fishers participating in the lower Stikine River commercial fishery (see Section 13.2.6.3.9). Daily and weekly catches will be collected by a DFO representative on site with catches reported to DFO’s Whitehorse office on a weekly basis. Management regimes directed at Coho salmon will commence in SW 35 (August 25 – August 31).

13.2.6.3.1 Stikine Commercial Chinook Fishery Controls

The three primary fishery management actions to control weekly commercial harvests include:

- Adjusting fishing time: Fishing time in the lower Stikine River fishery generally depends upon stock assessment and international and domestic catch allocation considerations. The pre-season expectation is for a run size not capable of providing directed commercial fishing opportunities, so fishing opportunities will not be provided. In addition, the run size has been deemed insufficient for a mortality-based assessment fishery, so in-season projections are not anticipated.
- Adjusting the fishing area: Typically, the lower commercial Chinook salmon fishing area extends from the Canada/U.S. boundary upstream to a location near the mouth of the Porcupine River. The section of the Stikine River from the confluence of the Porcupine and Stikine rivers upstream to near the mouth of the Scud River may be opened should the Chinook salmon abundance be greater than expected and well above spawning escapement and First Nation fishery requirements. In the Iskut River, the area will remain unchanged from previous years, i.e. from the mouth to a marker located approximately 10 km upstream from the mouth. For the upper Stikine commercial fishery, the fishing zone in the Stikine River is bounded in the south by the confluence of the Chutine and Stikine rivers, and in the north by the confluence of the Tuya and Stikine rivers.

- Adjusting the fishing gear: Initially, only one net per license will be permitted and may be deployed as a set or drift gillnet. The maximum mesh size permitted is 20.3 cm (8.0 inch). Gear may be increased to two gillnets should an increase in exploitation rate be warranted based on in-season abundance estimates. The maximum allowable net length will remain at 135 meters. Additional gear limitations are described in Section [13.2.6.3.9](#). Due to Chinook salmon conservation concerns in 2024, a maximum mesh size restriction of 140 mm (5.5 in) will be implemented as in previous years to conserve Chinook salmon during Sockeye salmon openings. Typically, this restriction is removed once Chinook salmon have migrated out of the fishing area.

Note: No opportunities for directed commercial harvest of Chinook salmon in 2024.

13.2.6.3.2 Stikine Commercial Sockeye Fishery Controls

The commercial fishery is typically managed on a weekly basis with management actions driven by results of stock, catch, and escapement projections, in river catch performance compared to historical catch performance and run size and water levels, and in-season escapement monitoring projects. Conservation concerns generally result in fishing time and area restrictions. In the event that increased fishing effort is justified, extensions to fishing time would be granted first. If additional effort is warranted, there will be consideration for increasing the fishing area and/or gear. Additional fishing effort will be dependent on stock status and precautionary principles.

The four primary fishery management responses during the Sockeye season are:

- Adjusting fishing time: Fishing time periods in the lower Stikine Sockeye salmon fishery depend upon stock assessment and international and domestic catch allocation considerations. The pre-season expectation is for a run size not capable of providing commercial fishing opportunities, in the unlikely event that in-season information suggests the run has improved enough to support commercial fishing, initial fishing periods for Sockeye salmon will likely be of shorter duration due to uncertainty over the pre-season run outlook. Should in-season projections become available, caution will be exercised in providing fishing time. In the upper Stikine commercial fishery, weekly fishing times would generally follow those of the lower river lagged by one week;
- Adjusting the fishing area: Initially, the fishing area will be defined as the Canada/US boundary upstream to a location near the mouth of the Porcupine River. The section of the Stikine River upstream from the Porcupine-Stikine confluence will be closed for the initial Sockeye salmon fishing periods. Consideration for increasing the fishing area upstream to the boundary sign located approximately 9 km below the Stikine-Scud

confluence would only be given if the in-season indicators for both Chinook and Sockeye salmon indicate strong runs, FSC obligations will be met, escapement targets are expected to be exceeded and overall harvests are below allocation targets. In the Iskut River, the area will remain unchanged from previous years, i.e. from the mouth to a marker located approximately 10 km upstream from the mouth;

- Adjusting fishing gear: Initially, only one net per licence would be permitted and may be deployed as a set or drift gillnet. Gear may be increased to two gillnets, should an increase in exploitation rate be warranted based on in-season terminal run size estimates. In order to address Chinook salmon conservation concerns, there will be a maximum mesh size restriction of 140 mm (5.5") during the Sockeye salmon management period to conserve Chinook salmon while permitting harvest opportunities on Sockeye salmon. The use of set nets may be limited to a maximum of 30-minute soak times to allow for the release of Chinook salmon in the best condition possible.
- Release of bycatch: Release of incidentally caught Chinook salmon would be required during the course of a directed Sockeye fishery.

Note: Opportunities are anticipated for directed commercial harvest of Sockeye salmon in 2024.

13.2.6.3.3 Stikine Commercial Coho Fishery Controls

For the directed Coho fishery, weekly harvest strategies commencing SW35 (August 25 - 31) will be administered to achieve the 5,000-piece allocation as prescribed by the PST. If the effort level is low in 2024, the Coho salmon fishery may see liberal openings. The fleet is expected to harvest the allocated TAC of 5,000 pieces within a two-to-three-week period.

An indication of the Coho run strength may be gathered over the course of the Sockeye salmon fishing season, which typically extends from late June through to mid-August. If there is a Coho salmon conservation concern, the Canadian fishery will be restricted primarily through reduced fishing time during the directed Coho fishery.

13.2.6.3.4 Stikine Commercial Pink and Chum Harvest Controls

Pink and Chum salmon are not targeted in the Stikine River; however, some bycatch is anticipated during the directed fishery for Sockeye salmon and to a lesser extent during the Coho salmon season. Due to the limited abundance of Pink and Chum salmon, few are expected to be encountered in the Stikine commercial fishery.

13.2.6.3.5 Pacific Salmon Strategy Initiative (PSSI) Longer Term Commercial Fishery 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 with a commitment to review longer term closures for 2022 and beyond after additional consultation with affected groups. The Stikine River Chinook salmon commercial fishery was closed in 2022 as part of PSSI longer-term fishery closures and will continue to be closed for 2024. See Appendix II for a list of longer-term fishery closures/mitigations under consideration.

13.2.6.3.6 Stikine Commercial In-Season Catch Reporting Program

Commercial catch reporting requirements are detailed in the Conditions of Licence issued to all commercial fishers. While participating in the lower Stikine commercial fishery, fishers are required to land catches at a registered landing station within 2 hours of the daily closing time, except for the last calendar day on which fishing occurs in any given week, when the deadline will be 4 hours after closure. Hail information collected throughout the openings may be used to justify extensions to fishing times. In the upper Stikine commercial fishery, commercial fishers have until 24 hours after the close of each weekly fishery to provide catch records to the Tahltan Fisheries Department official stationed at Telegraph Creek. As in past years, catches of Stikine salmon shall be made available for sampling by Departmental staff or designates when requested.

Fish slips must be completed and provide the information required as defined in the Conditions of Licence (note: details regarding specific reporting requirements differ between Lower Stikine and Upper Stikine commercial fishing areas). For example, this may include: the number and weight of each species caught separated by gill net mesh size and type (set net or drift net); whether fish were landed in the round or dressed; and the location where fishing occurred. In the unlikely event that retention of Chinook salmon is permitted in 2024, Chinook salmon must also be separated by size (large and small). A small Chinook salmon is a fish with a fork length, i.e. tip of nose to fork of tail, of less than 735 mm. A fork length measurement is used in this case since it is easier and quicker to determine than the mid-eye to fork length, which is the standard length measurement for biological sampling programs for Stikine River Chinook salmon. A logbook is required to document the number of fish caught but subsequently released, and it is submitted along with harvest and tag recovery information after each 24-hour fishing period.

Targeting of Pink and Chum salmon in the commercial fishery does not occur; however, all catches of these species must be recorded (including those that are released). It is unlikely that close times would be varied for Pink or Chum salmon.

Any steelhead captured during commercial fishing must be live-released and records of release must be retained and submitted to DFO.

13.2.6.3.7 Stikine Commercial Non-Retention Species

All fishery opening announcements will list the species for which retention is permitted. As a result of Chinook salmon conservation concerns, retention of incidentally caught Chinook salmon is prohibited. All other species noted in the weekly announcements must be released to the water with the least possible harm (this requirement includes all steelhead).

13.2.6.3.8 Stikine Commercial Monitoring Plan

The lower Stikine fishery will be monitored by DFO and/or TCG Fisheries Program Technicians stationed at the lower Stikine Field Office. The upper Stikine fishery will be monitored by a TCG Fisheries Department official stationed at Telegraph Creek. Personnel will collect daily catch and tag recovery data from landing stations on the lower Stikine River and sample portions of the catch for biological samples and stock composition determinations. Catch and tag recovery data will be collected weekly in the upper fishery and will be recorded for each licence by species and hours fished. DFO Conservation and Protection personnel will monitor and enforce compliance in the fishery.

13.2.6.3.9 Stikine Commercial Gill Net Construction

Specific restrictions such as the specifications for net construction are found in the Conditions of Licence, which are attached to the licence. No changes in 2024 are anticipated. Fishers are urged to read these conditions carefully to ensure that their fishing gear and activities are in accordance with the rules under which they will operate.

The maximum allowable net length for the Stikine River commercial fishery is 135 metres. All gill nets (set or drift) must meet the following web specifications or those as revised by Public Notice:

- Have 6 or more filaments in each twine of the web, with all filaments in the web a minimum of 0.20 mm in diameter. (This web is otherwise known as “Alaska twist”).
- The minimum allowable mesh size of gill nets used in this fishery shall not be less than 100 millimetres (4 inches).

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- Subject to conservation or FSC concerns, the maximum allowable mesh size of gillnets used in this fishery shall not exceed 204 millimetres (8 inches).
- The maximum gill net depth shall not exceed 60 meshes.
- The distance between set nets shall be at least 150 metres, measured from any point between nets.

Set nets must be identified with an orange-coloured buoy with the fisher's licence number clearly marked on it. The buoy must be attached to the end of the net that is furthest from shore.

Specific restrictions for net configuration are found in the Fishery Notices issued prior to every commercial fishery. Fishers are urged to read these carefully to ensure that their fishing gear is in accordance with the provisions for each opening.

13.2.6.3.10 Stikine Commercial Licensing

All commercial licences are available through the National Online Licencing System which replaces the in-person payments of licensing fees at DFO offices (see: <https://fishing-peche.dfo-mpo.gc.ca/>), additional information can also be found under Section 12.1. Harvesters will use the online licensing system to go online to pay for and print their commercial fishing licence and licence conditions. The cost of a commercial licence is \$215.15 regular fee and \$21.51 First Nation reduced fee. Seven of the 23 commercial licences on the Stikine River are currently held by the Tahltan Band Council who have the authority to designate fishers to utilize licences.

Recommendations for a process regarding relinquishing commercial licences have been developed by the SRSMAC and were adopted in 2004.

13.2.6.4 STIKINE ESSR FISHERIES

13.2.6.4.1 Stikine ESSR Licensing

It is possible that the number of Sockeye salmon reaching Tahltan Lake may exceed escapement requirements. In preparation for this possibility as per previous years, the Department intends to issue an ESSR licence to the Tahltan Central Government to harvest excess Sockeye at the weir at Tahltan Lake, or in the Tahltan River. In accordance with Departmental policy, the Tahltan Central Government will be given the right of first of refusal for the 2024 ESSR for Tahltan Lake Sockeye. If the Tahltan Central Government declines the ESSR, the opportunity may be offered to other groups or individuals.

The issuance of an ESSR licence must follow stringent policy guidelines. Some of the noteworthy principles and policy guidelines include:

- DFO will seek to manage existing fisheries to minimise surpluses. Therefore, DFO will not manage for an ESSR. Fish taken under an ESSR licence are fish that are surplus to spawning requirements that could, or should, have been taken in existing fisheries. As a result, there is no guarantee that fish will be available for an ESSR fishery and there is no guaranteed number of salmon that may be taken.
- In allocating an ESSR, the first priority will be to use the surplus to meet outstanding First Nation requirements for FSC purposes (those which cannot be met through other First Nation FSC fisheries). This may be done under a communal licence or AFS agreement. Fish caught under this licence may be sold commercially or given away, traded or bartered. As a second priority, the First Nation may be offered the first opportunity to harvest all, or part of, the ESSR. As a result, and in accordance with DFO policy, the Tahltan Central Government will be provided the first right of first refusal to participate in a Tahltan Lake Sockeye ESSR fishery.
- ESSR licence holders are required to invest profits from sales of the surplus into community-based fisheries projects and activities such as enhancement, stock restoration, habitat restoration, and, or, fishery or habitat management research.

13.2.6.4.2 Stikine ESSR Control and Monitoring of Removals

The ESSR fishery will only be initiated if it is expected that there will be excess Sockeye salmon on the spawning grounds. The general operating conditions for harvesting Tahltan Lake Sockeye under an ESSR licence are expected to include:

- a) harvesting will not commence until the weir count exceeds 15,000 Sockeye salmon and the in-season projection is for more than 27,000 Sockeye salmon to enter the lake. DFO will determine when the fishery commences and how many fish can be taken;
- b) for cumulative weir counts of less than 27,000, up to 25% of the daily Sockeye salmon escapement into Tahltan Lake may be harvested subject to (a) above;
- c) once the weir count exceeds 27,000, the percentage may be increased to 75%. Consideration will be given to increasing this percentage depending on run size and fish quality;
- d) the licensee has the responsibility to inspect, record and report the catch as outlined in operating procedures determined between DFO and licence holder.

The above conditions will serve as general guidelines for 2024. However, consideration may be given for modifications to address logistical or other challenges, providing such modifications do not impair the achievement of conservation objectives. Due to the migration characteristics

of Stikine River Sockeye salmon, the actual implementation of fishing opportunities at Tahltan Lake would likely occur on very short notice.

13.2.7 STIKINE SOCKEYE ENHANCEMENT PLAN FOR 2024

Joint Canada /U.S. Sockeye enhancement projects are conducted in the Stikine River watershed under terms outlined in the PST and/or as modified by the Transboundary Panel. Broodstock is captured in Canada at Tahltan Lake, with eggs and milt collected to fertilize eggs. Fertilized eggs are flown by floatplane or helicopter to the Snettisham Central Incubation Facility south of Juneau, Alaska where they are incubated and thermally marked. The original enhancement plan stipulated that the fry originating from Tahltan Lake broodstock were to be released (back-planted) into Tahltan and/or Tuya lakes within the Stikine River drainage as per plans recommended by the Transboundary Panel. However, due to Canadian concerns over the fate of terminal adult returns to the Tuya system, outplants into Tuya Lake have been suspended since 2014, last fry release occurring Spring of 2014. Stikine Sockeye enhancement releases have been to Tahltan Lake only since.

The PST identifies the following commitments:

- A Stikine Enhancement Production Plan (SEPP) shall be prepared annually by the TTC by February 1. The SEPP will detail the planned enhancement activities to be undertaken by the Parties and the expected production from site specific egg takes, access improvements and all other enhancement activities outlined in the annual SEPP. The TTC will use this data to prepare an initial enhancement production forecast based on the best available information.
- The Transboundary Panel shall review the annual SEPP and make recommendations to the Parties as to whether the plan should be revised or accepted as is by February 28.

The SEPP for 2024 is summarized in Table 13-8.

Table 13-8.25: Stikine Enhancement Production Plan (SEPP) 2024

Enhancement Project	Activities	Expected Production	Technique to document production
Tahltan Lake	Expected Egg Take Range: 2.5 – 3.5 million eggs Egg Take: maximum of 5.0 million eggs.	Expected: 32,000 – 45,500 adults resulting from direct release into Tahltan Lake	Thermal mark

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	<p>Guideline for last adult broodstock collection day is September 25</p> <p>Outplant: All fry to be “direct release” into Tahltan Lake</p>	<p>Expected maximum: 65,000 adults resulting from direct release in Tahltan Lake.</p>	
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Notably, outplants of Sockeye salmon fry into Tuya Lake will not occur due to concerns over the inability to harvest adequate numbers of fish downstream of the velocity barrier in the Tuya River. The suspension of the outplant program may impact future Stikine River egg-take targets, and, as per paragraph 3(a)(i)(C) of Annex IV, Chapter 1, will in turn have an effect on harvest share allocations for Stikine River Sockeye salmon in the future. DFO will continue to explore options that address these concerns.

13.2.7.1 TUYA RIVER SOCKEYE ENHANCEMENT REVIEW

DFO will continue to work with Tahltan Central Government (TCG), the Transboundary Technical Committee and Transboundary River Panel to review options for Tuya River Sockeye salmon enhancement. In 2016, a project funded by the Northern Fund was initiated to bring together all sources of information related to Tuya Lake enhancement for inclusion in a report that provides analysis and synthesis of available information. The report provides all references utilized and provide clarity on fish production, harvest, terminal escapement, opportunities and challenges and recommendations for consideration. Further input from Tahltan/Iskut First Nations, local Stikine residents and stakeholders to clearly inform concerns, information needs and ensure the project develops mutually valued information and opportunities. Recommendations will be developed to better attempt to realize the full potential of Tuya Lake enhancement and focus stakeholder interest on feasible options.

13.2.8 STIKINE STOCK ASSESSMENT PLAN FOR 2024

13.2.8.1 CHINOOK SALMON

Stikine Chinook salmon in-river stock assessment programs planned for 2024 include:

- The joint Canada/U.S. mark-recapture project at Kakwan Point (15 km downstream of the Canada/U.S. border) involves live-capture, spaghetti tag application, and release of the salmon. Tags will be recovered in the commercial fishery, Little Tahltan weir, and

potentially in FSC fisheries, as well as in escapement surveys of various spawning locations (e.g., Verrett and Craig rivers, and Shakes and Johnny Tashoots creeks).

- The collection of baseline biological information (age-size-sex composition, spaghetti tags, CWT's) from biological samples and from catches taken in the lower Stikine commercial and/or assessment fishery, the FSC fishery and the upper Stikine commercial fishery. An assessment fishery will not be conducted in light of the poor pre-season forecast.
- The opportunistic collection of tissue samples from specific stocks drainage-wide to update baselines for GSI purposes.
- The weekly collection of GSI tissues from the lower Stikine commercial fishery (not likely in 2024) and from the Kakwan tagging site. GSI will be used to determine relative, perhaps absolute, stock-specific run strength on a weekly basis.
- Application of coded-wire tags (CWTs) with a target of 50,000 Chinook smolts to obtain information on production, ocean survival and marine distribution.
- The Chinook salmon escapement enumeration and tag observations at the Little Tahltan River. Baseline data (may include age, gender, size), spaghetti tags, CWT, and secondary mark sampling may also be collected from spawning locations (see Figure 13.2-2) for historical counts).
- The collection of catch statistics and associated baseline biological information from the recreational fishery located at the Tahltan River (not anticipated for 2024).
- Aerial surveys of key Chinook salmon spawning areas located throughout the Stikine River.
- A pilot study to test the feasibility of using sonar technology to enumerate Chinook salmon on the Tahltan River.

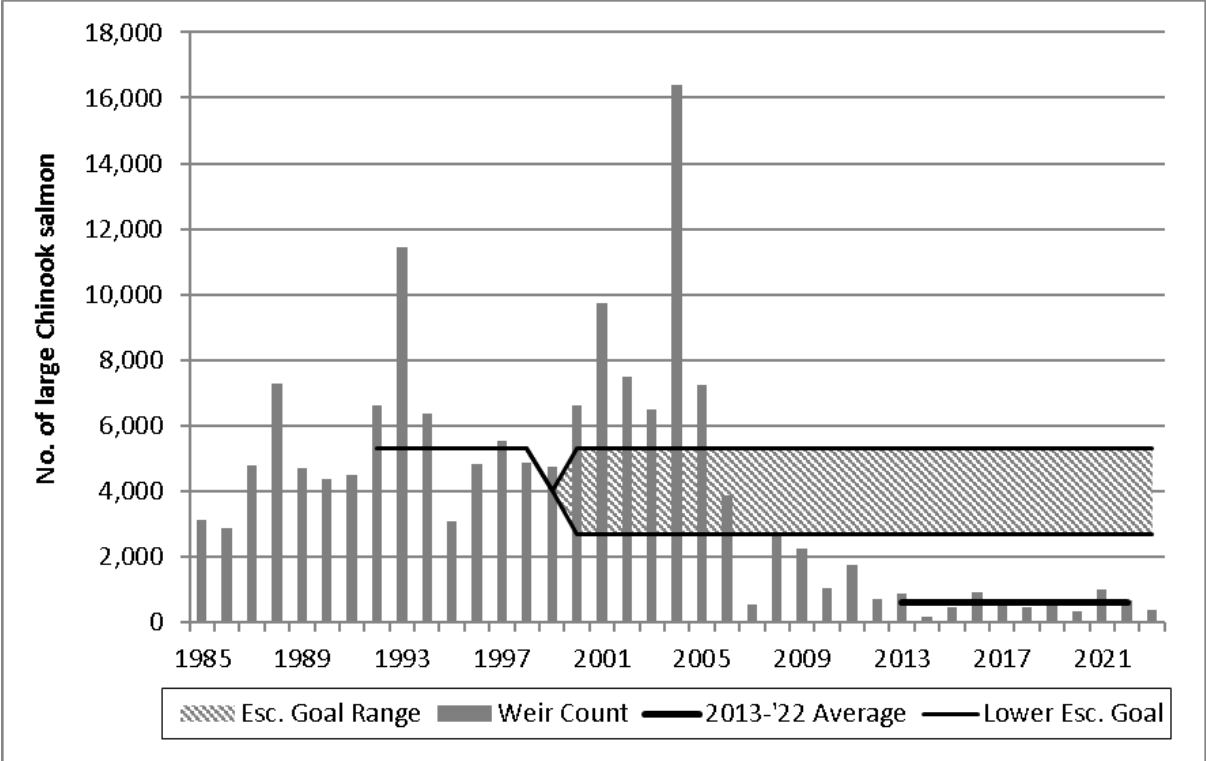


Figure 13.2-2: Weir counts of Little Tahltan River Chinook, 1985 to 2023 (does not include jacks). A landslide impeded access to the Tahltan R. drainage Chinook salmon spawning grounds in 2014. Video camera utilized for counting starting in 2017.

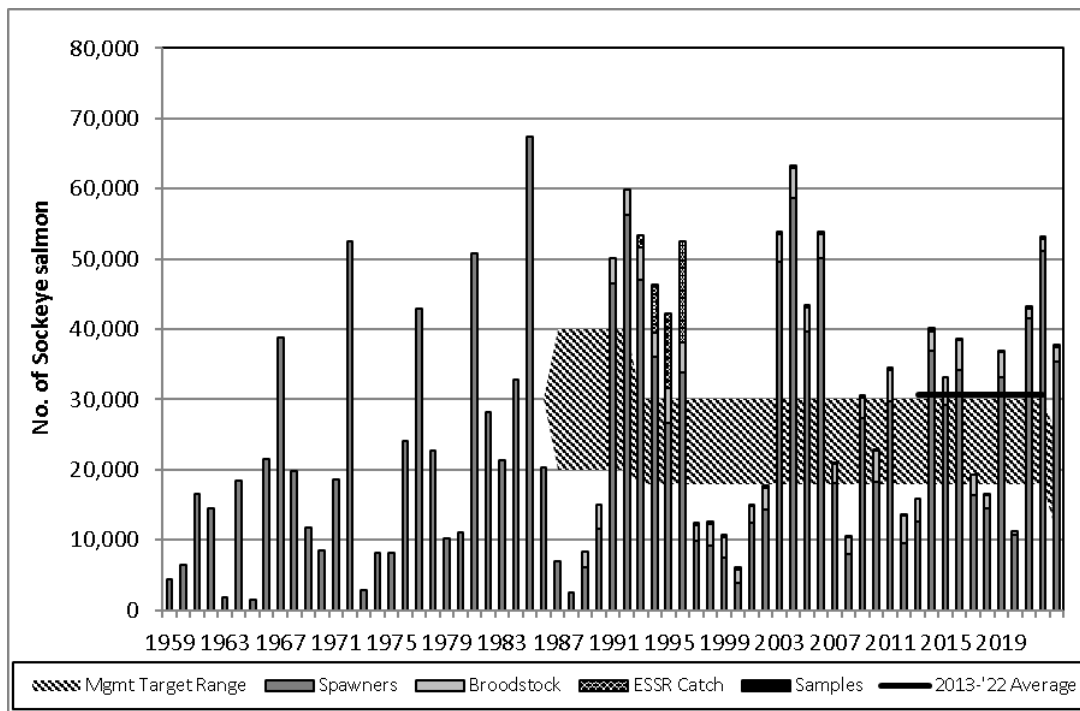
13.2.8.2 SOCKEYE SALMON

The expected assessment program for Stikine Sockeye salmon in 2024 will include the following:

- Should a commercial fishery occur in 2024, catch monitoring and sampling in the lower Stikine commercial fishery to obtain weekly inputs of catch, effort and stock composition for the Stikine Management Models (SMM and SFMM). Matched otolith, scale and egg diameter data will be collected. In the absence of a directed Sockeye salmon commercial fishery, non-lethal (live release) in-river sampling will be required to provide in-season run abundance, stock composition, and biological information.
- Catch monitoring and sampling (age, gender, size, otoliths and egg diameters) from the upper Stikine FSC, commercial and ESSR fisheries.
- Sampling post-spawned Sockeye salmon opportunistically from various spawning locations for genetic stock ID.

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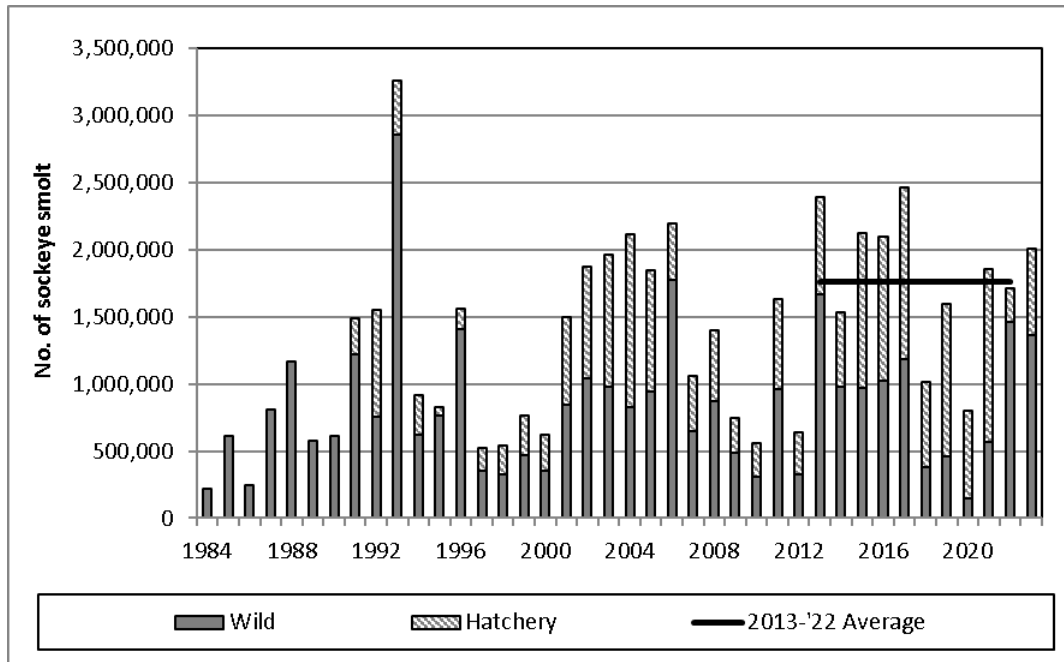
- Escapement enumeration and sampling (age, gender, size, otoliths and egg diameters) at Tahltan Lake (see Figure 13.23).
- Aerial surveys of index sites to enumerate spawning of mainstem Sockeye.
- A number of projects to evaluate the joint Canada/US Sockeye enhancement program on Stikine Sockeye including: fry outplant and smolt emigration studies at Tahltan Lake (see Figure 13.24Figure 13.1-4); and analyses of catches, escapements and juvenile samples to determine enhanced and wild contributions.
- Estimating non-Tahltan Lake Sockeye salmon run size and escapement. Tahltan Lake Sockeye escapements are enumerated at the Tahltan Lake, whereas, mainstem escapement is estimated based on total in-river run from the sampling programs in the lower river; obtaining the stock composition results based on egg diameters (large egg = mainstem) to estimate the mainstem component; and, subtracting the estimated in-river catches of mainstem Sockeye stocks from the in-river run size estimate of the mainstem component.



Figure

13.2-3: Weir counts of Tahltan Lake Sockeye, 1959 to 2023.

[Note that annual weir count equals the sum of spawners + broodstock + ESSR catch + samples].



Figure

13.2-4: Weir counts of Sockeye salmon smolt emigrating from Tahltan Lake, 1984 to 2023.

13.2.8.3 COHO SALMON

The expected stock assessment program for Stikine Coho salmon in 2024 will include the following:

- A CWT program (target of 10,000 tags to be applied to Coho smolt) to provide information on marine interception areas and run timing through approach water fisheries, and to provide a total smolt production estimate.
- Catch monitoring and sampling (age, gender, and size) of Coho salmon taken in the lower Stikine commercial fishery and in the non-lethal in-river sampling.
- The collection of CWT heads from all marked fish (adipose clipped) observed in the sampling pool.

Aerial surveys to assess the spawning escapement of Coho salmon at six select index sites (see

- Figure 13.2-5).
- The continuation of coho salmon stock assessment using a mark-recapture to estimate coho abundance in the Stikine River.
- Development of a genetic stock identification baseline.

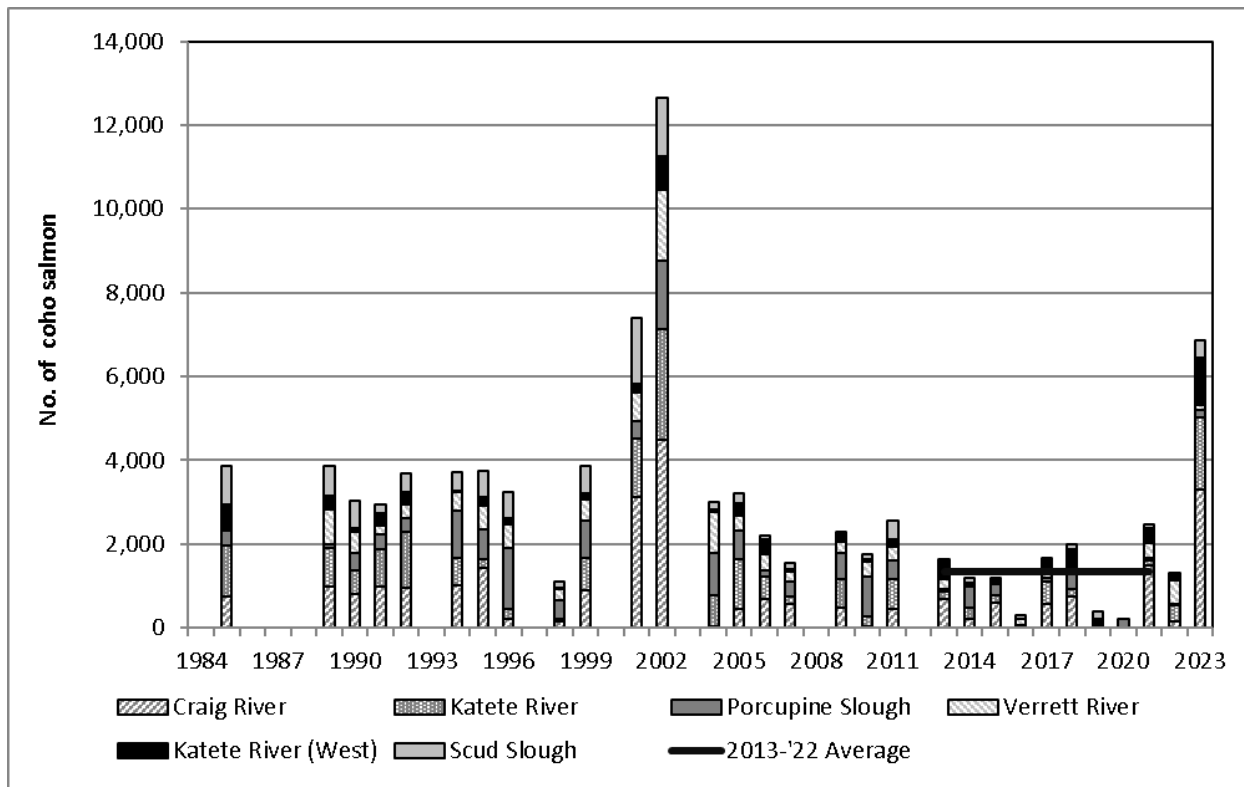


Figure 13.2-5: Aerial counts of Coho salmon in Stikine R. spawning index areas, 1984 to 2023 (2020 survey incomplete, Surveys are flown once annually the end of October or early November. Only years when all six index areas were surveyed are displayed. A program to estimate total system-wide Coho salmon escapement was discontinued in 2012.)

13.2.8.4 PINK AND CHUM SALMON

The assessment program for Stikine Pink and Chum in 2024 will involve monitoring catch and effort in the lower Stikine River commercial fisheries.

13.2.9 STIKINE POST SEASON REVIEW

A comprehensive post-season review is conducted annually by the Transboundary Technical Committee for the Transboundary Panel and the Pacific Salmon Commission. Results of the 2023 TTC review appear in:

Transboundary Technical Committee. In prep. *Preliminary estimates of Transboundary river salmon production, harvest and escapement and review of joint enhancement activities in 2023*. Pacific Salmon Commission.

The following sections summarizing the 2023 season are based substantially on the results of the TTC post season review and any recent updates.

13.2.9.1 CONSERVATION

The spawning escapements of Stikine Chinook and Sockeye salmon are presented in Table 13.26. **Error! Reference source not found.** The estimated escapement of Stikine River large Chinook salmon was 12,795 fish; below both the escapement goal target of 17,400 fish and the escapement goal range of 14,000 to 28,000 fish. Hence, the system-wide Chinook salmon escapement goal was not achieved. The Little Tahltan River Chinook count of 363 large Chinook salmon was well below historical levels.

The Tahltan Lake Sockeye salmon escapement goal range of 11,000 to 25,000 fish was achieved in 2023 (Table 13-9) with 37,359 fish passing through the enumeration weir. The spawning escapement for the mainstem Stikine Sockeye stock aggregate was estimated at approximately 18,060 fish, which was within the escapement goal range for this group.

The Coho salmon escapement could not be quantified in 2023; aerial surveys of primary index streams (Figure 13.25) Table 13-9 were completed, and CPUE from the lower Stikine River commercial fishery was above average.

Table 13-9.26: Escapement goals versus observed escapement of Stikine River salmon, 2023.

Species/Stock	Escapement Goal		Escapement in 2023	Escapement Goal Met?
Little Tahltan Chinook (large)	2,700	5,300	363	No
Total Stikine Chinook (large)	14,000	28,000	12,795 ^a	No
Tahltan Sockeye	11,000	25,000	37,359	Yes
Mainstem Sockeye	13,000	33,000	18,060	Yes
Coho	30,000	50,000	NA	NA

^a based on tag recoveries from Chinook bycatch in directed Sockeye commercial fisheries, the First Nation fishery, and the Little Tahltan video weir observations.

13.2.9.2 FIRST NATION FISHERY

The First Nation FSC harvest was below previous average for both Chinook and Sockeye salmon in 2023. The BNA was not achieved for Chinook, Sockeye, or Coho salmon (Table 13-10). The Sockeye catch was 13% below the previous 10-year average.

Table 13-10: First Nation harvest of Stikine River salmon, 2023.

Species	BNA	Harvested	Restrictions
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13.2 STIKINE RIVER SALMON FISHING PLAN

Chinook (large) (small)	2,000	69 184	No
Sockeye	10,000	6,204	No
Coho	200	0	No

13.2.9.3 RECREATIONAL FISHERY

Participation in the Stikine recreational fishery has declined over the past ten years. In 2023, no Chinook salmon were harvested due to the restrictions put in place which included the Tahltan River closure and non-retention of Chinook of any size in waters of the Stikine River drainage, as well as, access restrictions imposed through Tahltan Central Government lands by the Tahltan Central Government. Access was limited by the First Nation due to concerns over declining Chinook salmon abundance in the Little Tahltan River over the past decade (Figure 13.2-2).

13.2.9.4 COMMERCIAL FISHERY

The total Chinook commercial incidental catch (and subsequently released) included 0 large and 0 small Chinook salmon in 2023. There was no directed Chinook fishery in 2023 and no Chinook catches occurred during the Sockeye fishery between SW 27-30 (Table 13-11). Post-season retrospective analysis indicated the actual Canadian allocation for directed fisheries was 0 large Chinook based on the post-season estimated run size of 12,795 large Chinook.

As presented in Table 13-11, the total commercial Sockeye salmon harvest of 11,084 fish was below the post-season estimated allocation of 18,568.

The Coho salmon total catch of 4,841 fish, were all taken in the directed Coho fishery (Table 13.28).

Table 13-11: Commercial salmon allocation and harvest on the Stikine River, 2023.

Species	Allocation	Harvest against allocation	Met/within 90%	Restrictions	Total Catch
Chinook - large	0 - directed	none	NA	Yes	0
Chinook - small	NA		NA	Yes	0
Sockeye	18,568	below	No	Yes	11,084

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Coho	5,000 ^a - directed	4,841 - directed	Yes	Yes	4,841
Pink	NA		NA	Yes	6
Chum	NA		NA	Yes	198

^a based on 5,000 PST allocation minus FN catch of 0.

13.2.9.5 PST HARVEST SHARING PERFORMANCE.

13.2.9.5.1 Chinook salmon

The post-season estimated run size of Stikine Chinook salmon was 12,795 large fish. A run size of this magnitude is not sufficient to provide for the following: the agreed *S_{MSY}* escapement goal of 17,400 large Chinook salmon; the base-level catches (BLC) of large Chinook salmon outlined in Treaty (which total 7,100 large Chinook); and allow for a directed harvest of large Chinook salmon. There was no Canadian directed catch of Chinook salmon in 2023.

Canadas BLC amounted to 69 large Chinook salmon taken in the First Nation fishery this was below the Treaty entitlement of 2,300 large fish. All Chinook salmon caught incidentally in the upper and lower river Sockeye and Coho fisheries in 2023 were released. There was no assessment fishery for Chinook salmon in 2023. Historically, a lethal Sockeye salmon assessment fishery in Canada is conducted concurrently with the commercial fishery and catches some Chinook salmon. However, a non-lethal sockeye assessment was implemented in 2021 and has continued since. All Chinook salmon intercepted in the non-lethal assessment fishery are live released.

13.2.9.5.2 Sockeye salmon

Under the PST, the Parties agreed that Canada/US would manage its fisheries to achieve a 47% and 53% share respectively of the overall TAC of Stikine Sockeye salmon. How this is to be implemented is described annually in a management plan prepared by the Canada/U.S. Transboundary Technical Committee. The plan stipulates that the Tahltan and mainstem components will be managed and accounted for independently. Surpluses or deficits in the escapement of one stock cannot be used to balance surpluses or deficits in the escapement of the other stock.

The most recent post season estimate of the terminal run size of Stikine River Sockeye salmon is 83,005 fish which includes: 59,479 Tahltan Lake Sockeye (wild plus enhanced), 23,527 mainstem Sockeye.

Canada remained within its overall Treaty allocation for Stikine Sockeye salmon in 2023. The Canadian total catch of 17,288 Sockeye salmon was below its AC of 18,568 fish. For the Tahltan

13.2 STIKINE RIVER SALMON FISHING PLAN

stock component, the estimated combined Canada/U.S. TAC was 37,000 Sockeye salmon (total terminal run minus the escapement goal) shared between the Parties (i.e., 17,380 Tahltan Sockeye for Canada and 19,599 for the U.S.). Canada’s catch was 16,094 Tahltan Sockeye salmon. For the mainstem stock, the combined Canada/U.S. TAC was 2,527. Canada’s estimated catch was 1,194 mainstem Sockeye.

13.2.9.5.3 Coho salmon

The Canadian catch of Stikine Coho salmon in directed fisheries was 4,841 fish; which was below the PST allocation of 5,000 Coho salmon (

Table 13-12).

Table 13-12: Harvest sharing report card for Stikine River salmon, 2023.

Sp.	Component	2023 Treaty-based allocation		2023 Actual		Obligations Met?	
		Canada		Canada		Canada	
CN	Directed AC catch	0		0		yes	
	BLC- traditional fisheries	2,300		69		yes	
	BLC – assessment fishery	0		0		yes	
SO	%TAC (all Stikine)	47%		17%		yes	
	Catch (all Stikine)	18,568		17,288		yes	
	%TAC (Tahltan stock)	47%		93%		yes	
	Catch (Tahltan)	17,380		16,094		yes	
	%TAC (mainstem)	47%		101%		yes	
	Catch (mainstem)	1,188		1,194		yes	
CO	Directed catch	5,000		4,841		yes	

[note: primary obligations are in **bold** type]

13.2.9.6 PST SOCKEYE ENHANCEMENT PERFORMANCE

In January 2024, the Transboundary Rivers Panel reviewed performance relative to the 2022 Sockeye Enhancement Production Plan for the Stikine River (SEPP). This included an evaluation of activities that had been conducted in the fall of 2022 (egg takes), and the spring 2023 outcomes of those activities (fry outplants). Through this review it was deemed that the objectives of the 2022 SEPP were achieved, however 100,000 adult Sockeye salmon were not produced and (as a result) allowable catch shares were adjusted to 57.5% U.S./42.5% Canada for 2027.

The primary elements of the review are summarized as follows:

Objectives:

- A bilateral collection target of 5.0 million Sockeye eggs in the fall of 2022;
- Spring 2023 release of unfed fry into Tahltan Lake from the 2022 egg collection.

Activities/Outcomes:

- The Enhancement Subcommittee revised the 2022 egg-take target in-season to 2.0 million eggs due to recent trends in lake production information (PSC Chapter 1 guidelines preclude exceeding a 1:1 ratio of enhanced to wild smolt out-migrating from the lake);
- 2.097 million eggs were collected and delivered to the Port Snettisham hatchery by September 17, 2022;
- Through monitoring at the hatchery no fry were lost to IHN virus present in Stikine Sockeye stocks;
- All fry were thermally-marked;
- 1.662 million fry were released into Tahltan Lake by May 23, 2023;
- Green-egg to out-planted survival for the Tahltan Lake bound fry was 74% (Avg 71%).

13.3 TAKU RIVER SALMON FISHING PLAN

13.3.1 INTRODUCTION

The Taku River drains an area of approximately 19,000 km² in northwestern British Columbia and southeast Alaska. The mouth of the river is located approximately 45 km northeast of Juneau, Alaska. Close to 90% of the Taku River watershed is located in British Columbia encompassing two main ecoregions: the Boundary Ranges Ecoregion characterized by rugged mountains, ice fields and glaciers and moist climate strongly influenced by its proximity to the ocean; and the drier sub-Arctic climates of the Yukon-Stikine Highlands Ecoregion (<https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/ecosystems>). The lower Taku River is highly braided, confined within a wide mountainous valley with major glacial influences in close proximity to the mouth (e.g. Tulsequah Glacier and its unique *jökulhlaup* or sudden release of glacially impounded melt-water). This is sharply contrasted by the small lakes and streams surrounded by boreal forests and upland meadows of the Stikine Highlands. Transition zones between the ecosystems are characterized by high gradient watercourses and deep canyons (e.g. Nakina River canyon).

13.3.1.1 DESCRIPTION OF THE TAKU RIVER SALMON RESOURCES

Amongst the Transboundary rivers, the Taku River is a major contributor of Chinook, Sockeye, Coho, Pink and Chum salmon and steelhead with most of the spawning occurring in Canadian portions of the drainage. Salmon distribution is widespread throughout the Inklin River and its tributaries, whereas velocity barriers in the Nakina and Sloko River drainages prevent salmon access to a portion of the headwater lakes and streams, such as Sloko and Nakina lakes.

Salmon stocks returning to the Taku River drainage are managed by DFO in cooperation with the Taku River Tlingit First Nation (TRTFN) and the Alaska Department of Fish and Game (ADFG).

13.3.1.1.1 Chinook Salmon

The Taku River is a major producer of Chinook salmon in northwestern B.C. and southeast Alaska. Over the past decade (2014-2023), the annual terminal run size of large Chinook salmon (i.e., fish with a mid-eye to fork length measuring 660 mm or more) has averaged approximately 14,900 fish. The historical range since 1995 is 7,328 (2018) to 126,202 (1997). The run generally enters the river mouth in early May, peaks early June and has moved upstream from the lower river by early July.

Three Chinook Conservation Units have been identified in the Taku River based on timing and habitat characteristics: TAKU-early; TAKU-mid; and TAKU-late. Primary Chinook salmon spawning stocks include: Nakina River (TAKU-mid); Nahlin River (TAKU-early); Tseta Creek (TAKU-early); Dudidontu River (TAKU-early); Sheslay and Hackett rivers (TAKU-late); Tatsatua River (TAKU-late); and Kowatua River (TAKU-late).

Aerial survey data from select index spawning streams have been collected consistently over the past 5 decades. Chinook salmon counts over that period reflect a bell-shaped curve with spawning escapements increasing from the mid 1970's to a peak in the mid-late 1990's and then declining through 2018 back to the low counts of the mid 1970's. The time series of in-river run and terminal run estimates based on mark-recapture data are shorter, commencing in 1989 and 1995, respectively. The data show a similar pattern with a sharp peak in abundance in 1997 followed by declines to a low in 2018, with slight improvement since. Prior to 1999, there had not been directed terminal commercial fisheries for several Chinook salmon life cycles and stocks were in rebuilding mode. New PST provisions commencing 2005 allowed for directed fisheries when warranted by abundance, but none have occurred since 2017.

13.3.1.1.2 Sockeye Salmon

The Taku River is also a major producer of Transboundary Sockeye salmon. From 2014-2023, terminal run size averaged approximately 155,000 wild Sockeye salmon. Since 1984 when estimates commenced, the run size has ranged from 81,365 (1988) to 321,860 (2001). Escapements have been relatively stable undulating within 25% of the long-term average total spawning escapement of 68,000 fish. These numbers reflect a 2018 review of the assessment program which resulted in a downwards adjustment to each in-river abundance estimate dating back to program inception (see Section 13.3.2). The Taku River Sockeye salmon run generally enters the river mouth in early June, peaks mid-late July and has transited the lower river by late August.

One River-type and four Lake-type Sockeye Conservation Units have been identified for the Taku River based on genetic attributes. The River-type CU is part of the broadly distributed Northern Transboundary Fjord CU; the lake-type CU's include: Kuthai, Little Trapper, Tatsamenie, and King Salmon. Sockeye escapement assessment projects occur on these CU's. Besides these lake systems, other notable Taku Sockeye spawning locations include: the mainstem Taku, Nakina, Hackett, and Nahlin rivers. Canada/U.S. cooperative management regimes focus on aggregate stock objectives, although consideration is given to specific CU's in some years (e.g., Tatsamenie).

As part of the PST arrangements, a joint Sockeye enhancement program for Sockeye salmon exists on the Taku River. The primary enhancement project involves egg-takes at Tatsamenie

Lake, incubation in an Alaskan hatchery in Port Snettisham and out-planting of fry back into the system of origin. Various other projects have been/are being investigated including improving Sockeye salmon access to Trapper, Kuthai, and King Salmon lakes, extended rearing at Tatsamenie Lake, and potential fry planting at King Salmon Lake.

13.3.1.1.3 Coho Salmon

The Taku River is a major producer of Coho salmon in the Transboundary rivers. Estimates of the total run size of Canadian-origin fish average 115,400 Coho salmon over the 2014-2023 period, and range from 50,886 (1997) to 339,736 (1994) since 1992 when the time series began. Estimates of in-river abundance are available from 1987. The trend in 4-year life cycle averages in this dataset show a near tripling of in-river abundance from the late-1980's cycle averages of roughly 60,000 Coho salmon, to cycle averages in excess of 170,000 fish in the early-to-mid 2000's, followed by a progressive decline to the late 2010s low cycle average of 69,000, currently trending slowly upwards with a recent 4-year (2020-2023) cycle average of 74,000 Coho salmon. Trends in total run estimates closely resemble those of the in-river run estimates.

Coho salmon generally cross the international border in mid-July with the peak of the run arriving in early to mid-September. For international cooperative management and harvest sharing purposes, two run components are considered separately: the early part of the run (Coho salmon that migrate prior to statistical week 34, roughly mid-August); and the late run (Coho salmon that migrate into the river SW34 and thereafter). The late run has been subject to specific harvest sharing objectives outlined in Chapter 1 of Annex IV of the PST.

Coho salmon spawning areas in the Taku River watershed are widely distributed. Notable spawning locations include: mainstem Taku River; Nakina River; Hackett River; Nahlin River; Tatsatua River; Kowatua River; King Salmon River, Tseta Creek, Wilms Creek, Tulsequah River; and Sloko River.

13.3.1.1.4 Pink Salmon

The Taku River is the largest producer of Pink salmon in the Transboundary area with more than a million spawners occurring in some years. Based on ecotypic characteristics, Taku Pink salmon form the major component of the broader Transboundary Fjord Pink salmon CU (TBFj). The run is odd-year dominant and typically enters the river in late June, peaks in mid-July and has departed the lower river for upstream spawning grounds by mid-August. Pink salmon spawning areas documented in the Taku River include: Nakina River, tributaries to the lower Taku and Tulsequah rivers, Dudidontu and Nahlin rivers. Pink salmon are not targeted in the Canadian fisheries in the Taku River. Currently, there are no programs dedicated to assess Pink salmon border escapement or drainage-wide spawning escapements. Inferences on abundance

are obtained from catches (and subsequent release) of Pink salmon in the Canyon Island fish wheels which are used to tag Chinook, Sockeye and Coho salmon as part of the joint Canada/U.S. mark recapture program.

13.3.1.1.5 Chum Salmon

Although abundance appears to be in a depressed state, the main production of Chum salmon from the Transboundary area originates from the Taku River. This is a fall-run stock comprising one CU (TAKU) which typically enters the river mouth in August with peak abundance in mid-September. Spawning occurs primarily in groundwater fed areas of the lower Taku River; however, spawning may also occur in the lower reaches of the Nakina and Inklin Rivers and tributaries. As with Pink salmon, Chum salmon are not targeted in the Canadian fisheries in the Taku River. Currently, there are no programs dedicated to assess Chum salmon border escapement or drainage-wide spawning escapements however some information on relative abundance is available from catches (and subsequent release) of Chum salmon in the Canyon Island fish wheels used in the joint Canada/ U.S. mark-recapture program.

13.3.1.1.6 Steelhead

Steelhead salmon (primarily thought to be fall run) are present in the Taku River drainage although information on abundance and life history is limited. Spawning is known to occur in the Nakina River and in some of the headwater tributaries of the Inklin River (e.g. Sheslay River).

13.3.1.2 DESCRIPTION OF TAKU RIVER SALMON FISHERIES

There are three fisheries that target salmon in the Canadian section of the Taku River: the First Nation food, social and ceremonial (FSC) fishery, the recreational fishery and the commercial gillnet fishery. Fisheries in Alaska that also target Taku salmon stocks include the District 111 commercial drift gillnet fishery in Taku Inlet, the Juneau area sport fishery, and a limited personal use fishery in the lower Taku River in Alaska. S.E. Alaskan troll fishers also catch Taku salmon stocks of which Chinook and Coho are of primary interest. Seine fisheries conducted along the migration routes also intercept Taku stocks, notably Sockeye and Pink salmon. Cooperative and coordinated management regimes for Taku Chinook, Sockeye and Coho salmon are contained in current PST, Annex IV, Chapter 1; these arrangements cover the 2019-2028 period.

13.3.1.2.1 Taku River Tlingit First Nation FSC Fishery

The Taku River Tlingit First Nation (TRTFN) has engaged in fishing activities on the Taku River since well before European contact. In recent years, TRTFN fisheries have primarily employed drift and set gillnets, although angling and gaffing are also utilized in certain headwater locations. First Nation food, social and ceremonial fisheries predominantly occur immediately upstream of the international border (in the same location as commercial fishery). Harvesting also occurs in the lower Nakina River as well as the Inklin/Nakina confluence. Over the past decade, 2014-2023 FSC catches have averaged 52 Chinook, 219 Sockeye and 307 Coho salmon annually. Fishing generally commences in May and continues into October.

13.3.1.2.2 Recreational Fishery

The recreational fishery in the Taku River watershed is mostly focused around the lower Nakina River. Other sites frequented by recreational fishers include the Tatsatua River and the Sheslay River. Chinook salmon is the targeted salmon species. Prior to 2016, it is estimated the annual recreational catch of Chinook salmon averaged approximately 105 fish; after this time annual catches have been zero or close to zero. Low catches (mostly a catch and release fishery) and light fishing pressure are primarily due to the remote nature of the watershed which is accessed mostly by helicopter or fixed wing aircraft. However, in recent years the lack of harvest has been due to conservation measures associated with low run sizes.

13.3.1.2.3 Commercial Fishery

The Canadian commercial fishery was established on the lower Taku River in 1979 and currently involves seventeen commercial licences, more than half of which are associated with the TRTFN. The TRTFN currently holds 6 commercial salmon licences issued with reduced annual fees, in addition to 3 communal commercial “F” licences issued at no cost to the First Nation.

The commercial fishing area on the Taku River in Canada extends from the point identified by the fishery boundary signs (located approximately 50 metres upstream of the international border) to the boundary signs erected near a geological feature locally known as Yellow Bluff, which is located approximately 18 kilometres upstream from the border (Figure 13.2-1). The commercial fishing area does not include Flannigan's Slough or South Fork Lake and outlet channel. Almost all commercial fishing activity takes place in the lower half of this area, downstream of the mouth of the Tulsequah River.

Since the inception of the fishery, targeted species in the Canadian commercial fishery have included Sockeye and Coho salmon. Commencing in 2005, revised PST provisions allowed for a

13.3 TAKU RIVER SALMON FISHING PLAN

directed commercial fishery for Taku Chinook salmon. When warranted by the pre-season forecast (see decision rules in 13.3.5), the Chinook fishery usually commences the end of April or early May (SW 18/19) and continues to late June (SW 25/26). The directed Sockeye salmon fishery runs from mid/late June (SW 25/26) to mid-August (SW 33). The directed Coho fishery commences mid-August (SW 34) and usually concludes in September or early October (SW 41). The early portion of the Coho run is subject to bycatch in the directed Sockeye fishery. Due to market, weather and transportation considerations, fishing for Coho salmon ceases before the end of the Coho migration.

During the past decade (2014-2023), annual catches in the Taku River commercial fishery have averaged approximately 266 large and 117 small Chinook salmon (retention prohibited for the past six years), 21,744 Sockeye and 10,493 Coho salmon. Fishing is primarily conducted with drift and/or set gillnets using small, outboard-driven riverboats. Landing stations to handle commercial caught salmon are operated in the lower river. Most salmon harvested on the Taku River are transported to commercial buyers via boat to Juneau, Alaska, while a small number are taken via air to Atlin B.C. and sold locally there or in Whitehorse, Y.T. Marketed products include fresh frozen, fresh, and smoked salmon.

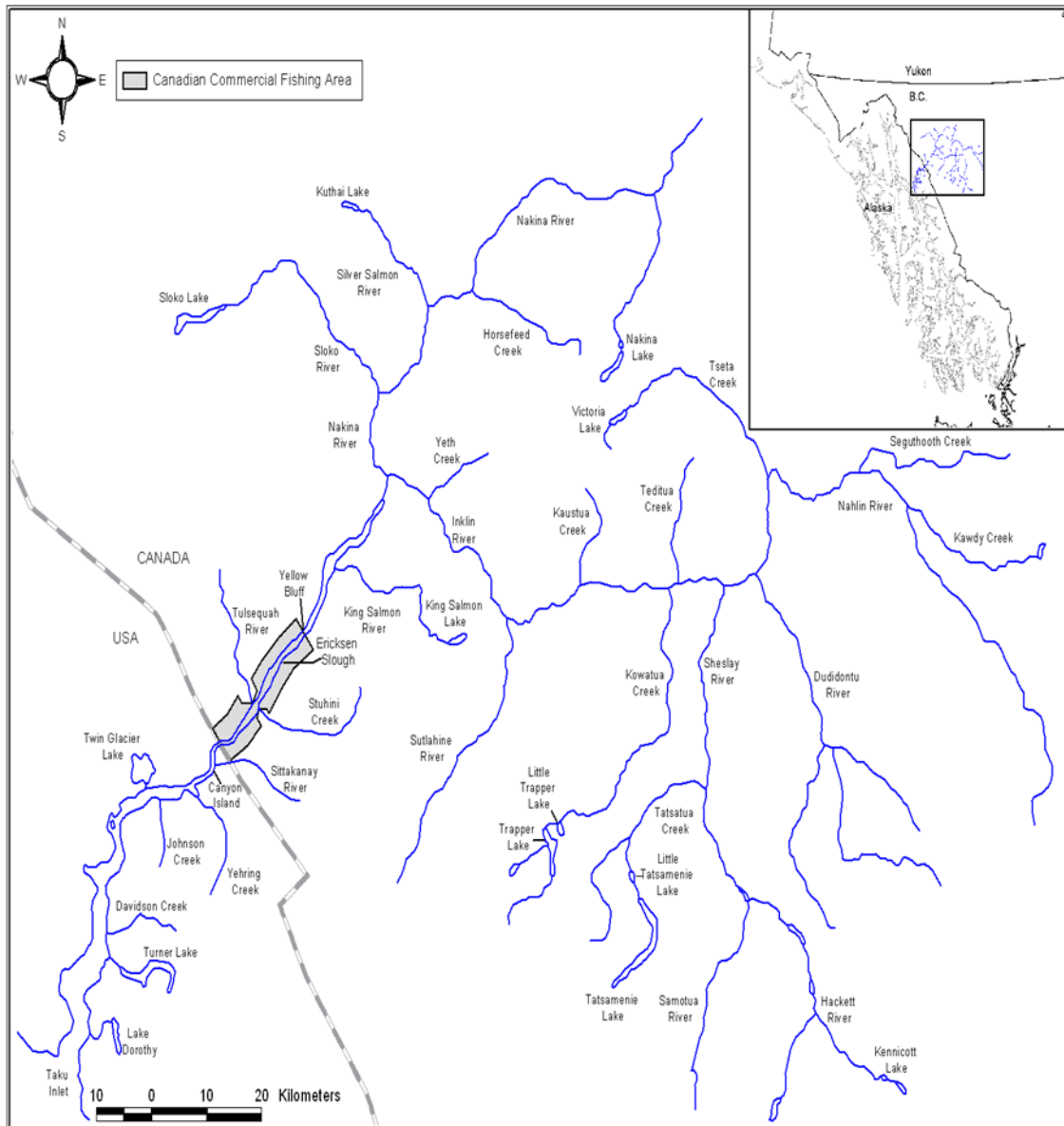


Figure 13.3-1: The Taku River watershed and the Canadian commercial fishing area.

13.3.2 RUN OUTLOOKS FOR TAKU SALMON IN 2024

As with other Transboundary salmon stocks, recent fluctuations in overall survival have resulted in uncertainty in the development of pre-season outlooks. Despite challenges with accuracy in forecasting, pre-season outlooks are useful when used in concert with fishery performance (e.g. CPUE) for management until such time as in-season data becomes available for in-season run size estimation and projections.

13.3.2.1 CHINOOK SALMON

The 2024 pre-season terminal run forecast for large Taku River Chinook salmon (Chinook ≥ 660 mm mid-eye-to-fork length) is 17,300 fish, which is above the ten-year average terminal run of approximately 14,900 fish, and below the escapement goal range of 19,000 to 36,000 fish. This outlook is based on a sibling model that was unadjusted for recent bias (not warranted). Data indicates that current productivity is still below average and what would be expected based on historical spawner-recruitment relationships.

13.3.2.2 SOCKEYE SALMON

The 2024 pre-season forecast for the terminal run of wild Taku River Sockeye salmon (composite of all stocks) is approximately 200,000 fish. This forecast applies a combination of models to each of the four major age classes and chooses the best performing model for each age class. Age class forecasts are adjusted based on the recent 5-year model error for that age class when appropriate. The forecast run size is above the recent ten-year average (2014-2023) of 155,000 wild fish. Note that as a result of a 2018 review of the assessment program, adjustments have been made to in-river run (and by extension, terminal run) size estimates. These were made to address bias in mark-recapture estimates and have resulted in a lower estimate for each year dating back to the beginning of the assessment program

13.3.2.2.1 Enhanced Sockeye Salmon

The forecast for the terminal Taku River enhanced Sockeye salmon run is 7,000 fish which is below the ten-year average (2014-2023) terminal run size of 10,000 enhanced fish. Most of the enhanced run (4,500 fish) is expected from Tatsamenie Lake, and is forecasted using a smolt model, where 5-year average smolt to adult survival rates are applied to the estimates of out-migrating enhanced smolt by brood year and treatment. The remaining 2,500 enhanced fish are forecasted for Trapper Lake feasibility studies, based on recent survival rates observed in this program.

13.3.2.3 COHO SALMON

The forecast for the terminal run of Taku River Coho salmon in 2024 is approximately 123,000 fish, above the ten-year average (2014-2023) terminal run of 99,000 fish. The forecast applies the five-year average smolt to adult marine survival rate (6.5%) to the 2023 estimated Taku River smolt emigration (~2.2 million) which is reduced by the five-year average non-terminal marine harvest rate of (13%).

13.3.2.4 PINK SALMON

Pink salmon returning in 2024 will be the product of the 2022 escapement. Based on the 2022 Canyon Island traditional fish wheel catches of 2,042 Pink salmon, which was well below the previous ten odd-year (2012-2021) average catch of approximately 3,200 fish, the return in 2024 is expected to be below average.

13.3.2.5 CHUM SALMON

Based on the 2024 primary brood year catches of Chum salmon in the Canyon Island traditional fish wheels, 2019 (118) and 2020 (44), which were near and below the ten-year (2014-2023) average Canyon Island fish wheel catch of 114 fish, the 2024 fall Chum salmon run is expected to be below average.

13.3.3 SPAWNING ESCAPEMENT GOALS FOR TAKU SALMON

Escapement goals have been bilaterally identified by the Transboundary Technical Committee for all species of salmon spawning in Canadian portions of the Taku River watershed and have been endorsed by the Transboundary Panel. Escapement goals for Chinook, Sockeye and Coho salmon are based on various analyses of historical harvest and biological data from catch, escapement and/or juvenile sampling programs.

Goals in effect for the 2024 season are summarized in Table 13-13 below:

Table 13-13: Escapement goals for Taku River salmon in effect for 2024.

Species	Year established	Escapement goal ranges		
		from	Mgmt. Objective	to
Sockeye	2020	40,000	58,000	75,000
Coho	2015	50,000	70,000	90,000
Chinook	2009	19,000	25,500	36,000

13.3.3.1 CHINOOK SALMON

Annex IV, Chapter 1 of the PST required the Parties to review an appropriate escapement goal for Taku Chinook salmon by January 15, 2009 and to pass a jointly prepared technical report through accelerated domestic review processes in time for a revised goal to be applied to the 2009 season. Detailed analyses of harvest and spawning abundance by age class and smolt production were used to generate a recommendation for an escapement goal range of 19,000 to

36,000 large fish (marine age 3-5 and mid-eye to fork length of ≥ 660 mm), and, a point S_{MSY} goal of 25,500 large Chinook salmon. This goal was in place on an interim basis for the 2010 fishing season pending finalized review in the fall of that year. The escapement goal was reviewed and accepted by the Chinook Technical Committee and the Canadian Science Advisory Secretariat (CSAS). The Transboundary Technical Committee (TTC) and Panel have since endorsed the revised goal.

13.3.3.2 SOCKEYE SALMON

As with Taku Chinook, Annex IV, Chapter 1 of the PST tasked the Parties with reviewing the escapement goal for Taku Sockeye salmon, prior to the 2020 fishing season. In conjunction with this, the Parties were directed to review the Taku River Sockeye salmon assessment program. A working group was established in 2018 comprising DFO, ADF&G, TRTFN and mark-recapture specialists from both Canada and the U.S. The stock assessment review resulted in the revision of in-river abundance estimates dating back to program inception (1984), and a number of recommendations to improve stock assessment (all of which were implemented over 2018-2020 seasons). The revised abundance estimates were used in developing a revised escapement goal, which was reviewed and accepted by both CSAS and the TTC in November 2019. The S_{MSY} point was identified as 43,857 Sockeye salmon, an escapement goal range of 40,000 to 75,000 was recommended. The Transboundary Panel could not reach agreement on endorsing the recommended goal, so the Pacific Salmon Commission received the recommendation and endorsed an escapement goal range of 40,000 to 75,000 with a management objective of 58,000 for the 2020 – 2028 fishing seasons.

In 2024, the TTC completed a review of the current management objective and escapement goal range to determine if any adjustments to the goal were warranted. The results of the review suggested the current goal was reflective of the conservation requirements for Taku River sockeye salmon and subsequently, the TTC recommended that the goal remain unchanged until the end of fishing season 2028. This was accepted by the Panel.

13.3.3.3 COHO SALMON

In 1999, the PST called for developing a revised escapement goal for Coho salmon no later than May 1, 2004. A detailed analysis of the Taku River Coho salmon escapement goal was completed in 2004. Staff who conducted that analysis recommended that a modified escapement goal not be adopted until production from the very high escapements in 2002 and 2003 could be included in the analysis.

The revised Transboundary Chapter of Annex IV of the PST obliged the Parties to develop an agreed MSY escapement goal prior to the 2010 fishing season. A preliminary report was

reviewed by CSAP in the fall of 2010 and it was determined that additional information should be included in the analysis; hence, the report was not finalized at that time. In 2013, DFO reconfirmed its commitment to conduct updated scientific analysis of the Taku River Coho salmon escapement goal and completed that analysis in the fall of 2014. Based on that analysis which was peer-reviewed and accepted by CSAS, the TTC recommended an escapement goal range of 50,000 to 90,000 fish with a management objective of 70,000 Coho salmon to the Transboundary Panel which it endorsed in early 2015.

13.3.3.4 PINK AND CHUM SALMON

Formal escapement goals do not exist for Taku Pink and Chum salmon. Interim escapement goals for Pink and Chum salmon are based on professional judgement informed by historical catches in terminal areas and limited in-river spawning escapement observations.

13.3.4 CONSULTATION PROCESSES FOR TAKU SALMON FISHERIES

The development of decision guidelines and specific fishery management plans for Taku River fisheries involves consultation with the Taku River Salmon Management Advisory Committee (TRSMAC) and the Taku River Tlingit First Nation (TRTFN). Recommendations from the PSC Transboundary Panel provide a foundation for decision guidelines as do DFO policies, scientific advice and the experience of fishery managers.

13.3.4.1 TAKU RIVER TLINGIT FIRST NATION: ABORIGINAL FISHERIES STRATEGY CONSULTATION

Consultations with the TRTFN relating to the Aboriginal Fisheries Strategy (AFS) occur throughout the year. Results of these consultations are contained within a multi-year DFO/TRTFN Fisheries Agreement. The Agreement details fish management and stock assessment programs, enforcement protocols, commercial licences, selective fishing, as well as the First Nation fishery and communal licence provisions. The TRTFN also participates actively in the TRSMAC and in the Transboundary Panel.

13.3.4.2 TAKU RIVER SALMON MANAGEMENT ADVISORY COMMITTEE (TRSMAC)

The TRSMAC is comprised of DFO and representatives with interests in Taku River salmon resources, specifically the TRTFN and commercial and recreational fish harvesters. Membership is established by DFO through consultation with stakeholder groups which choose their representatives. The Committee endeavours to meet twice annually to develop recommendations pertaining to management plans, to conduct post-season reviews and to

address issues such as licensing, allocations and license conditions. Participation of some PST Transboundary River Panel members in TRSMAC meetings assists to facilitate continuity and coordination in domestic and international discussions.

13.3.4.3 TRANSBOUNDARY PANEL OF THE PACIFIC SALMON TREATY

Canada/U.S. arrangements for the coordinated conservation and abundance-based management of salmon stocks originating in the Canadian portion of the Taku River are specified in Chapter 1, paragraph 3(b), of Annex IV of the PST. The Transboundary Panel (TRP) oversees the implementation of these arrangements with technical support from the joint Transboundary Technical Committee. Fishery management, conservation, enhancement and stock assessment plans are reviewed and discussed annually by the Panel and/or the Committee. The Transboundary Panel provides recommendations on salmon fishery and conservation actions to the Pacific Salmon Commission which, upon review, conveys recommendations to respective national governments.

The obligations and provisions contained in the PST and subsequent recommendations from the PSC adopted by the Parties provide the foundation for development of this IFMP. Management regimes under Annex IV will be implemented by Fisheries and Oceans Canada and US agencies for the 2022 season.

13.3.5 TAKU RIVER DECISION GUIDELINES FOR 2024

Decision frameworks for the Taku River salmon fisheries are developed in consultation with the TRSMAC and TRTFN. The decision guidelines for Taku Chinook, Sockeye and Coho salmon reflect the current provisions for harvest sharing and cooperative abundance-based management as specified in the PST. In-season decisions are based on weekly calculations of run size, coupled with conservation requirements and Canada/U.S. harvest sharing objectives.

13.3.5.1 CHINOOK SALMON

Current Canada/U.S. catch sharing provisions were developed to acknowledge the traditional catches in fisheries, referred to as the base level catch (BLC), which occurred prior to the current arrangements. For directed fisheries, the allowable catch (AC) will be calculated as follows:

- $TAC = \text{Terminal run} - \text{Base Terminal Run (BTR)}$;
- $BTR = \text{spawning objective} + \text{assessment fishery} + \text{U.S. BLC} + \text{Canadian BLC}$:
 - a. The S_{MSY} spawning objective is 25,500 large Chinook salmon; the agreed escapement goal range is 19,000 to 36,000 large Chinook;

- b. BLC's are as follows:
- i. US Taku BLC: 3,500 large Chinook salmon;
 - ii. Canadian Taku BLC: 1,500 large Chinook salmon;
 - iii. Assessment Fishery: up to 1,400 large Chinook salmon.

Directed fisheries may be implemented based on pre season forecasts only if the pre-season forecast terminal run size equals or exceeds the spawning objective as defined in the annual management plan in addition to the combined Canada and U.S. base level catches (BLCs) and assessment fishery catches of Taku River Chinook salmon. The pre-season forecast shall only be used for management until bilaterally approved in-season projections become available. For the purposes of determining whether to allow directed fisheries using in-season information, such fisheries shall not be implemented unless the projected terminal run size exceeds the spawning objective as defined in the annual management plan in addition to the combined Canada and U.S. BLCs and assessment fishery catches of Taku River Chinook salmon. The TTC shall determine when in season projections can be used for management purposes and establish the methodology for in-season projections and update them weekly or at other approved intervals.

Harvest sharing and accounting of the TAC shall be as follows:

- 50% is allocated to the U.S.;
- 50% is allocated to Canada;
- If the pre-season TAC forecast exceeds 30,000 Chinook salmon, the Panel shall review and recommend potential harvest share adjustments to the Parties.

When the terminal run is insufficient to provide for the Parties' Taku River Chinook salmon BLC and the lower end of the escapement goal range, the reductions in each Party's base level fisheries, i.e. the fisheries that contributed to the BLCs, shall be proportional to the Taku BLC shares. In this situation, the TTC may recommend details for an alternate assessment program. Following the Panel's approval, an assessment fishery may be implemented which fully considers the conservation needs of the stock.

If the escapement of Taku River Chinook salmon is below the lower end of the agreed escapement goal range for three consecutive years, the Parties shall examine the management of base level fisheries and of any other fishery that harvests Taku River Chinook salmon stocks, with a view to rebuilding the escapement.

Table 13-14 identifies Canadian fisheries management reference points for large Taku River Chinook salmon. The decision triggers are based on the following priorities: 1) escapement

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requirements (S_{MSY} of 25,500 large Chinook, an agreed escapement goal range of 19,000 to 36,000); 2) base level catches (6,400 combined Canada and U.S.) with the special obligation in Canada to provide for FSC needs; and, 3) the directed commercial fishery. The Red Zone reflects when closures in all Canadian fisheries are very likely to occur. The upper end of the Yellow Zone reflects the number of fish required to meet the low end of the escapement goal range plus the full base level catches. In this zone, consideration will be given to reducing Canadian base level catches with the recreational fishery (e.g. reduced catch limits) and the commercial fishery (e.g. mesh restrictions) the first to be affected. Restrictions become more severe the closer the projection is to low end of this zone and whether efforts are being taken to curb base level catches in Alaskan fisheries. The Green Zone allows for full base level catches, i.e. normal First Nation and recreational fisheries occur and incidental catches occur in the commercial fishery targeting Sockeye salmon as well as consideration for additional directed catches. A directed commercial fishery for Chinook salmon does not occur until the run is sufficient to meet the S_{MSY} escapement goal plus the full base level catches.

Table 13-14: Key Decision Points for Taku River Chinook salmon.

Zone	Terminal Run Projection	Fishery	Guideline Harvest	Anticipated Management Action
Red	<19,000	Aboriginal	0	Restrictions considered – consultation with TRT.
		Commercial	0	Delayed opening for Sockeye fishery.
		Recreational	0	Quota reductions and area restrictions.
Yellow	19,000 – 31,900	Aboriginal	0-500	Restrictions not anticipated.
		Commercial	0 directed – potential for assessment fishery	Closed until third week of June, then maximum mesh 140mm (5.5") - incidental only.
		Recreational	none specified	Possible restrictions.
Green	>31,900	Aboriginal	500	Unrestricted
		Commercial	100% of AC available	Potential for a directed fishery.
		Recreational	none specified	As per BC Freshwater Salmon Regulations; liberalization considered

The in-season management of Taku River Chinook salmon depends on abundance estimates generated from the joint mark-recapture program in the lower Taku River with tags being applied at Canyon Island and recoveries typically being made in the Canadian assessment and or commercial fisheries. Based the poor pre-season forecast, directed Taku River Chinook salmon fisheries will not occur in 2024. Additionally, as in previous years, the commercial fishery will not operate in an assessment mode to serve as the assessment fishery identified in the PST agreement; the primary purpose of the assessment fishery is to collect data for the in-season run projections. The lack of a directed or assessment fishery will mean in-season terminal run projections will not be generated.

In most years when there is no directed harvest but there is a need to achieve reliable abundance estimates for the early part of the run, the TTC has developed weekly assessment fishery catch guidelines which are linked to the number of tags applied and the assessment fishery target catch of up to 1,400 Chinook salmon as approved by the Transboundary Panel.

Normally, in-season estimates of the in-river run would be made using a bilaterally agreed-to (by Canadian and U.S. managers) sulk rate for tagged fish released in event-one of the two-event mark-recapture study. Sulk rates would be based on the analysis of in-season data. In the event bilateral agreement could not be reached with respect to the sulk rate, an assumed 10-day sulk rate would be used. In-season terminal run projections would be made using average run timing from catches at Canyon Island (or other bilaterally agreed-to timing). In addition, the terminal marine harvests would be lagged one week to account for travel time between Taku Inlet and the event-two sampling area.

For in-season terminal run size estimates, a valid Petersen mark-recapture estimate would be sought based on the following equation:

$$TR = [(P_t + C_{us(t-1)})/p_t]$$

Where:

- TR = the projected terminal run of large Chinook salmon for the season;
- P_t = the in-river population estimate from the mark-recapture program through week "t";
- $C_{us(t-1)}$ = the cumulative US Chinook salmon catch to week "t-1", i.e. US catch lagged one week to account for migration timing;
- p_t = the estimated cumulative proportion of run through to week "t" determined from the in-river run timing based on historical catch data from Canyon Island. Adjustments to run timing estimates in-

season will only be made by mutual agreement between Canadian and U.S. managers.

In the event a valid Petersen estimate is not available, upon agreement, another valid estimate may be used. Should there be no agreement on an alternate valid estimator then the most recent agreed valid estimate would be used. If no agreed-to valid estimate has been generated the pre-season forecast would be used.

13.3.5.2 SOCKEYE SALMON

Canada/U.S. sharing arrangements for Taku River Sockeye salmon during the 2019-2028 period, as outlined in the PST, include:

- Directed fisheries on Taku River Sockeye will occur only in the Taku River drainage in Canada and in District 111 in the US;
- Annual abundance of wild Taku River Sockeye salmon shall be estimated by adding the catch of wild Taku River Sockeye salmon in U.S. District 111 to the estimated above border abundance of wild Sockeye salmon. The annual TAC of wild Taku River Sockeye salmon shall be estimated by subtracting the agreed escapement objective as defined in the annual management plan from the annual terminal run abundance estimate;
- The management of U.S. and Canadian fisheries shall be based on weekly estimates of the TAC of wild Sockeye salmon;
- For in-season management purposes, identifiable enhanced Taku River origin Sockeye salmon shall not be included in the calculations of the annual TAC. Enhanced Sockeye salmon are harvested in existing fisheries incidentally to the harvest of wild Taku River Sockeye salmon.
- The Parties' intent is to achieve the agreed management objective of 58,000 Sockeye salmon plus broodstock needs as defined in the annual management plan. The following will apply for the 2020-2028 fishing seasons:
 - a. The escapement goal range will be 40,000 to 75,000 Sockeye salmon.
 - b. TAC and resulting harvest allocations will be based on estimates of the Taku River wild Sockeye salmon terminal run size minus the management objective.

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- c. Canada may, in addition to its share of the TAC, harvest any projected Sockeye salmon in excess of the management objective and broodstock needs apportioned by run timing.
 - d. If either Party identifies it will be unlikely to harvest all or a portion of its AC, the other party may, in addition to its share of the TAC, harvest any projected Sockeye salmon in excess of the management objective and broodstock needs apportioned by run timing.
- The Parties recognize that not all surplus enhanced Sockeye salmon are harvested in existing commercial fisheries due to management actions required to ensure the wild spawning escapement. Canada may implement additional fisheries upstream of the existing commercial fishery to harvest surplus enhanced Sockeye salmon.
 - The Parties agree to the objective of increasing Sockeye salmon runs in the Taku River. The United States long-term objective is to maintain the 82% U.S. harvest share of wild Taku River Sockeye salmon only adjusted based on documented enhanced Sockeye salmon returns. Canada’s long-term objective is to achieve an equal sharing arrangement for Sockeye salmon. The Parties shall continue to develop and implement a joint Taku River Sockeye salmon enhancement program intended to eventually annually produce 100,000 returning enhanced Sockeye salmon.

The Parties annual TAC share of Taku River Sockeye salmon is described in Table 13-15 below.

Table 13-15: U.S. and Canadian harvest shares of Taku River Sockeye salmon.

Enhanced Production	U.S. TAC Share	Canadian TAC Share
0	82%	18%
1 – 5,000	80%	20%
5,001 – 15,000	77%	23%
15,001 – 25,000	75%	25%
25,001 – 50,000	72%	28%
50,001 – 75,000	68%	32%
75,001 – 100,000+	65%	35%

In 2024, the enhanced production is expected to fall in the 5,001-15,000 range based on the pre-season forecast of 7,000 enhanced Taku River Sockeye salmon (Section 13.3.2.2). Hence, Canada’s share of the Sockeye TAC is expected to be 23%. In-season projections of the run size of enhanced fish may result in this share changing as per Table 13-15.

In-season management relies on projections of the TAC of wild Taku Sockeye salmon and is determined as follows:

$$TAC_{(w)} = [(E_{w(t)} + C_{w(t)} + A_{w(t-1)}) / \rho_{w(t)}] - E_w$$

Where $TAC_{(w)}$ = the projected total allowable catch of wild w Sockeye for the season;

$E_{w(t)}$ = the cumulative escapement to week t based on the joint Canada/US mark-recapture data;

$C_{w(t)}$ = the cumulative Canadian wild catch to week t ;

$A_{w(t-1)}$ = the estimated cumulative U.S. catch of wild Taku Sockeye salmon to the preceding week $t-1$ (preceding week used to allow for migration time);

$\rho_{w(t)}$ = the estimated proportion of run through to week t determined from the average in-river run timing based on historical CPUE data from the Canadian fishery. (Run timing estimates will be adjusted in-season according to in-season CPUE data relative to historical data in both U.S. and Canadian fisheries); and

E_w = the management objective for wild stocks. (A value of 58,000 will be used which is the midpoint in the escapement goal range of 40,000 to 75,000 fish).

The projections of TAC are then apportioned by PST harvest sharing provisions and historical run timing data to provided weekly guideline harvests for the management of Canadian fisheries.

Table 13-16 identifies Canadian fisheries management reference points for Taku River Sockeye salmon developed in consultation with the TRSMAC. When escapement projections are in the Red Zone, closures in all fisheries are likely to occur. The Yellow Zone is based on the lower and upper ends of the escapement goal range. In the Yellow Zone, the only fishery allowed to operate is the FSC fishery which could face increasing restrictions the closer escapement projections fall towards the lower end of this zone. Decisions to restrict the FSC fishery will also take into account the management actions and catch taken to date in U.S. fisheries.

Escapement projections in the lower Green Zone signify when an unrestricted FSC fishery can occur and openings in the commercial fishery are considered. The primary guiding factor is the catch share provisions of the PST. In addition to its share of the TAC, Canada may harvest any

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projected Sockeye salmon in excess of the management objective (58,000) and broodstock needs apportioned by run timing.

Table 13-16: Key Decision Points for Taku River Sockeye salmon.

Zone	Escapement Projection	Fishery	Guideline Harvest	Anticipated Management Action
Red	<40,000	Aboriginal	0	Restrictions considered – consultation with TRTFN. Closed
		Commercial	0	
Yellow	40,000 – 58,000	Aboriginal	0 - 2,000	Restrictions not anticipated. No directed harvest.
		Commercial	0	
Green	>58,000	Aboriginal	2,000	Unrestricted Normal 2-3 day fishery with possible extensions.
		Commercial	18% - 35% of TAC dependent on size of enhanced return	

13.3.5.3 COHO SALMON

With the Transboundary Panel adoption of an escapement goal range of 50,000 to 90,000 Coho salmon and a S_{MSY} point target of 70,000 Coho salmon commencing in 2015, interim harvest sharing provisions were also adopted. Updates to these provisions were made during recent re-negotiations and are in effect January 1, 2019 through to December 31, 2028:

- The Parties agree to implement an abundance-based approach to managing Coho salmon on the Taku River.
- The management objective of 70,000 fish will be used in pre-season and in-season management decisions;
- The following applies to the management and allocation of terminal run Canadian-origin Taku River Coho salmon:
 - a. The calculation of terminal abundance shall include harvest prior to statistical week 34;
 - b. The following applies to the assessment of the terminal run of Taku River Coho salmon after accounting for the harvest prior to statistical week 34;

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- c. If the pre-season terminal abundance forecast is less than the lower end of the escapement goal range plus 5,000 fish, the Committee may recommend an alternate assessment program. Following the Panel’s approval, an assessment fishery may be implemented which fully considers the conservation needs of the stock;
 - d. When the terminal abundance exceeds the lower end of the escapement goal range, plus 5,000 Coho salmon, and up to the management objective plus 5,000 fish, Canada may harvest 5,000 Coho salmon apportioned by bilaterally approved run timing.
- The Parties’ annual terminal and in-river TAC share of Taku River Coho salmon shall be as follows:
 - a. For terminal abundances in excess of 75,000 Coho salmon, AC accumulates as follows:

Terminal Run Size		Allowable Catch Range		Harvest Share	
Lower	Upper	Lower	Upper	U.S.	Canada
75,001	80,000	1	5,000	100%	0%
80,001	100,000	5,001	25,000	50%	50%
Greater than 100,000		25,001+		90%	10%

Note: the harvest shares associated with the above terminal run sizes are based on an escapement goal range of 50,000 to 90,000 Coho salmon with management objective of 70,000 fish.

- The Parties’ primary management objective is to achieve the agreed spawning escapement goal. If the projected spawning escapement of Canadian origin Taku River Coho salmon is greater than the agreed management objective, Canada may, in addition to its AC, harvest the projected surplus to spawning escapement apportioned by run timing.
- The performance of Coho salmon fisheries shall be evaluated on an annual basis as follows:
 - a. no new directed terminal or in-river fisheries for Taku River Coho salmon shall be undertaken prior to statistical week 34;

- b. Coho salmon harvested incidentally in terminal, in-river, and assessment fisheries that occur prior to statistical week 34 are not included in paragraph 4 Trigger 2 considerations;
- c. if a Party does not fully harvest its AC to the extent that spawning escapement exceeds the upper end of the spawning escapement goal range in 3 consecutive years, the Panel shall review the Party’s harvest and allocation and the factors contributing to fishery performance, and may recommend the adjustment of allocations to terminal or in-river fishery AC for the following year;
- d. determination of the terminal abundance of Taku River Coho salmon shall occur through the administration of a bilateral assessment program. When a mark-recapture program is employed to determine abundance, the program shall be designed to ensure that tag recovery (mark evaluation) is apportioned by run timing.

In-season terminal run projections rely on the in-river run estimates of Taku River Coho salmon from the joint Canada/U.S. adult mark-recapture program where population estimates are expanded by historical run timing plus the estimated D111 harvest of Taku River Coho salmon. The in-river Coho projections will be based on the following simplified formula:

$$R_{IR(AC)t} = R_{IR(AC)}t/T$$

- Where:
- $R_{IR(AC)}$ = projected total in-river run above Canyon Island;
 - $R_{IR(AC)t}$ = estimated run size to time “t” based on mark-recapture data;
 - T = average cumulative run timing at Canyon Is. through time “t”.

Catch-per-unit-effort (CPUE) and CWT recoveries from the SE Alaska troll fishery are additional indicators of Taku River Coho run size and can also be used for in-season management. Table 13.3-5 summarizes the Coho salmon decision matrix and anticipated management actions to be taken given different border passage projections. These decision points reflect the recent revisions to the Coho management regime agreed to by the Transboundary Panel.

The Red Zone indicates when all fisheries could expect closures. A FSC fishery closure would only occur if previous actions had been taken to close the recreational and directed commercial fisheries.

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In the Yellow Zone, it is expected the FSC fishery would proceed along with an assessment fishery involving commercial fishers.

For border passage projections above 70,000, i.e. the Green Zone, normal FSC and recreational fisheries will occur and commercial fishery opportunities will be liberalized to harvest fish surplus to escapement requirements.

Table 13-17: Key Decision Points for Taku River Coho salmon, commencing statistical week 34.

Zone	Escapement Projection	Fishery	Guideline Harvest	Anticipated Management Action
Red	<50,000	Aboriginal	0	Closure considered
		Commercial	0	Closed
		Recreational	0	Closure considered
Yellow	50,000 to 75,000	Aboriginal	750	Unrestricted
		Commercial	5,000 (assessment fishery)	Restricted fishery driven by assessment guidelines.
		Recreational	none specified	Restrictions as per BC Freshwater Salmon.
Green	>75,000	Aboriginal	750	Unrestricted
		Commercial	5,000 assessment catch plus AC as per PST provisions	Normal 2-3 day fishery with possible extensions.
		Recreational	none specified	Restrictions as per BC Freshwater Salmon. Possible increases in daily catch limits.

13.3.5.4 PINK AND CHUM SALMON

Pink and Chum salmon are not actively targeted in Taku River fisheries, although Pink salmon are caught incidentally during the targeted Sockeye fishery. It is unlikely that commercial close times will be varied for Pink salmon. There is limited/no harvesting of Pink salmon in recreational and FSC fisheries.

Bycatch of fall Chum salmon also occurs later in the Sockeye season and during the Coho salmon fishery. Due to the currently depressed state of Taku River Chum salmon stocks, all Chum salmon encountered must be released.

13.3.6 TAKU RIVER FISHERY PLANS FOR 2024

13.3.6.1 FIRST NATION FISHERY PLAN

13.3.6.1.1 Taku River Tlingit First Nation Basic Needs Allocation

The main guiding factor in the Taku River Tlingit First Nation (TRTFN) fishery will be conservation goals and the basic needs allocations as specified in the Communal Fishing Licence of the TRTFN, specifically: 500 Chinook, 2,000 Sockeye and 750 Coho salmon.

Although restriction of the TRTFN FSC fishery is not anticipated in 2024, adjustment of this strategy may need to occur should conservation issues arise. Any changes to the FSC fishery management strategy will occur in accordance with the Taku River Decision Guidelines and include consultation with the TRTFN. Given concerns over Chinook salmon stock abundance, DFO has recommended voluntary reduction of Chinook salmon harvested in TRTFN fisheries.

13.3.6.1.2 Taku River Tlingit First Nation Control and Monitoring of Removals

The TRTFN collects and provides information on the total FSC fishery harvest to Fisheries and Oceans Canada on a weekly basis throughout the season. Any reductions in fishing time, if required, will only be considered if no other conservation-oriented harvest adjustments can be achieved in the commercial and/or recreational fisheries.

13.3.6.1.3 Taku River Tlingit First Nation Communal Licencing

Communal licences are issued to First Nations that have rights to fish in the Taku River watershed for FSC purposes. Individual First Nations maintain control of this licence and have the authority to designate all persons fishing in this category.

13.3.6.2 RECREATIONAL FISHERY

In British Columbia, recreational fishing opportunities for salmon are regulated by the *British Columbia Sport Fishing Regulations* pursuant to the federal *Fisheries Act*. Regulations are generally summarized in the *British Columbia Sport Fishing Guide* covered under Region 6 (see:

https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/outdoor-recreation/fishing-and-hunting/freshwater-fishing/region_6_skeena.pdf; or, the Fisheries and

Oceans Sport Fishing Guide for Region 6 at: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/fresh-douce/region6-eng.html>).

Recreational angling restrictions and requirements are subject to change in-season if additional conservation concerns arise or if additional recreational opportunities become available.

Changes are communicated through Fishery Notices, media reports, telephone information lines, Twitter (@sportfishingbc) and/or the in-season decisions website: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/season-saison/index-eng.html>.

13.3.6.2.1 Taku River Recreational Control and Monitoring of Removals

The controls for the Taku Recreational Fishery for salmon include daily and possession limits, hook restrictions, area closures, catch record keeping requirements, catch reporting requirements, and licencing requirements. These are described at: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/fresh-douce/region6-eng.html>. Some of the highlights for 2024 include the following:

- **Retention of Chinook salmon is prohibited in 2024 (effective April 1 to March 31);**
- The daily limit for Coho salmon is 4 per day, with only 2 >50 cm (nose to fork of tail);
- The daily limit for each of Sockeye, Pink and Chum salmon is 0;
- The maximum number of salmon (species combined) that can be retained in any one day is 4 from all waters;
- The possession limit is 8 salmon (in the aggregate, species combined);
- The annual catch limit for Chinook (over 50cm) salmon in non-tidal waters is 10 from all fresh waters combined;
- No person shall catch and retain in a month in any lake or stream, more than 10 chinook salmon, in the aggregate, that measure more than 50 cm in overall length.
- All retained salmon must measure 30 cm or more;
- All Chinook retained must immediately be recorded on the licence or, if a record can be made in a catch registry kept by the Department of Fisheries and Oceans, in that registry;
- It is illegal to catch or attempt to catch salmon by willfully foul hooking. Any accidentally foul-hooked salmon must be released;
- Only single barbless hooks are allowed to be used when fishing for salmon in streams;

- All steelhead must be released;
- Annual salmon fishing closures include:
 - a. Tatsatua Creek and its tributaries are closed to all salmon fishing from August 20 to September 15;
 - b. From April 1 to March 31 Nakina River from a boundary sign located approximately 300 meters upstream of the Nakina and Sloko rivers confluence to a boundary sign located approximately 1300 meters upstream of the Nakina and Sloko rivers confluence; the salmon fishing closure will encompass the area from the center line of the Nakina River bordered by its northern bank;
 - c. The Nakina River is closed to all salmon fishing from July 20 to August 15;
 - d. Tatsamenie Lake's outlet streams between Tatsamenie Lake and Tatsatua Creek, including tributaries from August 20 to September 15.

Fishers are encouraged to read the regulations regarding closures closely and check for updates. Additional restrictions in fishing time are not anticipated in the Taku recreational fishery. However, if the in-season projections of Coho salmon indicate a conservation or FSC concern, non-retention, reduction in possession limits, and/or closure of the recreational fishery will be considered. Increases in the possession limits could be considered if the conservation and FSC objectives will be exceeded.

Compliance monitoring and enforcement will be undertaken by enforcement personnel with the province of BC and, or, DFO.

13.3.6.2.2 Taku River Recreational Fishery Licensing

Recreational fishing on the Taku River is permitted provided the angler is the holder of a current BC Non-Tidal Angling Licence if they are over the age of sixteen. A Non-Tidal Salmon Conservation Stamp must be validated with the basic angling licence if the fisher intends to retain salmon. In order to fish for steelhead, a Steelhead Conservation Surcharge Stamp is required.

Residents under the age of sixteen may fish without a licence unaccompanied by a licence holder; whereas, non-residents under the age of sixteen may fish without a licence but must be accompanied by a valid licence holder. Catches must be counted towards the possession limit of the licence holder. Daily quotas and other regulations apply (see: <https://www2.gov.bc.ca/gov/content/sports-culture/recreation/fishing-hunting/fishing/fishing-regulations>). Licence fees vary depending on the type of licence required.

13.3.6.3 TAKU RIVER COMMERCIAL FISHERY

The commercial fishery is allowed to open providing there are no conservation concerns, FSC, recreational and PST harvest sharing objectives are likely to be met. The Canadian catch will be managed with the objective of meeting escapement targets and agreed Canada/US and domestic harvest sharing objectives.

In years when a directed commercial fishery for Chinook salmon is permitted, the date of the earliest commercial opening is typically the last Sunday in April; this is determined in consultation with the TRSMAC and with the U.S. through the TTC. The Sockeye season generally commences mid-June and lasts through mid-August after which time Coho salmon management takes precedence.

The 2024 pre-season Chinook salmon forecast is not sufficient to proceed with a directed commercial fishery; additionally, an assessment fishery involving commercial fishers will not be prosecuted to obtain in-season data on run status.

For the Sockeye season, the directed commercial Sockeye fishery will be delayed until the week of June 30 to July 06 (SW 27) in consideration of Chinook conservation concerns. Canadian Sockeye management decisions will be based on weekly projections of terminal run sizes of wild and enhanced fish, TAC, and the escapement of wild stocks, and will follow the decision guidelines outlined in Section 13.3.5.2. The PST harvest sharing provisions will be applied to the weekly wild Sockeye TAC projections to guide the management of the commercial fishery. Run timing will be used to apportion the projected Canadian allowable catch each week and to make projections of the total escapement. The Canadian catch will be adjusted with the objective of meeting escapement and agreed Canada/U.S. harvest sharing objectives. Retention of Chinook salmon captured incidentally in commercial fisheries is prohibited in 2024.

Prior to mid-August (SW 34), bycatch of Coho salmon occurs in the directed Sockeye commercial fishery. Management focus generally shifts to Coho salmon in mid-August (SW 34) with the evaluation of the Coho catch, effort, and CPUE in the commercial fishery relative to historical levels and in-river run size estimates from the Taku River mark-recapture program. The duration of weekly openings will be based on the in-season run projections and the PST Coho salmon harvest provisions for Canada as outlined in Section 13.3.5.3.

It is anticipated that the commercial fishery will not target Pink salmon unless markets are developed, which isn't expected to occur soon. Chum salmon will also not be targeted.

13.3.6.3.1 Taku Commercial Fishery Controls

The primary commercial fishery management control will be through adjustments in weekly fishing times. Duration of openings will be based on weekly guideline harvests developed in consideration of spawning escapement requirements and or specific stock conservation concerns, Canada/U.S. catch sharing provisions, domestic allocation priorities, and fishery performance parameters (e.g., effort, catch, historical run timing).

For example, poor Sockeye returns to Kuthai Lake continue to be of concern. The duration of the commercial opening in SW 27 (June 30- 06) may be limited to augment the escapement of the Kuthai Lake stock. During SW 31-33 (July 28 - August 17), fishing times may also be limited to ensure adequate numbers of Sockeye salmon escape to Tatsamenie Lake to support escapement and egg-take objectives.

Additional Taku commercial fishery controls include:

- 1) Adjusting the fishing gear: For the first few weeks of the directed Sockeye fishery a maximum mesh restriction of 140 mm (approximately 5.5 inches) will be in effect through SW29 (week ending July 20) to reduce likelihood of Chinook salmon interception. Other restrictions on gillnet mesh size may be implemented to reduce catches of non-target species.
- 2) Adjusting the fishing area: The fishing area could be reduced during assessment fisheries in order to ensure adequate monitoring can be achieved and catches do not exceed weekly targets.
- 3) Non-retention: To address Chum salmon conservation concerns, the retention of Chum salmon will be prohibited throughout the season. In addition, fishers must release any steelhead caught. **The retention of incidentally caught Chinook salmon is prohibited in 2024.**

13.3.6.3.2 Pacific Salmon Strategy Initiative (PSSI) Longer Term Commercial Fishery 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 with a commitment to review longer term closures for 2022 and beyond after additional consultation with affected groups. The Taku River Chinook salmon commercial fishery was closed in 2022 as part of PSSI longer-term fishery closures and will continue to be closed for 2024. See Appendix II for a list of longer-term fishery closures/mitigations under consideration.

13.3.6.3.3 Taku Commercial In-Season Catch Reporting Program

Details regarding catch reporting requirements are provided in the Conditions of Licence issued to each commercial fisher. While participating in the fishery, commercial fishers are required to land catches at a registered landing station within 1.5 hours of the end of the fishing period as identified by a single variation order, except for the final fishing period in any given week, when the deadline will be 2.5 hours after closure. Hail information collected throughout the openings will be used to justify extensions to fishing times. As in past years, catches shall be made available for sampling by Departmental staff or designates.

Fish slips must specify the number and weight of each species caught separated by: gear type, i.e. fish wheel or gill net; mesh size used; and, by fish landed in the round or dressed (head-on and head-off). If available, price per pound should be noted. Chinook salmon must also be separated by flesh colour (red and white) and size (large and small). A small Chinook salmon is considered to be a fish with a mid-eye to fork length of less than 660 mm. A logbook is required to document the number of fish caught but subsequently released and the information is submitted along with harvest and tag recovery information after each 24-hour fishing period.

13.3.6.3.4 Taku Commercial Non-Retention Species

All opening announcements will contain the species that will be allowed to be retained. All other species must be released to the water with the least possible harm. Licence conditions prohibit retention of Chum salmon and steelhead.

13.3.6.3.5 Taku Commercial Monitoring Plan

The fishery will be monitored by DFO Fisheries Technicians stationed at the Ericksen Slough Field Office. They will collect catch and tag recovery data from landing stations and sample portions of the catch for biological samples and stock composition determinations. Catch and tag recovery data will be collected daily and will be recorded for each licence by species and hours fished. DFO Conservation and Protection personnel will monitor and enforce compliance in the fishery.

13.3.6.3.6 Taku Commercial Gill Net Construction

Specific restrictions such as the specifications for net construction are found in the Conditions of Licence, which are issued along with the commercial fishing licence. Fishers are urged to read these conditions carefully to ensure that their fishing gear and techniques are in accordance with licence conditions.

The maximum gill net length for the Taku River commercial fishery is 36.6 metres (120 feet) for both drift and set nets. All gill nets (drift and set) must meet the following web specifications:

- Have 6 or more filaments in each twine of the web, with all filaments in the web a minimum of 0.20 mm in diameter. (This web is otherwise known as “Alaska twist”).
- The minimum allowable mesh size of gill nets used shall not be less than 100 millimetres (four inches).
- The maximum allowable mesh size of gill nets used shall not be greater than 204 millimetres (eight inches).

Set nets must be identified with an orange-coloured buoy with the fisher’s licence number clearly printed on it and attached to the end of the net that is furthest from shore.

Specific restrictions for net configuration are found in the Fishery Notice issued prior to every commercial fishery. Fishers are urged to read these carefully to ensure that their fishing gear is in accordance with the opening.

13.3.6.3.7 Taku Commercial Licensing

There are currently seventeen limited entry party-based licences allocated for commercial fishing on the Taku River. All commercial licences are available through the National Online Licensing System (NOLS) which replaces the in-person payments of licensing fees at DFO offices (see: <https://fishing-peche.dfo-mpo.gc.ca/>), additional information can also be found under Section 12.1. Harvesters will use NOLS to pay for and print their commercial fishing licence and licence conditions. The cost of a licence is \$215.15 (regular fee) and \$21.51 First Nation (reduced fee). In addition, three Aboriginal Communal Commercial Licences are issued to TRTFN pursuant to the *Aboriginal Communal Fishing Licences Regulations* for participation in the general commercial fishery.

Recommendations for transferring commercial licences were developed by the TRSMAC and adopted in 2004.

13.3.6.4 ESSR FISHERIES

No ESSR fisheries are anticipated on the Taku River in 2024. If ESSR situations were to occur, consideration would be given to initiating ESSR fisheries subject to the provisions of the DFO ESSR policy (see Section 6.4.6).

13.3.7 TAKU RIVER SOCKEYE ENHANCEMENT PLAN FOR 2024

PST arrangements call for joint Canada /U.S. Sockeye enhancement projects to be conducted in the Taku River watershed. Currently, broodstock are captured at Tatsamenie Lake and Little Trapper Lake. Fertilized eggs are flown by small floatplane or helicopter to the Snettisham Central Incubation Facility south of Juneau, Alaska where they are incubated and thermally marked. Fry produced from the Tatsamenie egg-take are returned to Tatsamenie Lake in the subsequent spring, and fry produced from the Little Trapper Lake egg-take are released near shore in Trapper Lake. Most Tatsamenie Lake fry are directly released into the lake; however, a portion is uniquely marked and reared for short trial period to assess fry release strategies to improve fry-to-adult survival. Fry delivered for extended rearing in spring 2024, will be delivered at 0.15g and no longer grown to 0.5g at Snettisham Central Incubation Facility prior to delivery. The results of this change in program delivery will be monitored through 2024 and used to determine the future direction of the extended rearing program at Tatsamenie Lake. Other projects in the Taku River watershed include: the investigation of the suitability of Trapper Lake for introduction of anadromous Sockeye salmon through barrier removal and adult production evaluation; and the feasibility of broodstock capture, smolt production and adult survival in King Salmon Lake. Broodstock collections were conducted in 2012 and 2014 at King Salmon Lake. (see Table 13-9).

The PST identifies the following commitments:

- A Taku Enhancement Production Plan (TEPP) shall be prepared annually by the TTC by February 1. The TEPP will detail the planned enhancement activities to be undertaken by the Parties and the expected production from site specific egg takes, access improvements and all other enhancement activities outlined in the annual TEPP. The TCC will use this data to prepare an initial enhancement production forecast based on the best available information.
- The Transboundary Panel shall review the annual TEPP and make recommendations by February 28.

The 2024 TEPP is presented in

Table 13-18.

Table 13-18: Taku Enhancement Production Plan (TEPP), 2024.

Enhancement Project	Activities	Expected Production	Technique to document production
Tatsamenie Lake	<p>Egg take: target of 30% of available adult brood stock (up to 2.5 million eggs)</p> <p>Outplant: Progeny (fry) from 500,000 eggs will be held for in-lake “extended rearing” and fry from the remainder of the eggs will be for “direct release” into the lake.</p>	<p>10,000 adults from direct release</p> <p>4,000 adults from extended rearing</p>	Thermal mark
Trapper Lake	<p>Egg take: target of 1,000,000 eggs from Little Trapper Lake.</p> <p>Outplant: All fry to be “direct release” into Trapper Lake.</p> <p>Future program continuation/expansion contingent on adult Sockeye passage remediation.</p>	3,000 adults	Thermal mark
Expected Total Production		17,000 adults	

13.3.8 TAKU SALMON STOCK ASSESSMENT PLAN FOR 2024

13.3.8.1 CHINOOK SALMON

The Taku River Chinook in-river stock assessment program planned for 2024 includes:

- A mark-recapture program with marking occurring in the lower Taku River (Canyon Island and Wright River). Incidental mark recoveries from live released Chinook salmon

in Canadian fisheries as well as mark recoveries in select spawning streams to determine post-season estimates of total in-river run size and escapement, major stock timing and overall age and size composition. Estimates from the mark-recapture program are integral to the development of annual estimates of the total run size (Figure 13.2-2);

- An assessment fishery (drift-netting only) involving commercial fishers may be conducted to recapture tagged adult fish if run abundance does not permit the prosecution of a directed commercial fishery (will not be conducted in 2024 due to poor preseason forecast and upon direction from the Panel);
- Sampling in the U.S. gill net fisheries to determine age and size composition of catches, contributions of enhanced stocks, and to recover CWTs.
- A CWT program to provide smolt production estimates associated with escapement estimates, ocean survival, harvest rates, and stock identification and contributions to marine fisheries.
- Aerial surveys of select escapement index streams, potentially Nakina, Nahlin, Tatsamenie, Tatsatua, Kowatua and Dudidontu rivers.
- Sampling for age-size-gender, and tag recovery (spaghetti tags, CWT) of select spawning populations such as Nakina (video camera and carcass weir), Nahlin, Tatsatua (in Tatsatua Lake area), Kowatua (below Little Trapper Lake), Tseta and Dudidontu.
- Enumeration of large Chinook salmon in the lower Nahlin River using sonar.
- Creel survey of Nakina River recreational anglers (not for 2024 due to Chinook salmon retention prohibition).

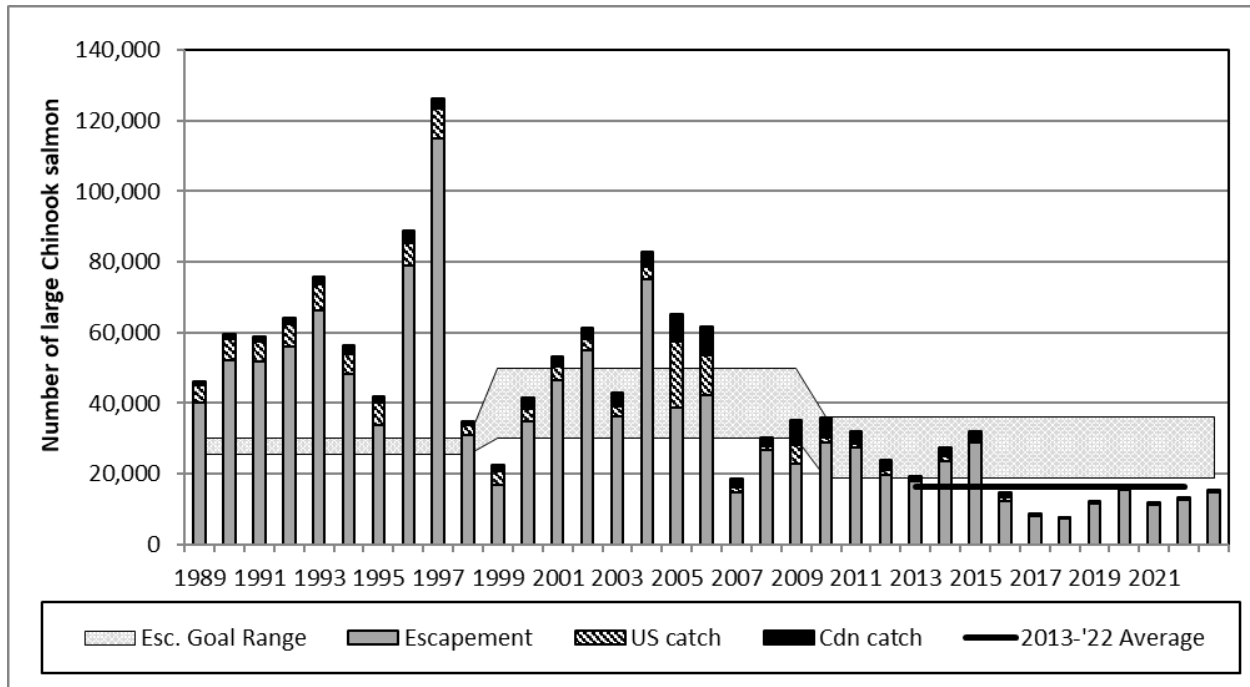


Figure 13.3-2: Terminal run of large Taku Chinook (≥660 mm mid-eye to fork length), 1989 to 2023.

[Note: estimates of US catch prior to 1995 are derived from an assumed harvest rate of 10% (based on 1995-1999 average). Catches for 1995-2022 based on data from CWT (troll) and GSI (sport and net)]

13.3.8.2 SOCKEYE SALMON

The assessment program for Taku Sockeye salmon in 2024 is expected to include the following:

- A mark-recapture program with marking in the lower Taku River (Canyon Island) and recovery in Canadian fisheries to provide in-season projections and post-season estimates of total in-river run size and escapement, major stock timing and overall age and size composition. Estimates from the Sockeye mark-recapture program are used in annual run reconstructions summarized in Figure 13.3-3
- Sampling in Canadian and US gillnet fisheries to determine age and size composition of harvest and contributions of enhanced stocks. Sampling is also conducted for genetic stock identification;
- Stock-specific escapement enumeration and sampling (for age, size, gender, GSI, spaghetti tags), at select spawning sites including weirs located at Little Trapper (Figure 13.3-4), Tatsamenie (Figure 13.3-5), Kuthai (Figure 13.3-6) and King Salmon (Figure 13.3-7) lakes.

13.3 TAKU RIVER SALMON FISHING PLAN

- A number of assessment projects to evaluate the joint Canada/US Sockeye enhancement program on Taku Sockeye including: fry outplant and smolt emigration studies; otolith sampling and analyses in catches, escapements and juvenile samples to determine enhanced and wild contributions; and preliminary investigations of other potential enhancement opportunities.

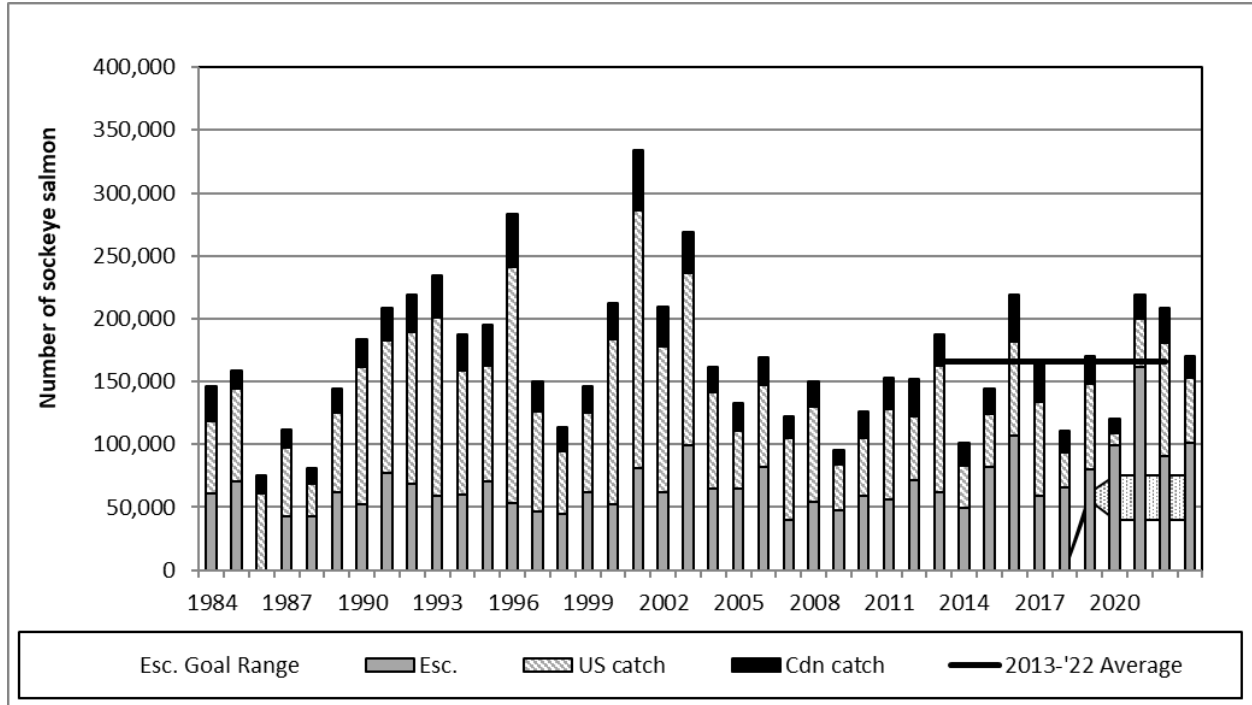


Figure 13.3-3: Terminal Run Size of Taku River Sockeye salmon, 1984 to 2023.

[Note: Escapement is determined from the mark-recapture program; US catch has been determined from genetics and thermal marks since 2012.]

13.3 TAKU RIVER SALMON FISHING PLAN

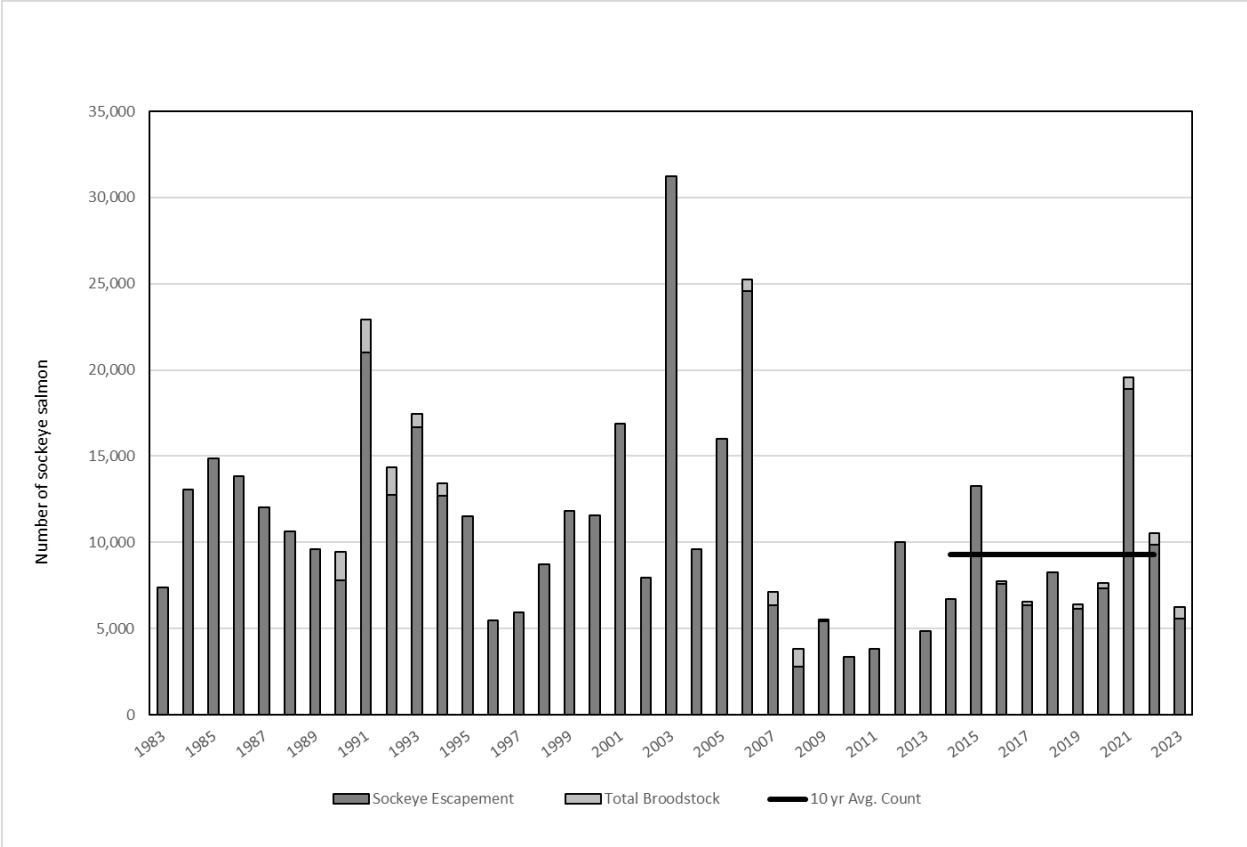


Figure 13.3-4: Weir counts of Little Trapper Lake Sockeye 1983 to 2023.

[Note: Annual weir count is sum of spawning escapement and fish taken for broodstock].

13.3 TAKU RIVER SALMON FISHING PLAN

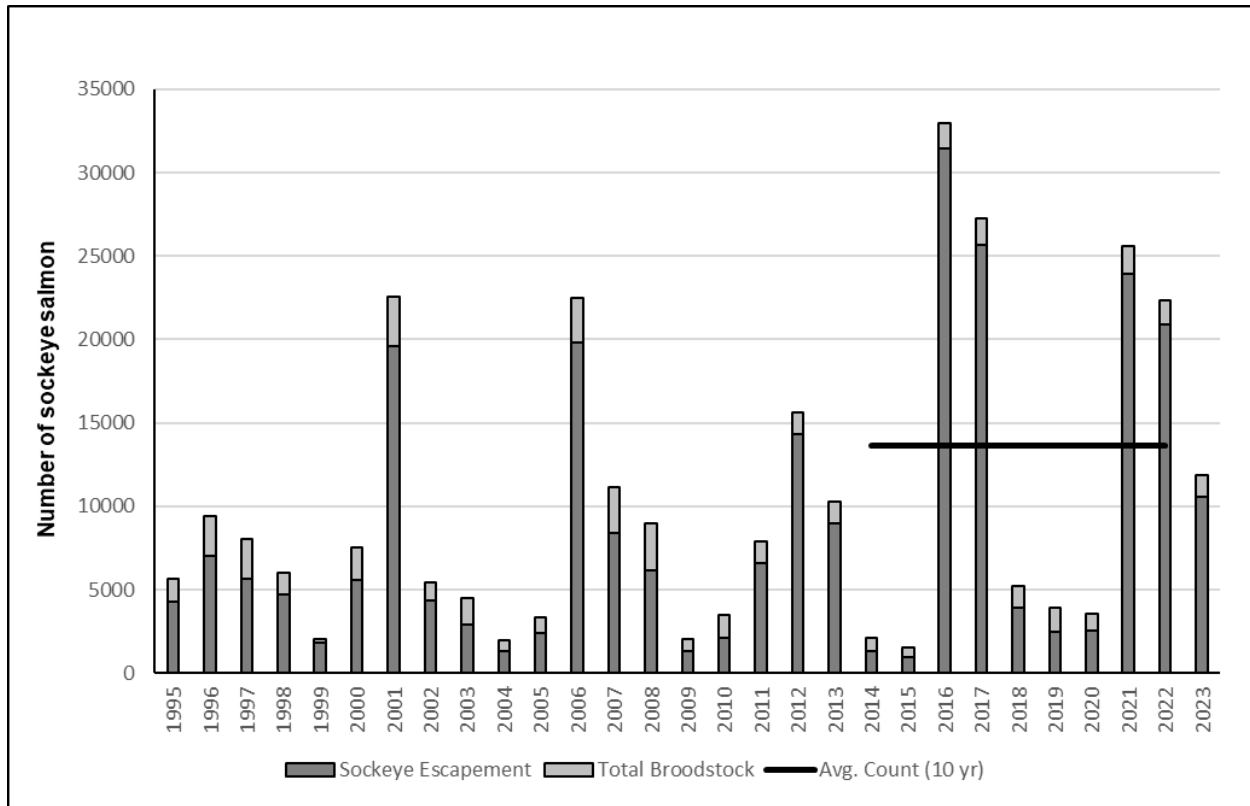


Figure 13.3-5: Weir counts of Tatsamenie Lake Sockeye: 1985 to 2023.
 [Note. Annual weir count is sum of spawning escapement and fish taken for broodstock].

13.3 TAKU RIVER SALMON FISHING PLAN

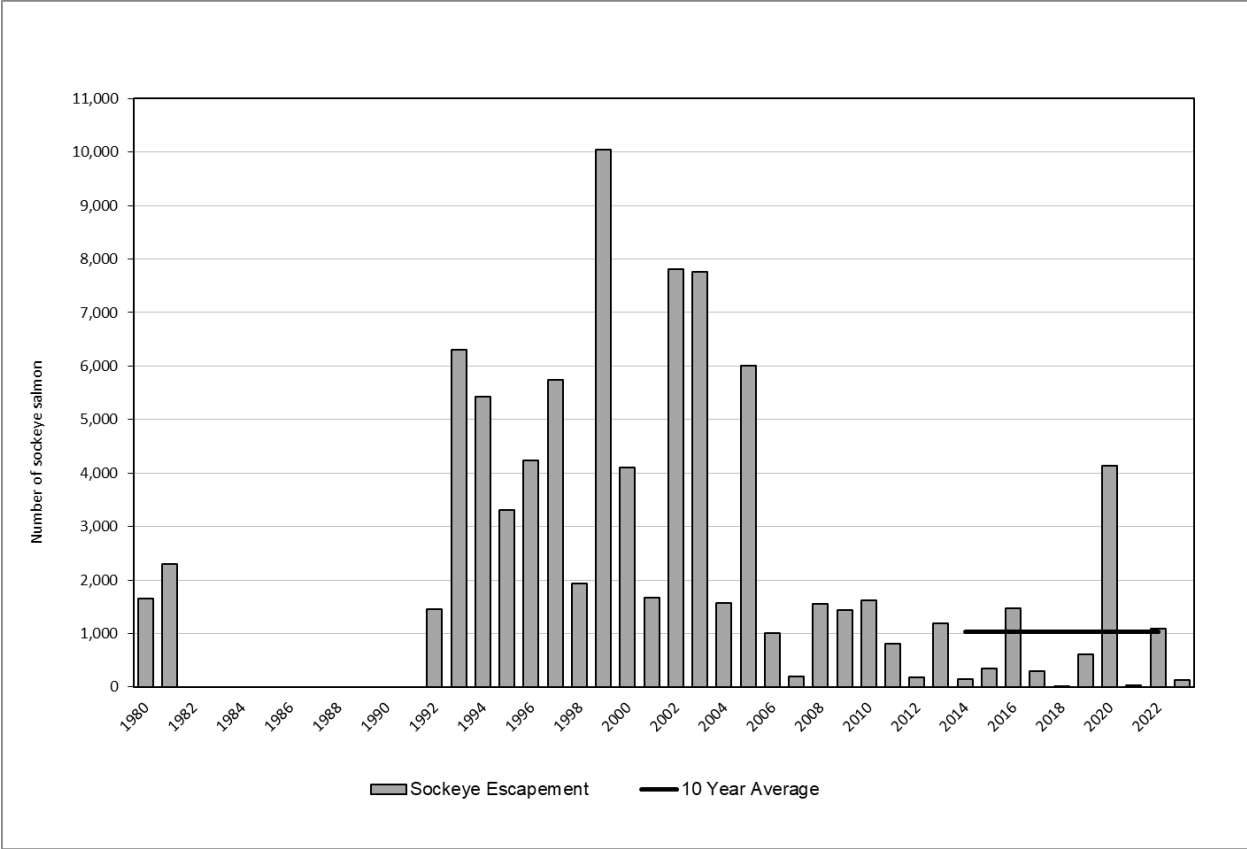


Figure 13.3-6: Weir counts of Kuthai Lake Sockeye, 1985 to 2023. Ten-year average excludes run failure years 2018 and 2021.

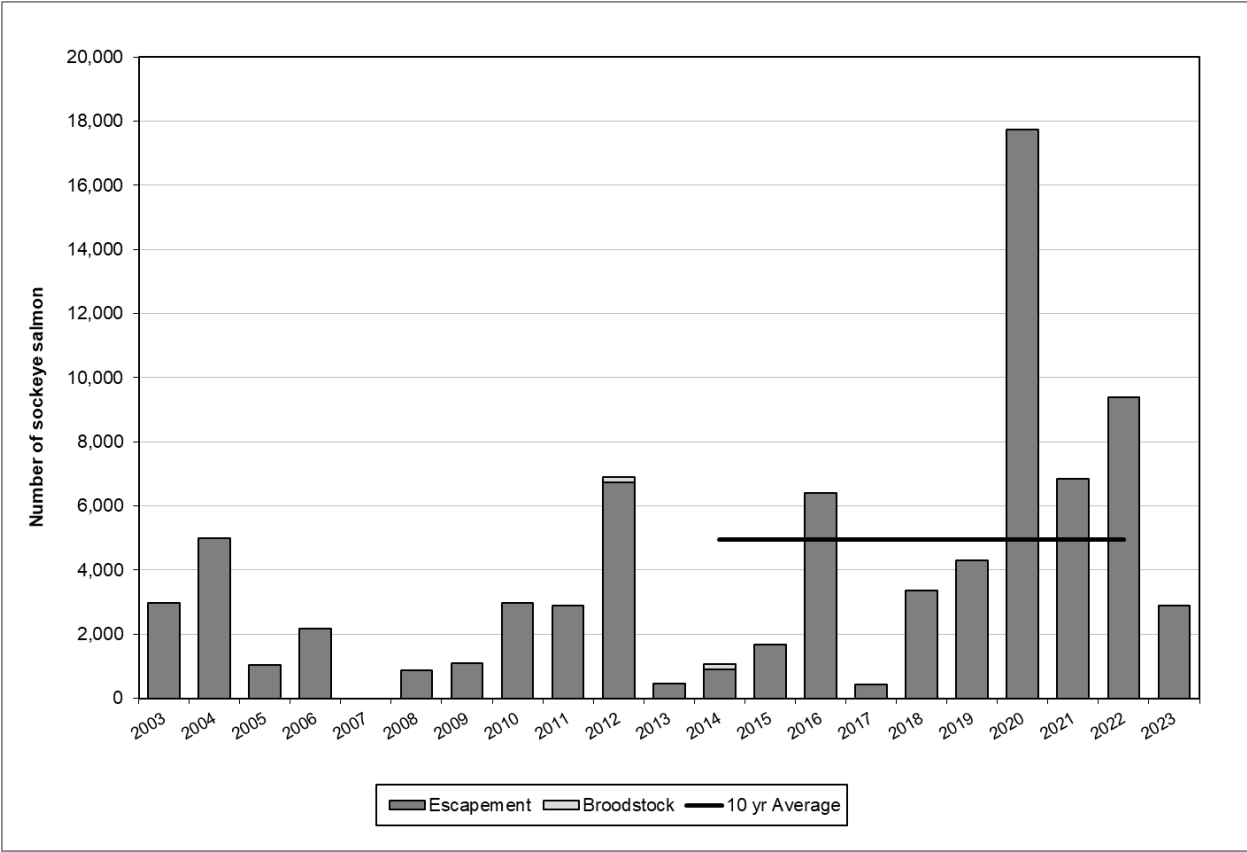


Figure 13.3-7: Weir counts of King Salmon Lake Sockeye, 2004 to 2023. Based on weir counts except for 2003 (boat survey), 2009 and 2011 (aerial survey expansions); no estimate in 2007.

13.3.8.3 COHO SALMON

The assessment program for Taku Coho salmon in 2024 is expected to include the following:

- A mark-recapture program with marking in the lower Taku River (Canyon Island) and recovery in Canadian fisheries to provide in-season projections and post-season estimates of in-river run size, escapement, and overall age and size composition. In-river run estimates are combined with estimates of U.S. catches of Taku Coho in troll, sport and net fisheries to produce estimates of the terminal and total run size of Taku Coho salmon (Figure 13.3-8);
- Sampling in Canadian and US gillnet fisheries to determine age and size composition of harvest and contributions of enhanced stocks (US fisheries only) and to recover CWTs;

13.3 TAKU RIVER SALMON FISHING PLAN

- Potential Coho salmon live release in-river sampling to recover tags to allow continuation of run size estimates if Canadian fisheries cease prior to end of mark recapture program;
- A CWT program to provide smolt production estimates associated with brood year escapement estimates, ocean survival, harvest rates and stock identification and contributions within the marine fisheries;
- Spawning ground sampling to continue development of a genetic stock identification baseline.

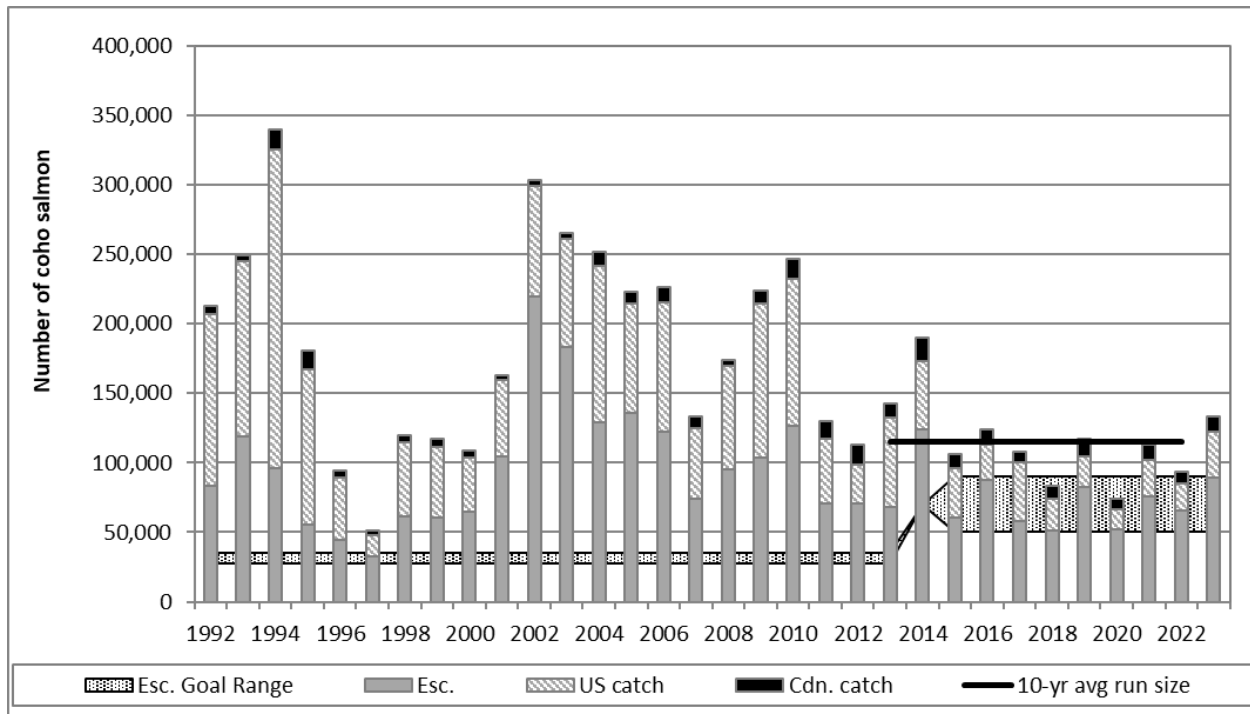


Figure 13.3-8: Estimated total run size of Taku River Coho salmon, 1992 to 2023.

13.3.8.4 PINK AND CHUM SALMON

The assessment program for Taku River Pink and Chum salmon in 2024 primarily involves monitoring catches and effort in Canyon Island fish wheels and live-release gill nets, i.e. the gear used for the Chinook, Sockeye and Coho mark-recapture programs. The CPUE from these sites has provided an indication of inter-annual variations in abundance although it is recognized that results can be variable, for example, due to water levels.

13.3.9 TAKU RIVER POST SEASON REVIEW

A comprehensive post season review is conducted annually by the Transboundary Technical Committee (TTC) for the Transboundary Panel and the Pacific Salmon Commission (PSC). An initial document with preliminary estimates is prepared for the Transboundary Panel and PSC in the fall. Once analyses have been finalized, final reports are submitted to the PSC for general distribution. Results of the 2023 TTC review appear in:

Transboundary Technical Committee. In prep. *Preliminary estimates of Transboundary river salmon production, harvest and escapement and review of joint enhancement activities in 2023*. Pacific Salmon Commission.

The following sections summarizing the 2023 season are based substantially on the results of the TTC post season review and any recent updates.

13.3.9.1 CONSERVATION

As summarised in Table 13-19, Sockeye salmon escapement in 2023 exceeded the management objective of 58,000 fish and the spawning escapement goal range (Figure 13.3-3). Coho salmon escapement in 2023 exceeded the management objective of 70,000 fish, and was very near the upper bound of the spawning escapement goal range (Figure 13.3-8). For Chinook salmon, the 2023 escapement estimate of 14,755 large fish was well below the management objective of 25,500 fish and the spawning escapement goal range. Due to 2023 changes in the Canyon Island fish wheel operations, the catch of Pink salmon in the cannot be compared to past averages, but abundance appeared to be above the odd-year average while we are unable to make a determination for Chum salmon.

Table 13-19: Escapement goals vs. estimated escapement for Taku River salmon in 2023.

Species	Escapement Goal Ranges		2023 Escapement	Escapement Goals Met?
	from	to		
Sockeye	40,000	75,000	101,518	Exceeded
Coho	50,000	90,000	89,022	Met
Chinook (large)	19,000	36,000	14,755	Not Met
Pink			7,097 ^a	Unknown
Chum			61 ^a	Unknown

^a Based on Canyon Island fish wheel catches.

13.3.9.2 FIRST NATION FISHERY

There were no restrictions to the TRT First Nation fishing activities in 2023 and the TRT First Nation had first priority to harvest fish for FSC purposes as presented in Table 13-20. However, BNA allocations were not achieved for Chinook, Sockeye and Coho salmon.

Table 13-20: Taku First Nation FSC Harvest vs. Basic Needs Allocation, 2023.

Species	BNA	Actual FSC Harvest	Priority Fishery
Chinook	500	25 large, 29 small	Yes
Sockeye	2,000	428	Yes
Coho	750	353	Yes
Pink	NA	0	NA
Chum	NA	0	NA

13.3.9.3 RECREATIONAL FISHERY

Zero large Chinook salmon were harvested in recreational fisheries in 2023 due to the in-season restrictions in place resulting from the poor return. Catches of the other salmon species were believed to be negligible.

13.3.9.4 COMMERCIAL FISHERY

Based on TTC pre-season recommendation to the Panel, there was no Chinook salmon assessment fishery in 2023. Additionally, the directed commercial Chinook fishery was not opened. The directed commercial Sockeye fishery commenced Wednesday, July 02 (SW 27) and continued through to mid-August (SW33). The use of set nets was prohibited until stat week 28, maximum mesh size restriction of 14 cms (5.5 inches) to stat week 30. The directed Coho salmon fishery took place beginning Sunday, August 20 (SW 34) through September 18 (SW 38).

The commercial harvest of 17,040 Sockeye salmon was above the previous decade (2013-2022) average of 22,776 fish. The total commercial Chinook salmon incidentally caught and released during the Sockeye fishery consisted of 147 large fish, and 164 non-large fish. The catch of 11,034 Coho salmon was below the previous ten-year average (2013-2022) of 9,684 fish.

13.3.9.5 PST HARVEST SHARING PERFORMANCE

In 2023, fisheries on the Taku River were managed with the objective of achieving harvest sharing arrangements outlined in the Transboundary Rivers Chapter of the PST. General PST performance is summarized in Table 13.3-9.

Table 13-21: Harvest sharing report card for Taku River salmon, 2023.

Species	Component	2023 PST-based allocation - Canada	2023 Actual - Canada	Harvest within Catch Allocation?
Chinook	Directed catch	0	0	yes
	BLC- traditional fisheries	1,500	25	yes
	BLC – assessment fishery	0	0	yes
Sockeye	%TAC (Taku wild)	23%	15%	
	Catch (wild)	23,599	15,131	yes
	Catch (enhanced)		1,909	
Coho	Catch	16,503	11,387	yes

[Note: obligations in bold].

13.3.9.5.1 Chinook Salmon

The pre-season forecast of 23,000 large Chinook salmon did not meet the threshold for allowing directed Chinook salmon fisheries early in the season. In past years, when the preseason forecast or in-season projections have indicated no AC, the commercial fishery has operated in an assessment mode and served as the assessment fishery identified in the PST agreement. In 2023, as in the previous years, the preseason forecast did not warrant an assessment fishery and the Panel did not recommend it as a result. As such, the preseason forecast was used to make necessary adjustments in the other fisheries with the intention of eliminating the harvest of Chinook salmon. Canadian “traditional” catches were below the Treaty-specified allowances for Base Level Catches (BLC) of 1,500 for Canada. The Canadian commercial fishery was not permitted to retain Chinook salmon in 2023. The BLC included the following: 0 large Chinook salmon harvested as bycatch during the commercial Sockeye and Coho salmon fisheries; 25 large Chinook harvested in the FSC fishery; and no harvest in the recreational fishery. The spawning escapement benefitted from the BLC’s which were not fully subscribed. The escapement of 14,755 large Chinook salmon was well below the escapement goal range of 19,000 to 36,000 fish.

13.3.9.5.2 Sockeye Salmon

The post-season estimate of the terminal run of Taku Sockeye salmon was 172,149 fish comprised of 160,606 wild, and 11,543 enhanced Sockeye salmon. Based on the 2023 management objective of 58,000 wild Sockeye, the TAC of wild fish was 114,149 fish. According

to the PST harvest sharing arrangements, Canada's share of the TAC of wild Sockeye was 23% given the enhanced production fell in the 5,001-15,000 fish range (Table 13-15). An additional 1,909 enhanced Sockeye contributed to the overall Canadian catch.

Overall, the harvests of Taku Sockeye salmon left a spawning escapement of 96,044 wild fish which was above the upper end of the 2023 escapement goal range (40,000 to 75,000 fish).

13.3.9.5.3 Coho Salmon

The 2023 post season estimate of Coho salmon returning to the Canadian portion of the drainage was 100,409 fish. This translated into an allowable Canadian fishery harvest of 16,503 Coho salmon. The actual harvest of 11,387 Coho salmon included: 2,634 Coho salmon taken in the directed commercial Sockeye salmon fishery; 8,400 Coho salmon taken during the directed Coho salmon commercial fishery; 353 taken in the First Nation fishery. This left a spawning escapement of 89,022 Coho salmon which was within the escapement goal range of 50,000-90,000 fish and above the management objective of 70,000 Coho salmon

13.3.9.6 PST ENHANCEMENT PERFORMANCE

In January 2024, the Transboundary Rivers Panel reviewed performance relative to the 2022 Taku Enhancement Production Plan (TEPP). The review included an evaluation of activities conducted in the summer and fall of 2022 (egg takes and extended rearing trials) and the 2023 outcomes of those activities (fry outplants from brood year 2022). Through this review, the 2022 TEPP was deemed complete. The primary elements of the review are as follows:

13.3.9.6.1 Tatsamenie Lake

Objectives:

- Collection target of 30% of available adult Sockeye salmon broodstock (up to 3.0 million eggs) in the fall of 2022;
- 2023 releases of fry from 2022 brood year collections (majority to be released as unfed fry in spring; 500,000 fry to be held for extended rearing and released in summer).

Activities/Outcomes:

- 2.1 million Sockeye salmon eggs were collected and delivered to the Port Snettisham Hatchery in September 2022.
- Fry were thermally marked and there were 0.2 million fry were lost to IHNV;
- Green-egg to fry survival was 65.5%;

- 1.5 million fry were delivered from Port Snettisham to Tatsamenie Lake. Of these 1.3 million were released unfed directly into lake in late May, and 0.2 million were reared in net pens from May 24 to June 28, 2023, and released at 1.7g (approximately 5 to 6 weeks shorter duration rearing time than previous rearing trials).

13.3.9.6.2 Trapper Lake

Objectives:

- Collection target of up to 1.0 million Little Trapper Lake Sockeye eggs in the fall of 2022.
- Release subsequent fry to Trapper Lake for ongoing enhancement program evaluations.

Activities/Outcomes:

- 994,900 Sockeye salmon eggs were collected and delivered to the Port Snettisham Hatchery in September 2022;
- Fry were thermally marked and there were no losses to IHNV;
- Green-egg to fry survival was 49%;
- 487,300 fry were direct released into Trapper Lake.

APPENDIX I: LOGBOOK SAMPLES

Sample Record of Release

Page 1:

Record of Released Fish		Year: <u>2022</u>	
Taku River Commercial Fishery		Method (CIRCLE):	DRIFT SET
Licence # <u>ATBR 770xxx</u>	Fisher (Print): <u>John Doe</u>		
Week Starting (Sunday) → (Calendar Date) CIRCLE MONTH AND DAY:			
April	May	1	2 3 4 5 6 7 8 9 10
June	July	11 12 13 14 15 16	17 18 19 20
August	September	21 22 23 24 25 26 27 28 29 30	
October		31	
Day of Fishery (Circle):	→	1 2 3 4 5 6 7	
Example → Day 1 of fishery opening (Sunday noon to Monday noon)			
On the opposite side of this sheet record per day the number of fish released by species. If there is not a species column identified; record the number of the fish released in the "other" column and write the species beside it.			

Page 2:

Drift/ Pick	Pink	Chum	Steelhead	Dolly Varden	Other (Identify)
•		1			2 Chinook
•	2		2		3 Chinook
•					
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APPENDIX II: LONGER TERM COMMERCIAL FISHERY 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:

Longer term closure; or,

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 1. 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.

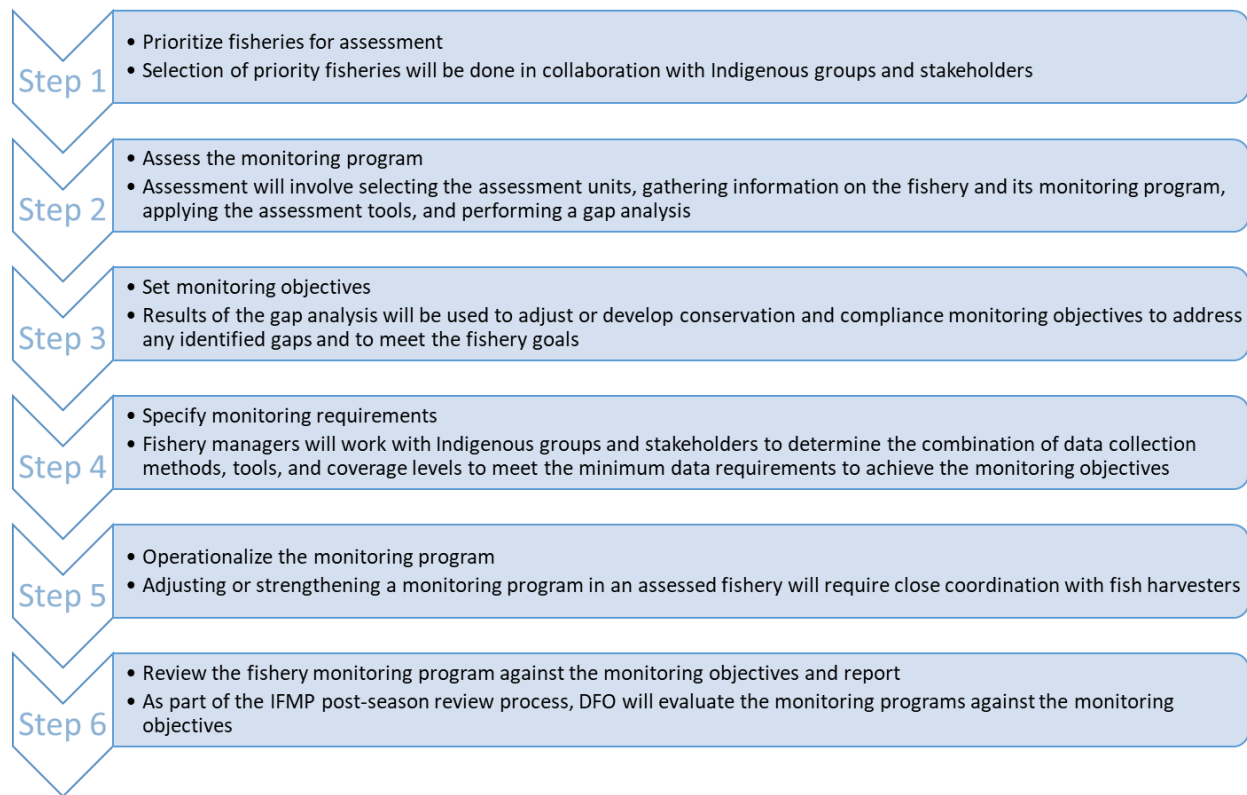
For any commercial fisheries that are closed, the allocations will remain with the original fleet and fish will be allowed to pass to spawning grounds. Opportunities for additional commercial harvest may be considered in locations where stocks of concern will not be encountered.

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.

Appendix Table 1: Transboundary Longer Term Closures or Mitigation

Transboundary IFMP		For 2024/25		
Fishery	Stocks of Conservation Concern present in fishery	A) Longer Term Commercial Fishery Closure	B) No Longer Term Closure and Additional Mitigation Measures	Additional considerations
Stikine Chinook	Target SoC: Chinook (Stikine) – Stock consistently below escapement goal. By-catch SoC: none	Option A) Longer term closure	Additional mitigation not possible	Long-term decline.
Taku Chinook	Target SoC: Chinook (Taku) - Stock consistently below escapement goal. By-catch SoC: none	Option A) Longer term closure	Additional mitigation not possible	Long-term decline.
Alsek Chinook	Target SoC: none By-catch SoC: Sockeye (Alsek - Klukshu) - Stock does not consistently meet escapement goal.	Option A) Longer term closure	Additional mitigation not possible	Low abundance – no commercial fishery.
Alsek Sockeye	Target SoC: none By-catch SoC: Chinook (Alsek - Klukshu) - Stock does not consistently meet escapement goal.	Option A) Longer term closure	Additional mitigation not possible	Low abundance – no commercial fishery.



Appendix Figure 1: Procedural steps for implementing the national Fishery Monitoring Policy

In 2015, DFO partnered with the Monitoring and Compliance Panel to identify round 1 priority fisheries in Pacific Region to undertake risk assessments under the Strategic Framework. Thirteen draft risk assessments for commercial salmon fisheries were drafted internally by the Department in late 2018/early 2019 and released in the 2019-20 North and South Coast Salmon IFMP's for consultation. Feedback received during the 2019-20 IFMP consultation process included concern over inaccurate and inconsistent scoring and lack of transparency and inclusivity in the process. This feedback was reviewed internally by DFO at the regional level and incorporated where possible. To further ensure accuracy and consistency in scoring, two contractors were hired to complete independent reviews of the draft commercial risk assessments. After reviewing the changes made to the draft assessments as a result of this process with the Commercial Salmon Advisory Board and Area Harvest Committees, and considering the development and finalization of the national *Fishery Monitoring Policy*, a decision was made to reassess the fisheries evaluated under the Strategic Framework before proceeding with publishing the final risk assessments. Future fishery assessments will proceed under the national *Fishery Monitoring Policy*.

To discuss the new national *Fishery Monitoring Policy* with regional staff, please contact the Regional Fisheries Monitoring Coordinator, Caroline Wells, at Caroline.Wells@dfo-mpo.gc.ca or 778-939-8503. Feedback and questions are welcomed, as your contributions and participation are valuable to the implementation of this national policy.